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## I – ORGANISATION & AWARDS FOR EXCELLENCE

IUPAP was established in 1922 at Brussels with 13 Member countries. An outline of the history of IUPAP is given on the website (Document: IUPAP-70).

The Union is composed of Members representing identified physics communities. Adhering bodies act through their Liaison Committees. Delegates from these Committees meet in the General Assemblies of the Union which are held every three years. The General Assembly appoints the Members of the Executive Council and various International Commissions, and nominates representatives to serve on various inter-union bodies. The Council usually meets once each year.

### General Assemblies were held:

1923 - Paris	1925 - Brussels	1931 - Brussels	1934 - London
1947 - Paris	1948 - Amsterdam	1951 - Copenhagen	1954 - London
1957 - Rome	1960 - Ottawa	1963 - Warsaw	1966 - Basle
1969 - Dubrovnik	1972 - Washington	1975 - Munich	1978 - Stockholm
1981 - Paris	1984 - Trieste	1987 - Washington	1990 - Dresden
1993 - Nara	1996 - Uppsala	1999 - Atlanta	2002 - Berlin
2005 - Cape Town	2008 - Tsukuba	2011 - London	

The Union adheres to the International Council for Science (ICSU), which is a non-governmental organisation with a global membership of 120 national scientific bodies and 31 International Scientific Unions. The President of ICSU (2011-2014) is Yuan Tseh Lee (China: Taipei) and the Secretary-General is David Black (Australia). See the website: [www.icsu.org](http://www.icsu.org)

ICSU has a small grants system, and its 25 Union Members may apply for a grant. Preference is given to projects which build scientific capacity in the ICSU regions (Africa, Latin American and the Caribbean, and Asia and the Pacific). In 2012 IUPAP received an ICSU small grant in support of the African School of Electronic Structure Methods and Applications (ASESMA) held in Eldoret, Kenya, in June 2012. Strengthening networking, collaborations and mobility involving African scientists during the period of time between the 2012 and 2014 Schools is one of the main aspects of the project which will be supported by the ICSU grant.

## **IUPAP-Sponsored Awards**

The Union sponsors 11 awards for excellence.

### **The IUPAP-TIFR Homi Bhabha Award:**

2011 - Sir Arnold Wolfendale, Durham University, UK (C4)

### **The Young Scientist Prize**

**The IUPAP Young Scientist Prize approved and adopted at the 2005 General Assembly for all Commissions:**

2012 - Pierre Cladé (C2)  
2012 - Ryan Ringle (C2)  
2012 - Alberto Amo (C8)  
2012 - Suchitra Sebastian (C9)  
2012 - Andrew D. Christianson (C10)  
2012 - Teppei Katori (C11)  
2012 - Phillip Urquijo (C11)  
2012 - Ian Spielman (C15)  
2012 - Ian Chapman (C16)  
2012 - Ivan Corwin (C18)  
2012 - Wojciech de Roeck (C18)  
2012 - Alessandro Giuliani (C18)  
2012 - Alexander J. van der Horst (C19)  
2012 - Roger G. Melko (C20)  
2012 - Nirit Dudovich (AC1)

2011 - Jose Alfredo Bellido Ceceres (C4)  
2011 - Viviana Scherini (C4)  
2011 - Eunseong Kim (C5)  
2011 - Max Hofheinz (C5)  
2011 - Mika Sillanpää (C5)  
2011 - Young-Woo Son (C8)  
2011 - Marcos Rigol (C10)  
2011 - Ian Spielman (C15)  
2011 - Ilya Dodin (C16)  
2011 - Pavlos Lagoudakis (C17)  
2011 - Daisuke Nagai (C19)  
2011 - Stefano Curtarolo (C20)  
2011 - Goëry Genty (AC1)

2010 - Till Rosenband (C2)  
2010 - Davide Marenduzzo (C3)  
2010 - Pablo Jarillo-Herrero (C8)  
2010 - Yuanbo Zhang (C8)  
2010 - Feng Wang (C10)  
2010 - Florencia Canelli (C11)  
2010 - Jose Santiago (C11)  
2010 - Kenji Fukushima (C12)  
2010 - Peter Mueller (C12)  
2010 - Lijuan Ruan (C12)  
2010 - Jeremy O'Brien (C15)  
2010 - Matthew Hole (C16)  
2010 - Poonam Chandra (C19)  
2010 - Thomas Schweizer (C19)  
2010 - Philipp Werner (C20)  
2010 - Shuang Zhang (AC1)

2009 - Gang Li (C4)  
2009 - Michael Unger (C4)  
2009 - Sergio O. Valenzuela (C9)  
2009 - Eiji Saitoh (C9)  
2009 - Takashi Kimura (C9)  
2009 - Johan Mauritsson (C15)  
2009 - Timo Gans (C16)  
2009 - Simone Warzel (C18)  
2009 - Rupert L. Frank (C18)  
2009 - Benjamin Schlein (C18)  
2009 - Thomas Schweizer (C19)  
2009 - Amanda S. Barnard (C20)  
2009 - Eleftherios Goulielmakis (AC1)  
2009 - Leif Schröder (AC4)

2008 - Sebastien Bize (C2)  
2008 - Frank Herfurth (C2)  
2008 - Dai Aoki (C5)  
2008 - Kostya Novoselov (C5)  
2008 - Viktor Tsepelin (C5)  
2008 - Lieven Vandersypen (C8)  
2008 - Kai-Feng Chen (C11)  
2008 - Yasaman Farzan (C11)  
2008 - Cheng Chin (C15)  
2008 - Michael Van Zeeland (C16)  
2008 - Eiichiro Komatsu (C19)  
2008 - Naoki Yoshida (C20)

2007 - Giulio Biroli (C3)  
2007 - Tomohiro Sasamoto (C3)  
2007 - Maximo Ave (C4)  
2007 - Stephanus Ferreira (C4)  
2007 - Habib Zaidi (C6)  
2007 - Yuri A. Litvinov (C12)  
2007 - Rainer J. Fries (C12)  
2007 - Kimiko Sekiguchi (C12)  
2007 - Robin Santra (C15)  
2007 - Pascal Chabert (C16)  
2007 - Stefano Sanvito (C20)

2006 - Satoshi Okamoto (C9)  
2006 - Siddharth Shanker Saxena (C9)  
2006 - Marta Burgay (C19)  
2006 - Ali A. Mowlavi (AC4)

**The SUNAMCO Medal, given by the International Commission on Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants (C2):**

2012 - Ian M. Mills  
2008 - Heinz-Jürgen Kluge and Georg Bollen, and to D.E. Pritchard  
2004 - A. H. Wapstra, Senior SUNAMCO medallist  
2001 - C. A. Hamilton and T. W. Hänsch  
2000 - Mr. I. Harvey  
1998 - T. Kinoshita and GSI (Gemeinschaft für Schwer-Ionforschung, Darmstadt)  
1996 - E. R. Cohen  
1992 - B. P. Kibble and H. E. Duckworth  
1991 - R. D. Deslattes

1990 - Bureau International des Poids et Mesures (BIPM)

**The Boltzmann Medal, awarded by the International Commission on Statistical Physics (C3):**

2010 - J. Cardy and B. Derrida  
2007 - K. Binder and G. Gallavotti  
2004 - E. G. D. Cohen and H.E. Stanley  
2001 - B. J. Alder and K. Kawasaki  
1998 - E. Lieb and B. Widom  
1995 - S. Edwards  
1992 - J. L. Lebowitz and G. Parisi  
1989 - L. P. Kadanoff  
1986 - D. Ruelle and Y. Sinai  
1983 - M. Fisher  
1980 - R. J. Baxter  
1977 - R. Kubo  
1975 - K. Wilson

**The Fritz London Award, given by the International Commission on Low Temperature Physics (C5):**

2011 - H. Maris, H. Mooij, G. Schön  
2008 - Y. M. Bunkov, V. V. Dmitriev, I. A. Fomin  
2005 - S. Balibar, J.C. S. Davis, R. Packard  
2002 - R. J. Donnelly, W. Hardy, and A. M. Goldman  
1999 - D. Brewer, W. Ketterle, and M. Krusius  
1996 - M. H. W. Chan, E. Cornell and C. Wieman  
1993 - D. S. Greywall, H. Meyer and A. Schmid  
1990 - A. Larkin, Drs. P. C. Hohenberg and R. C. Dynes  
1987 - J. Clarke, J. Kondo, J. G. Bednorz and K. A. Müller  
1984 - W. Buckel, O. V. Lounasmaa and D. J. Thouless  
1981 - A. J. Leggett, J. D. Reppy and I. Rudnick  
1978 - W. L. Macmillan, J. M. Rowell and G. Ahlers  
1975 - J. C. Wheatley  
1972 - A. Abrikosov  
1970 - B. D. Josephson  
1968 - W. M. Fairbank  
1966 - C. J. Gorter  
1964 - D. Shoenberg  
1962 - J. Bardeen  
1960 - L. D. Landau  
1958 - N. Kurti

**The Young Author Best Paper Award, established by the International Commission on Semiconductors (C8) and sponsored by the semiconductor industries of USA, Japan and Europe:**

2010 - Yael Benny, Justin Weber, Arun Mohan, Arne Laucht, Shuji Nakamura, Amir Nevet, Igor Aharonovich

2008 - A. Amo, M. Hashisaka, A. Hayat, M. Kaniber, N. Lanzillotti-Kimura, M. Leite, P. Rauter, D. Spirkoska, A. Werpachowska

2000 - K. Hannewald, D. Jena, H.-S. Im, V. Tuerck, and J. D. Heber

1998 - G. Biasiol, S. Bose, R. Crook, E. Dekel, R. de Picciotto, B.A. Glavin, D. Goldhaber-Gordon, L.E. Golub and C.M.A. Kapteyn

1994 - H. Ajiki, H. F. Ghacmi, S. Gunji, K. Itoh, C. Lavoie, D. Leonard, F. Rossi and C. Waschke

1992 - Y. Jin, X.K. Lu, W. Quade, T. Tomaru, T. Tsuchiya, H. L. Vaghjiani and J. K. Wang.

1990 - F. Beltram, P. Bloechl, T. Egeler, M. Fujii, L. Kouwenhoven, M. Noguchi, D. Nolte and J. Peretti

**ICM Award in Magnetism, established by the International Commission on Magnetism (C9):**

2012 - Sadamichi Maekawa

2012 - Yoshinori Tokura

2009 - Stuart S.P. Parkin

2006 - J.C. Slonczewski

2003 - G. Aeppli, H. Ohno and D.D. Awschalom

2000 - F. Steglich

1997 - R. J. Birgeneau

1994 - A. Fert/P. Grunberg

1991 - A.J. Freeman

**The ICPE Medal, established by the Commission on Physics Education (C14):**

2012 - E. F. Redish

2011 - The Lady Cats

2010 - G. Tibell

2009 - A. L. Ellermeijer

2008 - UNESCO

2007 - P.Laws

2006 - J.Ogborn

2005 - S. Sjoberg

2003 - L.Viennot

2002 - T. Ryu, and L. McDermott

2000 - P. Black

1998 - D. Nachtigall

1997 - G. Marx

1995 - L. Jossem

1992 - N. Joel

1991 - International Physics Olympiad

1987 - J.L.Lewis

1985 - V. F. Weisskopf

1983 - J. R. Zacharias

1981 - P. Kapitza

1980 - E. M. Rogers

**Penning Award for Excellence in Low-Temperature Plasma Physics, established by the International Commission on Plasma Physics (C16):**

1995 - J. E. Lawler

1993 - Ju. P. Raizer

1991 - A. von Engel

**ICO Prize, awarded by the International Commission for Optics (AC1):**

2011 - Nicholas X. Fang

2010 - Reinhard Kienberger

2009 - Menon Rajesh

2008 - Zeev Zalevsky  
2007 - Susana Marcos  
2006 - Hideyuki Sotobayashi  
2005 - Immanuel Bloch  
2004 - Ashok V. Krishnamoorthy  
2003 - Benjamin J. Eggleton  
2001 - Nabeel A. Riza  
2000 - Stefan W. Hell  
1999 - Hugo Thienpont  
1998 - David Mendlovic and Haldun Özaktas  
1997 - Andrew M. Weiner  
1996 - Vladimir Buzek  
1995 - Tony F. Heinz  
1994 - Emmanuel Desurvire  
1993 - Aleksander K. Rebane  
1992 - Wolfgang Peter Schleich  
1991 - David A.B. Miller  
1990 - Rosario Martinez-Herrero  
1989 - Demetri Psaltis  
1987 - Alain Aspect  
1986 - Kensuke Ikeda  
1985 - Sergei I. Stepanov  
1984 - J.Christopher Dainty  
1983 - James R. Fienup  
1982 - Antoine Labeyrie

**ICO Galileo Galilei Award, awarded by the International Commission for Optics (AC1):**

2011 - Jan Peřina  
2010 - Mohammad Taghi Tavassoly  
2009 - Marat S. Soskin and Dumitru Mihalache  
2008 - Joewono Widjaja  
2007 - Oleg V. Angelsy  
2006 - Mohammed M. Shabat  
2005 - Valentin Vlad  
2004 - Milivoj Belic and Caesar Saloma  
2003 - Cid B. de Araujo  
2002 - Rashid A. Ganeev  
2001 - Kehar Singh  
2000 - Vladimir P. Lukin  
1999 - Mario Garavaglia  
1998 - Ajoy K. Ghatak  
1997 - Natalyia D. Kundikova  
1996 - Daniel Malacara  
1995 - Rajpal S. Sirohi  
1994 - Ion N. Mihailescu

**IUPAP and its International Commissions issue the following publications:**

**IUPAP GENERAL REPORT:** Published after each General Assembly.

**NEWS BULLETIN:** Contains Union news.

### **IUPAP CONTACT INFORMATION**

For policy issues, please contact the Secretary General. For administrative or any other matters, please contact the Secretariat. Details for both are below.

**Secretary General  
Stuart Palmer**

Email: [secgen.iupap@iop.org](mailto:secgen.iupap@iop.org)

**Secretariat**

**Williamina Lazaro**

IUPAP Secretariat

76 Portland Place

London

W1B 1NT

United Kingdom

Tel: +44 (0)20 7470 4849

Fax: +44 (0)20 7470 4861

Email: [admin.iupap@iop.org](mailto:admin.iupap@iop.org)

**Web site: <http://www.iupap.org/>**



## **II - THE STATUTES OF THE INTERNATIONAL UNION OF PURE AND APPLIED PHYSICS** (as adopted by the General Assembly - 2011)

### **I. MISSION**

- A. The mission of IUPAP is to assist in the worldwide development of physics, to foster international cooperation in physics, and to help in the application of physics toward solving problems of concern to humanity.
- B. IUPAP carries out this mission by sponsoring international meetings; fostering communications and publications; encouraging research and education; fostering the free circulation of scientists; promoting international agreements on symbols, units and nomenclature; and cooperating with other organizations on disciplinary and interdisciplinary problems.

### **II. MEMBERSHIP**

- A. The Members of IUPAP are communities of physicists engaged in independent scientific activity each within a definite territory and listed under a name that avoids any misunderstanding about the territory represented. The word "territory" does not imply any political position on the part of the Union which seeks to assist physicists everywhere in carrying out its mission.
- B. A Member adheres to the Union through an appropriate body: either its principal scientific academy, or its national research council, or any other institution or association of institutions representing its broad physics community or, failing these, its government.
- C. The Adhering Body will set up a Liaison Committee to maintain relations between its physics community and the Union. These Liaison Committees will, within their respective communities, encourage and promote the aims of the Union. An Adhering Body through its Liaison Committee designates its Delegates to the General Assemblies of the Union and a Delegation Head.
- D. The Union may accept as Observers, regional physical societies and other international physics organizations. Observers may be invited to send a representative to Council meetings and General Assemblies but have no voting privileges.

### **III. GENERAL ASSEMBLY**

- A. The General Assembly is the highest governing body of the Union. It:
  - 1. Creates and amends these Statutes (requires a two-thirds majority of those present).
  - 2. Sets and amends the procedural By-laws (requires a three-fifths majority of those present).
  - 3. Elects the Executive Council that oversees Union activities between General Assemblies.
  - 4. Elects members of its Commissions.
  - 5. Sets the members' dues.
- B. The General Assembly may:
  - 1. Set policy.
  - 2. Establish or disestablish Commissions that are assigned specific tasks in their charter, and elect their members.
  - 3. Recognize a group of scientists outside of the Union as an Affiliated Commission.
  - 4. Decide to participate in interdisciplinary or other international scientific bodies.
  - 5. Accept new members.

- C. The General Assembly meets every three years. The Council will call special meetings at the request of one-third of the members, or at its own request.
- D. The President presides over the General Assembly. The Secretary-General is responsible for making a record of all activities.
- E. Election procedures are specified in the By-laws.
- F. A quorum of the General Assembly consists of sufficient members to produce two-thirds of all votes.

#### **IV. ADMINISTRATION**

- A. An Executive Council (the Council) oversees and administers the activities of the Union between General Assembly meetings. It normally meets at least once per year.
- B. The Council is composed of the President, President-Designate, ten Vice Presidents, the Secretary-General and the Associate Secretary-General; all elected by the General Assembly, plus the immediate Past President. At least one of the members shall be from a developing country.
- C. The term of office of Councillors normally begins and ends at the end of each General Assembly. In exceptional circumstances the General Assembly may extend the term of office.
- D. The President may not be re-elected. The President-Designate normally will be elected to the Presidency. Five of the Vice Presidents shall be elected at large and may be re-elected once. Five Vice Presidents shall be elected from among the Chairs of the Commissions. Consideration shall be given to an appropriate sub-disciplinary balance on the Council. If the President is unable to serve, the President-Designate shall assume the Presidency. The Council may fill any other vacancy that occurs between General Assemblies.
- E. The Council has all of the authority of the General Assembly between General Assemblies except those items specified in Section III of these statutes, subject to ratification at the next General Assembly. It may fill vacancies in the Commissions that occur between General Assemblies.
- F. The Secretary-General carries out the Administration of the affairs of the Union with the assistance of the Associate Secretary-General.
- G. The Council shall appoint an auditor to certify an annual financial report.

#### **V. COMMISSIONS**

- A. The Commissions promote the objectives of the Union within their areas of expertise and provide advice to IUPAP on the activities and needs of the subfields of physics they represent.
- B. The Commissions are elected according to procedures specified in the By-Laws. Affiliated Commissions are groups of scientists recognized by the General Assembly but appointed by other scientific bodies.

#### **VI. FUNDING**

- A. A Member joins the Union with a number of shares negotiated by the Council and approved by the General Assembly. A Member's dues are equal to the number of shares multiplied by the dues per share determined by the General Assembly.
- B. Dues are payable on the first day of each year, and are the responsibility of the Adhering Bodies.

- C. A Member in arrears for three years loses its right to vote in the General Assembly. A Member in arrears for six years is excluded from the Union. Any member ceasing to belong to the Union forfeits all rights to Union assets.
- D. In exceptional circumstances, the Council may make a temporary adjustment to a Member's dues.
- E. Dues may be used to cover administrative expenses as well as carrying out activities in furtherance of the Mission of the Union.
- F. The Union may accept grants, contracts, and donations in furtherance of its Mission.

## **VII. GENERAL ASSEMBLY VOTING RIGHTS AND PROCEDURES**

- A. The number of votes of a Member is related to its number of shares as follows: one share gives one vote; two or three shares give two votes; four to six shares give three votes; seven to nine shares give four votes; ten to fifteen shares give five votes; sixteen or more shares give six votes.
- B. Members paying less than one share have no vote.
- C. The number of official delegates a Member has to the General Assembly is equal to its number of votes.
- D. Each Chair of a Commission or an Affiliated Commission, or, in the Chair's absence, its Vice-Chair or Secretary is an official delegate and has one vote.
- E. Members of the Council who are not also Commission Chairs do not vote, except that the President may vote to break tie votes.
- F. Motions concerning scientific issues will be decided by a majority of the individual official Delegates present and voting.
- G. On all other motions, the Heads of Delegations cast all of the Delegation's votes. The question is decided by a majority of votes cast.
- H. In the event of a question on the category of a motion, the President will decide.
- I. A Member whose Delegation is unable to attend may submit a written vote to the Secretary-General on any matter on the initial agenda. It must be received before the vote to be valid. It is not possible to extend this privilege to questions arising at the General Assembly.

## **VIII. DURATION OF THE UNION**

- A. The life of the Union is not limited.
- B. In the event of dissolution of the Union, requiring a two-thirds majority of the votes of the Members, the remaining assets of the Union will be allocated by the General Assembly to one or more educational, charitable or scientific organizations.

## **IX. DOMICILE**

- A. The legal domicile of the Union shall be Switzerland.

## **BY-LAWS**

(as adopted by the General Assembly - 2011)

### **I. GENERAL ASSEMBLY**

#### A. Location

1. The Council determines the site and date of a General Assembly and notifies the Members at least six months in advance.

#### B. Agenda

1. The Agenda of the General Assembly is to be sent to all Members at least three months in advance.
2. The Agenda may be modified at the General Assembly by a majority of the votes of the Members present.
3. All Commissions, Working Groups, Affiliated Commissions, and Inter-Union Committees shall make a written report. The Council shall designate any that are to make an oral presentation.

#### C. Observers

1. In addition to a Member's official Delegation, all other members of Liaison Committees may attend without vote.
2. The President may invite Guest Observers without vote as deemed appropriate

### **II. COMMISSIONS**

#### A. Membership

1. Commissions shall be composed of a Chair, Vice-Chair, Secretary and eleven other members.
2. Normally, there shall be no more than one commission member from any Member. Some Commissions may believe their work would be hindered by this rule. They may ask the Council for an exception. If the Council believes the exception is warranted, it will propose an exception to the General Assembly for ratification before the election.
3. Commissions may have important links to other Commissions, Scientific Unions or international organizations. Each Commission may propose to the Council up to four associate members. The Council will appoint associate members about one year after the election of regular members. Associate members do not vote at Commission meetings and are not eligible for IUPAP travel funds.
4. To the extent practical, at least one member shall be from the industry. If a Commission believes that this requirement is not practical, it shall inform the Council of its reasoning.
5. When new Commissions are formed the Council will make ad hoc arrangements for membership until the normal rotation of membership can be established.

#### B. Terms of Office

1. All elections are for a term of three years.
2. Chairs may not be re-elected to any position on the Commission beyond their term as Chair, and Vice Chairs/Secretaries may not be re-elected to the same positions nor be re-elected as an ordinary member - except in extraordinary circumstances, and, in such circumstances, special approval by the General Assembly is required. Ordinary members may be elected twice.
3. Normally the Secretary, Vice-Chair and Chair are to be chosen from among those who have served at least one term on the Commission.
4. Service in all capacities shall not exceed three terms.
5. The General Assembly may grant exceptions for those Commissions that undertake long-term projects or where continuity is particularly important.

### **III. ELECTION**

#### **A. Procedure**

##### **1. Nominations**

- a) A call for nominations to Commissions and the Council shall be sent to all Liaison Committees and Commissions at least six months before a General Assembly.
- b) Nominations from Liaison Committees must be received by the Secretary-General no later than four months before a General Assembly. Nominations from Commissions must be received no later than six weeks before a General Assembly. A statement of the candidate's qualifications sufficient to allow an evaluation of the candidate must accompany nominations. It is preferred that nominations be submitted electronically.
- c) The Council will prepare a slate of nominees for the Commissions and Council from the nominations and may itself suggest names (in which case a statement of qualifications will be prepared). Special consideration will be given to continuity, geographic distribution, and coverage of major sub-fields within the Commissions. Delegates will receive the slate of nominees at the start of the General Assembly.
- d) Liaison Committees may resubmit nominations at the General Assembly of persons not on the Council's slate, but these renominations must be supported by at least one other delegation. The Council then will prepare a final ballot with its recommendations and list any renominations for a position.
- e) It may be necessary because of unforeseen circumstances, such as the unavailability of a candidate, to make nominations at the General Assembly. If so, nominations can be made by the Heads of Delegations, Commission Chairs, or Members of the Council. Such nominations require a seconder.

##### **2. Elections**

- a) If more names are included on the final ballot than there are positions, the election will be by secret ballot. Each Delegation Head will vote its block of votes.
- b) Two tellers appointed by the General Assembly count votes. Assistance may be provided, if desired, by Secretariat personnel

### **IV. CONFERENCES**

#### **A. Sponsorship**

1. The Union may sponsor and contribute to the support of conferences related to its mission. The Council in consultation with the Commission Chairs grants sponsorship.

#### **B. Procedures**

1. The Council may set rules for sponsorship. Such rules should be clearly posted on the Union's website.
2. Liaison Committees should be promptly informed of conferences proposed to take place in their territory.

## **V. STATEMENTS**

### **A. Authority**

1. Statements in the name of IUPAP may only be made by majority vote of the General Assembly.
2. It may be necessary between General Assemblies for the Council to issue a statement on a pressing issue. The Council by majority vote may issue such statements in the name of the IUPAP Council.
3. Commissions may issue statements in their area of expertise subject to approval by the President.

## **Appendix A**

### **THE INTERNATIONAL COMMISSIONS FOR THE PERIOD 2011 – 2014**

(Each Commission is composed of a Chairman, a Vice-Chairman, a Secretary and eleven ordinary Members, all appointed by the General Assembly)

- C2. Commission on Symbols, Units, Nomenclature, Atomic Masses & Fundamental Constants (SUNAMCO)
- C3. Commission on Statistical Physics
- C4. Commission on Cosmic Rays
- C5. Commission on Low Temperature Physics
- C6. Commission on Biological Physics
- C8. Commission on Semiconductors
- C9. Commission on Magnetism
- C10. Commission on the Structure and Dynamics of Condensed Matter
- C11. Commission on Particles and Fields
- C12. Commission on Nuclear Physics
- C13. Commission on Physics Development
- C14. Commission on Physics Education
- C15. Commission on Atomic, Molecular, and Optical Physics
- C16. Commission on Plasma Physics
- C17. Commission on Quantum Electronics
- C18. Commission on Mathematical Physics
- C19. Commission on Astrophysics
- C20. Commission on Computational Physics

#### **AFFILIATED COMMISSIONS**

- AC1. International Commission for Optics
- AC2. International Commission on General Relativity and Gravitation
- AC3. International Commission for Acoustics (former Commission C.7)
- AC4. International Commission on Medical Physics

### **III – DRAFT MINUTES of the 27th General Assembly of IUPAP**

#### **1. Welcome**

- 1.1. IUPAP President Sukaketsu Ushioda welcomed everyone to the General Assembly in London. The last IUPAP GA in London was 57 years earlier (i.e. 1954). The upcoming presidency of Cecilia Jarlskog is historic as she is the first woman president in the entire history of the IUPAP. Katsu Ushioda congratulated the UK on the recent Nobel prizes in physics awarded to physicists from Manchester in recognition of their pioneering work on graphene.
- 1.2. Katsu Ushioda further extended his congratulations to pioneers from USA and Australia for their work on distant supernovae which has been awarded the 2011 Nobel Prize in Physics. He paid tribute to Jan Nilsson, former associate secretary, secretary general, and president of IUPAP, who recently passed away.
- 1.3. The president also thanked Judy Franz and Jackie Beamon whose help in establishing the new IUPAP Council and administration over the last 3 years has been most valuable. The turnover though has been rather high, with new members coming into council. It is against this backdrop that a proposal is being tabled to the GA to increase by two the number of Vice Presidents at Large (VPALs). Katsu Ushioda also thanked the secretariat of the IOP and for the IOP for contributing its resources to host the C&CC meeting together with the 27<sup>th</sup> General Assembly.

#### **2. Official UK Welcome by IOP President**

The IOP president, Sir Peter Knight officially welcomed the 27<sup>th</sup> IUPAP GA delegates to the UK.

#### **3. Recognition of previous officers, adoption of the agenda and approval of the minutes**

Katsu Ushioda presented gifts to outgoing officers as a token of appreciation in recognition of their services to the IUPAP over the previous three years. He then asked for adoption of the agenda and approval of the minutes of the 26<sup>th</sup> General Assembly in Tsukuba, Japan in 2008. This agenda was adopted without additional items, and the minutes were accepted with the following corrections, *viz* American Physical Society to be replaced by the European Physical Society on page 11.

#### **4. Presidential address**

- 4.1. Katsu Ushioda presented the history of the IUPAP, starting from its launch at the IRC meeting in 1922 with a total of thirteen countries announcing their adherence to the union. The first president was Sir William Bragg. The first General Assembly was held in Paris in 1923. Subsequently General Assemblies were held in 1925, 1931 and 1934. IUPAP was amongst the first unions to adhere to the new ICSU which was formed from the original IRC. IUPAP membership subsequently grew from 13 to 19. IUPAP General Assemblies resumed in 1947 after the end of World War II. The ICO was the first incorporated Commission.
- 4.2. IUPAP membership has grown by a total of 11 during the 6 year period covering the terms of the last two presidents. The IUPAP continues in its mission to assist worldwide development of physics, fostering international co-operation in physics, sponsoring international meetings, fostering communications and publications, and encouraging research and education.
- 4.3. IUPAP shares allocated to member states vary from 1 to 18, in a non-uniform structure of adhering bodies approximately related to the scale of the physics enterprise in those countries. The United States of America and Russia are the only two member states with 18 shares.
- 4.4. Katsu Ushioda briefly outlined the role of the IUPAP Commissions together with the four Affiliated Commissions. He listed a total of six working groups, *viz* WG1, WG2, WG4, WG5, WG7 and



WG9. The IUPAP executive council comprises the past president, president, president elect, secretary general, associate secretary general, 5 vice presidents selected from commission chairs (VPCs) and three vice presidents at large (VPLs)

4.5. The General Assembly remains the highest decision making body of the IUPAP.

## **5. Financial report**

5.1. Robert Kirby-Harris presented the financial report, showing the 2011 year-end forecasting a deficit of €31 000 which should be viewed against the available IUPAP reserves of approximately €1 million. The proposed 2012 IUPAP budget forecasts a deficit of €37 000 with an income of € 415 000 and an anticipated expenditure of € 468 000. The increase from €14 000 to €21 000 in the budget of the developing countries workshop is partially funded by the €5 000 originally set aside for the visiting scientist programme.

## **6. Proposal to increase membership dues (by 5%)**

6.1. Robert Kirby-Harris gave a background explanation of how important it is to bring the IUPAP budget and expenditure into alignment. He pointed out that the proposal to increase the membership dues has been supported by the Council, which had considered amongst others the fact that IUPAP membership dues have remained frozen for almost six years. Instead of a 5% increase for two years running, the General Assembly approved to implement a 3% annual increase for three years, followed subsequently by inflationary linked increase.

## **7. Proposal to increase the number of Vice presidents at Large**

7.1. Robert Kirby-Harris introduced the proposal to increase from three to five the number of vice presidents at large. Katsu Ushioda mentioned that currently the three vice presidents at large make it difficult to cover the geographical distribution. Introducing more vice-presidents at large will also ensure there is continuity within the Council as the term of office of the VPALs will be out of phase.

7.2. South Africa inquired if bringing in two more vice presidents at large could assist with balancing the budget provisions, to which question Robert Kirby-Harris replied in the affirmative.

## **8. Terms of office**

8.1. It has always been inherently understood to be in the spirit of the rules of the terms of office that the chair of a commission is not supposed to step back into the committee structure in the following terms. The current revision is an attempt to have this introduced and explicitly stated in the rules.

8.2. Ordinary members of commissions (should) serve no more than two terms in office.

8.3. Service in all capacities should not exceed 3 terms. The word continuous, which preceded the word service, was struck out.

8.4. The Council, and not the General Assembly as originally proposed, may grant exceptions for those Commissions that undertake long-term projects or where continuity is particularly important.

## **9. Presentation by Professor Sir Christopher Llewellyn Smith**

9.1. Professor Sir Christopher Llewellyn Smith, the president of SESAME Council and Director of Energy Research at Oxford University, gave a scientific presentation on Synchrotron Light for Experimental Science and Applications (SESAME). His presentation focussed on the third generation light source under construction near Amman, which is an initiative that seeks to foster science and technology in the Middle East, covering such diverse fields as biology, medical science, materials science engineering and technology.

- 9.2. Modelled along the lines of CERN, the SESAME initiative also seeks to address the fact that out of the 60 synchrotron facilities that exist throughout the world, none is located in the Middle East Region. This key project should be seen as contributing to the peaceful development of this region as well as its scientific purpose.
- 9.3. Scientists from countries with limited science budget provisions will be able to access the SESAME facilities through research collaborations and partnerships.

## 10. General Considerations on Working Groups

- 10.1. **ICFA:** The International Committee on Future of Accelerators was created in 1976 to facilitate collaborations in the construction of accelerators. Its main membership is derived from directors of major laboratories or specialists in linear accelerators. ICFA has played an important role since its establishment in 1976, receiving much of its specialist support from members of Commission 11. A booklet titled *Beacons of Discovery* is under preparation to provide a global picture of particle physics. Currently the main focus of ICFA is the broadening of linear colliders. Katsu Ushioda stated that the ICFA website has to be linked with that of IUPAP.
- 10.2. **Communications in Physics:** The Working Group 2 on Communications in Physics focusses on problems that are emerging in publishing. Currently the availability and reliability of the internet is of particular concern as it impacts negatively on the provision of an optimized and comprehensive networking of international facilities. Amongst its major activities, the working group held a workshop on peer review on 13 October 2011 which was attended by 40 participants. The need to attract more funding has been one of the obstacles identified by the working group. The working group would like to have a declaration from IUPAP emphasizing the importance of peer review as an essential component of scientific enterprise. The working group has also agreed that there should be a minimum basic rights for authors when they sign "away" the copyrights to publishers; minimum rights such as being able to use the material for teaching purposes. IUPAP endorsed these position statements.
- 10.3. **PANAGIC:** The report of Working Group 4, Particle and Nuclear Astrophysics and Gravitation International Committee (PaNAGIC) was submitted together with that of GWIC. PANAGIC was established to support international exchange of ideas and to help in the convergence of the international scientific community in large scale activity in the field of particle and nuclear astrophysics, gravitation and cosmology. The working group has been chaired by David Sinclair since 2004. Robert Kirby-Harris reported that the Council has agreed that PANAGIC should be dissolved.
- 10.4. **Women in Physics:** The working group number 5 on Women in Physics was formed by the resolution of the Atlanta IUPAP General Assembly to survey the situation of women in physics in IUPAP member countries and to analyse and report on the collected data along with suggestions on how to improve the situation. The working group held its 4<sup>th</sup> International Conference on Women in Physics at Stellenbosch, South Africa on 5 – 8 April 2011. A global survey of women physicists was conducted in 8 languages, with the questionnaire worked out in close consultation with team leaders from different regions to ensure continental and regional compatibility. The results of the survey highlight pertinent issues affecting women, such as the difficulties in getting positions at editorial staff levels. Amongst the resolutions adopted at the Stellenbosch conference is the need to improve effectiveness of girls' education in Physics, and collaborating with Commission 14 to summarize guidelines for training of physics educators at all levels, with special attention on research-based and gender-sensitive teaching approaches.
- 10.5. **ICUIL:** Working group number 7, the International Committee on Ultra-high Intensity Lasers provides an avenue for discussions among representatives of the Ultra-high Intensity Lasers facilities and members for exploration of new areas of fundamental and applied research. ICUIL has collaborated with ICFA to exercise the Joint Task Force on future applications of laser acceleration in order to promote collaboration between the accelerator and the laser research communities. The ICUIL working group participated in the first workshop of EuroNNAc, the European Network for Novel Accelerators held at CERN on 3 – 6 May to explore possibilities of

applying ultra-high gradient acceleration techniques in large electron beam facilities. Other projects the working group participated in include the LASERLAB-EUROPE and the €850 M European Light Infrastructure (ELI). The 5<sup>th</sup> biennial ICUIL Conference will be held on 26 September – 1 October in Szeged, Romania.

- 10.6. **ICNP:** Working group number 9 on International Cooperation in Nuclear Physics was formed by the resolution of the 2005 Cape Town General Assembly to, amongst other aims, provide a description of the landscape of key issues in Nuclear Physics research for the next 10 to 20 years. Membership of WG9 now includes the directors of a broad representation of the world's major nuclear physics laboratories from GANIL in France, GSI in Germany, Frascati in Italy, BNL, FRIB and Jlab in the USA, TRIUMF in Canada, RIKEN in Japan, Lanzhou in China and iThemba LABS in South Africa. One of the major activities of the ICNP over the past three years has been the preparation of IUPAP Report 41, which is a handbook of Nuclear Physics user facilities world-wide, together with a concise outline of the main physics challenges. The ICNP continues to provide a much needed forum for laboratory directors to share information while advancing the objective of world-wide development of nuclear physics.

## 11. Reports from Inter Union Working Groups:

- 11.1. COSPAR: Committee on Space Research held its 38<sup>th</sup> Scientific Assembly in Bremen, Germany in July 2010, drawing about 3400 participants who took part in scientific events covering virtually all branches of space research. The COSPAR Space Science Awards were conferred in 2010 to Guenther Hasinger and Steven W. Squyres. COSPAR Council elected Professor G. Bignami as President of COSPAR for the period 2010 – 2014 to succeed Professor R. M. Bonnet who served for a period of eight years. COSPAR remains effective in bringing together practitioners in the various disciplines of space research. Most scientists affiliated to COSPAR have a background in either Physics or Applied Physics; and COSPAR itself is expected to continue playing a useful role in defining the direction of space research in the future.

- 11.2. SCOPE: Scientific Committee on Problems of the Environment: A new vice-president has been elected. A number of awards and prizes have been given during the year. The third set of lifetime achievement awards and those for young scientists are planned for 2012.

- 11.3. SCOSTEP: A new representative has been appointed, although SCOSTEP was not represented at the General Assembly.

- 11.4. BIPM: The BIPM appoints one member to C2. It was particularly noted that the BIPM report on the possible future revision of the SI units highlighted possible changes on the definitions of the kilogram, kg, the ampere, A, the kelvin, K and the mole, which are to be referenced, respectively, to the Planck constant,  $h$ , the Boltzmann constant  $k$ , the elementary charge,  $e$ , and the Avogadro constant  $N_A$ .

- 11.5. IUPAB: Not represented

- 11.6. IEC: Not represented

12. **International Year of Light:** John Dudley from the European Physical Society (EPS) together with Luisa Cifarelli, the president of the EPS led a delegation of six which presented to the General Assembly a proposal requesting IUPAP endorsement for the United Nations General Assembly to declare 2015 the International Year of Light. This will be a global initiative whose broad scope of activities will include celebrating pioneers of the science of light as well as celebrating specific advances in 1815, 1865, 1915 and 1965, which are years during which milestones were realised which went on to establish light at the centre of modern science. The proposal is scheduled to be tabled to the United Nations in 2012. Since UNESCO has a cultural emphasis, and is the body through which the proposal is to be tabled to the UN, the committee felt that cultural aspects of light should be highlighted. The General Assembly endorsed the proposal to have the United Nations declare 2015 the International Year of Light.

13. **Report from ICSU:** Bruce Mckellar gave the ICSU report which highlighted the establishment of ICSU Regional Offices in Africa, Latin America and the Caribbean, and Asia and the Pacific.

Kennedy Reed, the outgoing chair of C13, has been elected to the board of ICSU under the category of ordinary member for the period 2011 – 2014. He, Kennedy Reed, should now 'represent' IUPAP on ICSU. There have been attempts by ICSU to start a programme on sustainable energy, and efforts are currently underway to secure financial resources to establish such a programme along the lines of a working group. This should tie in very well with the IUPAP initiative to re-establish the working group on energy. The subscription fees of the ICSU-affiliated unions have increased. The whole structure of ICSU is to be reviewed before ICSU develops its next strategic plan. Affiliated unions such as IUPAP are expected to make inputs to guide the review process.

14. **Reports from Commissions:** With the exception of Commission 13 and 14, all other commission and affiliated commission reports were taken as read and noted. The chairs of Commissions 13 and 14 gave presentation for the activities of their commissions in line with past practice where two commissions are selected to give presentations to the General Assembly. Commissions 13 and 14 have done likewise at the last General Assembly in Japan.
- 14.1 **Commission 13:** The Commission on Physics Development is mandated to improve the conditions for physics and physicists in developing countries of the world. In line with its mandate, C13 has in the past three years recommended and secured from the IUPAP financial support for conferences held in such places as Senegal (International Conference on Lasers and Optics in Science and Technology – Launch of the African Physical Society, in Dakar, 2009), Peru (Andean Workshop on Spectroscopy and Congress on Spectroscopy and Applications, held in Lima, 2009), Tunisia (New Trends in Conducting Materials: From Fundamentals to Applications, held at Sousse, Tunisia, 2010), South Africa (African School on Electronic Structure Method and Applications, held at AIMS in Cape Town, 2010), Cuba (Sixth International Meeting on Photodynamics, held in Havana, 2010) and Palestine (Palestinian Conference on Modern Trends in Mathematics and Physics II, held at AN-Najah National University in Nablus, 2010). The chair of C13 has put considerable efforts into the establishment of the IUPAP visiting scientists programme. The commission has in the past years forged closer links and co-operation with other IUPAP commissions, largely around activities of common interest, the prime example in this regard is co-operation with C20 in facilitating the launch of ASESMA school in Muizenberg, Cape Town, South Africa in 2010. The school will now move to other African countries every two years. The next school will be held in Moi University in Kenya. Future potential hosts include Ghana, Senegal and Nigeria. As a result of discussions with Physicists in the equatorial part of the African region, Kenya has now initiated a process to apply for IUPAP membership. Commission C13 is expected to continue implementing its mandate to improve conditions of physics and physicists in developing countries.
- 14.2 **Commission 14:** Prathiba Jolly presented the report of the activities of Commission 14. The mandate of the commission has been modified from the original one in order to emphasize more on physics, education and research. There have been notable changes in the demographics of the commission, notably the fact that since 2008 commission 14 has had 8 women members in its committee in contrast to none before 2008. The publications of the commission include the Survey on Teaching, A Centenary Volume of Einstein, A Centenary Volume of Niels Bohr and a Collection of articles by all chairs of IUPAP commission. The commission runs an ICPE (International Conference on Physics Education) Biennial Medal. The Young Scientist Prize has thus far proven a challenge for the commission as it is very difficult to identify talent at grassroots. The commission has built linkages with relevant bodies such as ASPEN, LAPEN, EPSEPD, EUPEN and STEPS. Other initiatives of commission 14 include collecting information about physics teacher education degree programmes at various universities around the world, and increasing participation of school teachers in physics education programs. Teacher education in particular has been extremely close to the thrust of the work of commission 14. In this regard the commission has identified lack of funding as one of the main obstacles prohibiting physics teachers from attending conference events.
15. **First Presentation on slates nominations/election and outline of slates for Commissions and Executive Council:** IUPAP president Katsu Ushioda read to the General Assembly the slate of the Executive Council nominees together with the individual citations for President designate (Bruce McKellar, Australia), Secretary General (Robert Kirby-Harris, United

Kingdom), Associate Secretary General (Rudzani Nemetudi, South Africa), and Vice Presidents at Large (VPALs) Mustansir Barma (India), Marcia Barbosa (Brazil), Alexander Kaminskii (Russia). Katsu Ushioda also mentioned the names of Francis Allotey (Ghana) and Wenlong Zhan (China) as the two additional proposed Vice Presidents at Large should the proposal be carried by the General Assembly to increase the total number of VPALs from three to five. He emphasised that the reason for introducing the item before voting was to ensure that delegates could have enough time to think about the proposals before voting on Friday 4 November 2011.

16. **Outline of Commission Slates:** Robert Kirby-Harris explained the background and the exhaustive process followed before constructing the slate. The commission membership slate was compiled after consultation with commissions and national liaison committees. A total of 14 members are allocated per commission. In response to a question whether there has been cases where commissions have suggested names that were not endorsed by national committees, Robert Kirby-Harris explained that the Council has done its utmost best to respond to the sensitivities and expectations of both commissions and national liaison committees. The president explained that, while all comments and proposals from commissions and national liaison offices were taken into account, it remained a challenge to meet all expectations. In instances where countries expectations were radically different from those of commissions, the category of associate membership remains available as an avenue to complement representation by providing a link between commissions. A delegate from South Africa pointed out that the slate showed a lot of glaring empty lines in the Middle East Region, and while this may be understandable at the moment, it is something the IUPAP should look at and address in the future.

*General Assembly adjourned*

17. **Talk by Professor Rolf Heuer, Director General, CERN:** The Director General of CERN, Professor Rolf Heuer, gave a talk titled Accelerating Science and Innovation, The search for a deeper understanding of our Universe at the Large Hadron Collider, The World's Largest Particle Accelerator. In his introductory remarks, Professor Heuer stated that the LHC was nothing else but a Super-Microscope used to study physics laws in the first moments after the Big Bang, which makes the facility well suited to increase symbiosis between Particle Physics, Astrophysics and Cosmology. It also serves as a fascinating centre to bring young people to natural science. He explained the Standard Model developed over 40 years ago and pointed out that the missing cornerstone of the standard model is to understand the origin of the mass of elementary particles. The LHC seeks to address such questions as the origin of mass/matter, as well as the origin of electroweak symmetry breaking, unification of quantum physics and general relativity, understanding of dark matter and dark energy. In his conclusion, he stated that the LHC will allow for the study of the Higgs mechanism in detail, and as more data is delivered by the LHC, scientists are starting to realize that we are just at the beginning of exploring 95% of the Universe since the discovery of the standard model in the past decades saw the precision studies of 5% of the Universe. The future remains bright in the dark universe, and while there are questions of raising the energy levels to 14 TeV, under the current director the LHC will only go up to 13 TeV.

*End of First day of the General Assembly*

18. **United Nations Conference on Sustainable Development (Rio + 20):** Bruce McKellar gave a brief of the United Nations Conference on Sustainable Development (Rio + 20). He has been involved in the preparatory meetings and workshop organized by the Regional Committee in Asia and the Pacific. The main aspect focussed on is the green economy as a mechanism of sustainable development, and one of the countries heavily involved in this respect is South Korea. There is a lot of resistance from most developed countries when it comes to adopting the green economy as a mechanism of sustainable development. When most countries, especially the under-developed, talk about sustainable development, they are in essence talking simply about development. There is a need to develop a single index to decide whether a country is sustainably developed. Bruce McKellar felt that one number is needed as a measure of human development index together with ecological footprint per capita. The one aspect in which physicists could contribute to the (Rio + 20) conference is the area of energy. Sustainable means should be found to increase the use of energy without increasing the

carbon footprint. In this respect the efforts of the IUPAP to revitalize the working group on energy are a step in the right direction.

## **19. Agenda Items from Liaison Committees and Inter-Union Groups:**

### **19.1 Review of the structure of commissions - Germany:**

The German delegate explained the rationale behind the German proposal to restructure or rename some Commissions and Affiliated Commissions of the IUPAP. Katsu Ushioda read the recommendations formulated by the Council in response to each of the five itemised proposals submitted by the German Liaison committee. The following is a summary of the German proposal together with the recommendations of the Executive Council:

#### **C4: Commission on Cosmic Rays**

It is proposed to rename C4 to "Commission on Astroparticle Physics".

*Executive Council recommendation: Chair of C4 should consult with C4 members and broader community in order to bring a recommendation on the action to be taken on this proposal to the late 2012 Executive Council meeting.*

#### **C6: Commission on Biological Physics and AC4: International Organization on Medical Physics (IOMP)**

The proposal is to better connect both Commissions. The chair of C6 is a member of AC4 but the chair of AC4 is currently not an official member of C6. This should be corrected.

*Executive Council recommendation: The chair of AC4 is an associate member of C6 and this is considered a satisfactory way of ensuring good connections between C6 and AC4.*

#### **C10: Commission on the Structure and Dynamics of Condensed Matter**

There is a substantial overlap between the Commissions C5, C8, C9 and C10 all covering aspects of condensed matter physics. It is proposed to dedicate C10 specifically to the emerging field of soft matter physics. The name could be either "Commission on Soft Matter" or "Commission on the Structure and Dynamics of condensed and soft matter".

*Executive Council recommendation: Chair of C10 should consult C10 members and broader community in order to bring a recommendation on the action to be taken with this proposal to the late 2012 Executive Council meeting.*

#### **C17: Commission on Quantum Electronics**

The on-going efforts to align C17 with the research topics of modern optics and photonics are strongly supported. Possible new names to be considered for C17 include "Laser Physics and Photonics", "Quantum Optics and Photonics" or "Optics and Photonics".

*Executive Council recommendation: Working group to be set up by chair of C17 and to include representatives of all relevant commissions and affiliated commissions with remit to put some recommendations regarding Commission name to late 2012 IUPAP Executive Committee meeting.*

The GA will delegate power to the Executive Council to approve the change of name that might be resolved by the Working Group.

The GA will delegate power to the Executive Council to approve the changes of Commission names and mandates that might arise from working groups that might be established from the reporting back of C4 and C10 chairs in late 2012. It is envisioned that such working groups would report back in late 2013.

- 19.1.1. The General Assembly was further requested to delegate the power to the Executive Council to approve the change of names of commissions or affiliated commissions that might arise from the recommendations of the mandated commissions or working groups. After a debate on the principle of broadening the power of the Council in between General Assemblies, it was agreed that the idea should not be put to the current General Assembly as a proposal because it needs to be well and properly thought out. It was recommended that this should be tabled as a proper proposal in the next General Assembly.

19.2. **2013 International Year of Crystallography:**

The International Union of Crystallography (IUCr) submitted to the 27<sup>th</sup> IUPAP General Assembly a proposal requesting IUPAP to endorse the IUCr resolution to have 2013 declared the International Year of Crystallography. It was agreed that celebrating the centennial publication of the ground-breaking 1913 experiments by W.L. Bragg and W.H. Laue that led to the birth of modern crystallography is a befitting initiative as it stimulates scientific activity. The proposal to declare 2013 the International Year of Crystallography (IYCr2013) was accordingly endorsed and carried by the 27<sup>th</sup> IUPAP General Assembly.

19.3. **Inclusion of “sexual orientation” and “gender identity” to the statement on the Universality of Science: USA**

Robert Kirby Harris informed the General Assembly that currently the IUPAP documents and website refer to the ICSU Statement on Freedom in the Conduct of Science or ICSU resolutions on Free Circulation of Scientists. Since these statements are long and complicated, IUPAP Council had decided that it was important that IUPAP has its own Statement on the Universality of Science. Whereas the IUPAP statement is informed by the previous ICSU Statements, it however reflects the beliefs and needs of the IUPAP community. Accordingly, the IUPAP Statement on the Universality of Science will be amended to include sexual orientation, gender identity and disability in line with what appears on the ICSU’s policy on the Universality of Science.

19.4. **To reconstitute the IUPAP Working Group on Energy – USA:**

Samuel Bader explained the context of the proposal to reconstitute the IUPAP Working Group on Energy. He stated that the motivation and the spirit behind the proposal was not to create the mission for the working group but rather to assemble a group of experts in the field who will be empowered to formulate the mission and scope of the working group and to present such formulation to the IUPAP Executive Council within a period of 18 months from the date of the appointment of its members. The need to revitalize the working group on energy came in part out of the realization that the world is undergoing an energy transition from fossil to alternative, environmentally friendly and sustainable sources of energy, locating energy issues at the centre of the on-going international scientific dialogue and research that should benefit from forums such as can be nurtured by the IUPAP. During the debate, it was also recommended from the floor that in revitalizing the working group on energy, note should also be taken of the existence of the IAEA Committee on Energy, which committee has the requisite international outfit. Combining efforts or comparing notes with such committee could only benefit IUPAP. The proposal was supported as revitalizing the working group on energy could also pave the way for IUPAP to join forces with ICSU in tackling broad issues concerning energy, climate change and similar initiatives. Sam Bader was mandated to collate names of individuals who should constitute the revitalized Working Group on Energy. A delegate from South Africa suggested that the revitalized working group should also include representatives from countries that are “sustainably underdeveloped”.

19.5. **Gender Champion for IUPAP commissions – UK**

The position of Gender Champion within IUPAP Council was proposed in order to strengthen the links between IUPAP Commissions and the Working Group on Women in Physics, and to embed gender awareness within the activities of the Commissions. The core responsibilities of the gender champion will amongst others include collecting information on the representation of women in all activities organised by the commissions to assist in the tracking of participation of women in IUPAP activities. Marcia Barbosa was proposed and endorsed by the C&CC meeting as the suitable candidate for the IUPAP gender champion. A delegate from South Africa suggested that the role of the gender champion should be a specific role of one of the VPALs even after Marcia Barbosa’s term.

19.6. **Links with IAPS (International Association of Physics Students) - UK**

Robert Kirby-Harris gave a background of the proposal to encourage cooperation between the IUPAP and the International Association of Physics Students (IAPS), a body of physics students currently most active in Europe but whose central aim is to encourage and facilitate interaction amongst physics students from different countries worldwide. Robert Kirby-Harris further pointed out that it was important for the IUPAP to do more than just endorse the proposal of the IAPS, but rather to become pro-active in promoting cooperation with other relevant bodies. To that end the IUPAP could start by encouraging its national member states and their liaison offices to lend their support to initiatives of the type proposed by the IAPS.

**19.7. From IU Group: Formal acceptance of the names and symbols:**

The Joint IUPAC – IUPAP Working Party on the Discovery of Elements of atomic number greater than 111 submitted an inter-Union Group report (I.U.19), which report recommends that the names of three elements whose synthesis has been confirmed by both the current and the previous Joint Working Party (JWP) be formally accepted by the 27<sup>th</sup> IUPAP General Assembly. The JWP report also noted that the claims for elements 113, 115 and 118 were deemed to be insufficiently certain. The three elements whose synthesis has been sufficiently confirmed, and thus recommended for formal acceptance, are element 110 named darmstadtium, symbol Ds, element 111 named roentgenium, symbol Rg and element 112, named copernicium, symbol Cn. A delegate asked if there would be a press release considered the fact that this is such a historic decision, to which question Robert Kirby-Harris and Beth Taylor responded that something will be put on the website to inform the scientific community. The (IUPAP) General Assembly also noted that the report of the Joint Working Party has also been presented to and accepted by the IUPAC.

**20. Presentation of slates; nominations/election and outline of slates for Commissions and Executive Council:**

- 20.1. Katsu Ushioda displayed the slide outlining the slate of the Executive Council nominations. He invited objections, and no objections were raised against the council slate. Commission slates were displayed, with each delegate having received a hard copy circulated by Williamina. The president re-emphasized the two dimensional matrix jig-saw on the commission slate, and went on to point out that there was an invisible third dimension on the jig-saw, which is that of geographical representation.
- 20.2. Katsu Ushioda also indicated that in future, the jig-saw puzzle to balance the commission slate should be tackled much earlier as it is not a trivial task. Each national liaison committee should notify the Council in the event of a change of key people responsible for IUPAP affairs in member states. Liaison committees of adhering bodies should communicate before nominations are sent in order to facilitate the balancing of the commission slate.
- 20.3. A delegate from the floor remarked that barring the challenges it faced, the IUPAP Council had done a remarkable job in ensuring a certain level of representation by candidates from developing countries.
- 20.4. Malcolm McCallum suggested that a central IUPAP E-Mail could be set up and national liaison committees and/or adhering bodies should be encouraged to submit more nominees than they have IUPAP shares in order to make the job of president and secretary easier when balancing the commission slate.
- 20.5. Marcia Barbosa remarked that when names are suggested for commission officers, it should also be done in consultation with the relevant commission chairs. She emphasized that women should always watch out that there is fair and sufficient representation of women on the lists.

**21. Physics in UK Lecture Programme**

- 21.1. A total of six scientific lectures were presented by eminent scientists as part of the UK Lecture programme to highlight selected physics research programs and activities in the United Kingdom.



- 21.2. Professor Ernie Hill from the University of Manchester presented a talk titled “Graphene: From faster computers to stronger aircraft wings – will it live up to expectations?” In his talk, he discussed the mechanical techniques used to peel sheets of graphene from the bulk of graphite. He highlighted the peculiar characteristic of graphene, viz the thinnest imaginable material, the strongest material ever measured, the most stretchable crystal, the highest current density at room temperature, the highest intrinsic mobility, and the longest mean free path at room temperature as the main basis of interest in the application of graphene in micro and nano-electronics. He showed images of clear half-integer Quantum Hall Effect observed on devices fabricated on sheets of graphene from experimental results obtained at Manchester University and published in Nature. He concluded his talk citing the use in touch screens and Liquid Crystal Displays (LCDs), chemical sensing and strengthening of composite materials as some of the potential applications of graphene.
- 21.3. Professor Sir Richard Friend from the Cavendish Laboratory, University of Cambridge gave a presentation on Organic Plastic Electronics, where basic Physics ends and industry picks up. In his talk he pointed out that energetically it is always easier to dope low energy gap semiconductors, but also emphasised that no semiconductor technology evolves overnight. He stated that the first group III-V semiconductors lasted only for a short time, and it took a very long time to clean them up in a well-controlled clean-room engineering environment. He highlighted the challenges of bringing the costs of solar cells down to affordable levels.
- 21.4. Professor Helen Gleason from the University of Manchester gave a talk titled “Remarkable Structures in Liquid Crystals”. Her presentation focussed on liquid crystal devices and micro-sized laser droplets. She explained how nematic liquid crystals exhibit orientational order. She stated in her conclusion that the Liquid Crystal Display (LCD) is a mature technology but challenges still exist for new application in electro-optics.
- 21.5. Professor Chris Dainty from the University of Ireland gave a presentation titled “Simple Physics for Better Vision” which focussed on the aberrated eye, adaptive optics and supervision, the lens replacement in cataract surgery, the modelling of the eye, and the future of improved vision. He stated in his talk that cataract surgery was the most frequently performed surgical procedure, accounting for almost 14 million operations per year. He predicted in his conclusion that the future for improved cataract surgery will include personalized eye modelling, customised intra-ocular lenses and optically perfect imaging.
- 21.6. Professor David Payne, the director of the Opto-electronics Research Centre (ORC) from the University of Southampton gave a presentation on wireless and optical fibres and how the growing capacity of optical fibres have stimulated the digital revolution by offering tremendous band-width possibilities such as the 40 Gbits/s Wavelength Division Multiplexing (WDM) system. He cited as some of the global challenges the fact that we are rapidly exhausting the available bandwidth of existing fibre technology as the bandwidth demand keeps growing at a rate of almost 40% per year.
- 21.7. Professor John Pendry of Imperial College gave a presentation on Invisible Cloaks and a Perfect Lens. He discussed the concept of refraction of light according to Snell’s Law. Describing light as a dance between electric and magnetic field, he discussed the general theory of relativity and explained how the path of light is bent by gravity. He gave a comparative analysis of conventional materials in contrast to meta-materials whose properties are derived not from individual atoms but rather from properties of larger artificial constituent units called meta-atoms. From metal materials, split ring structures could be responding to magnetic fields even though they themselves are non-magnetic. Meta-materials that are accordingly tailored can be manipulated to bend light by exactly the right amount through the grading of the index of refraction.
- 22. Banquet at the Royal Society:** Delegates of the General Assembly were treated to an evening banquet hosted by Lorna Casselton, the Royal Society Foreign Secretary
- 23. Voting on all Resolutions:** Robert Kirby-Harris explained the voting procedures:

- 23.1. **Resolution 1:** To increase membership dues by 3% each year, for the years 2012, 2013 and 2014 and to introduce a regular annual inflationary increase from then on based on an international inflation indicator:

*Resolution 1 was carried, with Singapore abstaining.*

- 23.2. **Resolution 2:** The IUPAP Statutes should be revised to permit a further two Vice Presidents at Large to be elected so that there are a total of five Vice Presidents at Large within the council.

*Resolution 2 carried, with the chair of Commission 15 abstaining*

- 23.3. **Resolution 3:** To amend the By-Law IIB on terms of office:

23.3.1. All elections are for a term of three years.

23.3.2. Chairs may not be re-elected to any position on the Commission beyond their term as Chair, and Vice Chairs/Secretaries may not be re-elected to the same positions nor be re-elected as an ordinary member - except in extraordinary circumstances, and, in such circumstances, special approval by the General Assembly is required. Ordinary members may be elected twice.

23.3.3. Normally the Secretary, Vice-Chair and Chair are to be chosen from among those who have served at least one term on the Commission.

23.3.4. Service in all capacities shall not exceed three terms.

23.3.5. The General Assembly may grant exceptions for those Commissions that undertake long-term projects or where continuity is particularly important

*Resolution 3 carried unanimously.*

- 23.4. **Resolution 4:** IUPAP endorses the global project to work through UNESCO to request a United Nations proclamation of an International Year of Light in 2015:

*Resolution 4 carried unanimously.*

- 23.5. **Resolution 5:** That the General Assembly approves the Executive Council's recommendations on the review of the structure of commissions and agrees to delegate powers to the Executive Council to approve changes of commission names and mandates that arise from working groups on this review.

Resolution 5 carried unanimously; see section 19.1 for full recommendations:

- 23.6. **Resolution 6:** The IUPAP fully endorses the proposal to establish an International Year of Crystallography in 2013.

Resolution 6 carried unanimously.

- 23.7. **Resolution 7:** The IUPAP endorses the revision to the IUPAP statement on the Universality of Science to include opposition to discrimination on the grounds of disability, gender identity, sex or sexual orientation.

Resolution 7 carried unanimously.

- 23.8. **Resolution 8:** The General Assembly notes with approval the decision taken by the Executive Council to re-establish the Working Group on Energy.

Resolution 8 carried unanimously.

- 23.9. **Resolution 9:** That IUPAP will appoint a gender champion from the Executive Council. A Vice President will act as gender champion. The chair, or other representative, of the Women in Physics Group is requested to liaise with the Gender Champion.

Resolution 9 carried unanimously

- 23.10. **Resolution 10:** IUPAP resolves to support the International Association of Physics Students.

Resolution 10 carried unanimously

- 23.11. **Resolution 11:** The IUPAP General Assembly formally accepts the following names and symbols: Element 110 darmstadtium, symbol Ds, Element 111 roentgenium, symbol Rg, Element 112 copernicium, symbol Cn.

Resolution 11 carried unanimously.

- 23.12. **Resolution 12:** IUPAP will adopt the resolution on women in physics from the 4<sup>th</sup> International Conference on Women in Physics

Resolution 12 carried unanimously.

- 23.13. **Resolution 13:** IUPAP strongly endorses the principles and practices of peer review and recognises that peer review is an essential part of the scientific endeavour.

Resolution 13 carried unanimously.

- 23.14. **Resolution 14:** That the resolution continuing IUPAP's support for SESAME be adopted Resolution 14 carried (with the removal of the modest: IUPAP commits, within its own resource limits, to provide financial support to SESAME). Korea (4 votes) abstained on the adoption of Resolution 14.

- 23.15. **Resolution 15: Election of Commission Members and Officers:** Sukekatsu Ushioda moved that the slates for the Commissions be approved.

Resolution 15 carried with France abstaining and Korea voting against.

- 23.16 **Resolution 16: Election of Executive Council Officers:** Sukekatsu Ushioda moved that the slate for the Executive Council members be approved.

Resolution 16 carried unanimously.

- 24. Introduction of the new president designate:** Sukekatsu Ushioda introduced the new IUPAP president designate, Bruce McKellar from the School of Physics, University of Melbourne, Australia.

- 25. Introduction from new President:** Sukekatsu Ushioda introduced the new IUPAP president, Cecilia Jarlskog from the Division of Mathematical Physics, LTH, Lund University, Sweden. Amongst other achievements, he mentioned that Cecilia Jarlskog has served as a member of the board of trustees of the Nobel Foundation and the Nobel Prize Committee, is a member of the Swedish Academy of Science, honorary professor at three Chinese universities, has honorary degree from the University of Dublin, and has been instrumental in the formation of Women in Physics Working Group. Cecilia Jarlskog in turn gave a presentation in which she paid tribute to Katsu Ushioda and all other past IUPAP presidents, stating that having been in existence since 1922, the IUPAP should be proud of its long history whose list of presidents includes scientific giants such as W.H. Bragg and R.A. Millikan. She stressed that one of the major issues confronting bodies such as the IUPAP today is the issue of Free Circulation of Scientists which has also been highlighted at this and the previous General Assemblies. She concluded her presentation appealing to delegates to ensure that world collaboration networks get bigger and more conclusive, urging members of commissions, working groups and liaison committees to come up with new ideas and initiatives to promote physics. During her tenure, one of the things she would like to see is more collaboration with ICSU, and more activities on energy.

26. **Final Remarks:** The outgoing president, Sukekatsu Ushioda thanked all commission chairs and Executive Council officers as well as the IOP in London for all the assistance he received during his tenure as IUPAP president. He once again thanked Alan Astbury for the invaluable assistance and guidance he provided within the Council in his role as past president.

***General Assembly concluded***

## Appendix B

### List of Participants to the 27th General Assembly

The General Assembly was attended by 92 participants. These included delegates, Commission Chairs and Secretaries, IUPAP officials and observers.

#### Name of Delegates and IUPAP Commission representative

▪ = Head of Delegation

\* = IUPAP Commission representative

#### **Algeria**

Amara, E

#### **Argentina**

Ponce Dawson, S

#### **Australia**

Duldig, M▪  
McKellar, B  
Robinson, R

#### **Austria**

Burgdoerfer, J

#### **Belgium**

Weynants, R

#### **Brazil**

Barbosa, M\*

#### **Cameroon**

\_\_\_\_\_

#### **Canada**

Drake, G  
Hawrylak, P

#### **Chile**

\_\_\_\_\_

#### **China**

Gong, Q  
Gu, D  
Lu, L  
Zhan, W\*  
Zhu, S

#### **China-Taipei**

Hu, Chin-Kun▪  
Jueinai Kwo  
Keng Ching Kathy Lin  
Yee Bob Hsiung

#### **Columbia**

\_\_\_\_\_

#### **Croatia**

\_\_\_\_\_

#### **Cuba**

Altshuler, E

#### **Cyprus**

Panagopoulos, H

#### **Czech Republic**

Exner, P

Valkarova, A

#### **Denmark**

\_\_\_\_\_

#### **Egypt**

\_\_\_\_\_

#### **Ethiopia**

\_\_\_\_\_

#### **Estonia**

Nommiste, E

#### **Finland**

Riska, D-O\*  
Serimaa, R

#### **France**

Brisson, V\*  
Orland, H\*

#### **Germany**

Fricke, B,\*  
Karlheinz, M  
Nunner, B  
Sandner, W▪  
Shukla, P K, \*  
Spohn, H \*  
von Klitzing, K\*

#### **Ghana**

Allotey, F

#### **Greece**

\_\_\_\_\_

#### **Hungary**

Domokos, P

#### **India**

Barma, M\*  
Jolly, P\*  
Raychaudhuri, A

#### **Iran**

\_\_\_\_\_

#### **Ireland**

McGuigan, K

#### **Israel**

\_\_\_\_\_

#### **Italy**

\_\_\_\_\_

#### **Japan**

Aihara, H  
Arai, A  
Kono, K  
Maekawa, S▪  
Sakai, H

#### **Korea**

Kim, J,  
Kim, S-B

#### **Latvia**

\_\_\_\_\_

#### **Lithuania**

\_\_\_\_\_

#### **Mexico**

Cisneros, C

#### **Mongolia**

\_\_\_\_\_

#### **Netherlands**

\_\_\_\_\_

#### **New Zealand**

\_\_\_\_\_

#### **Norway**

Samseth, J

#### **Peru**

\_\_\_\_\_

#### **Philippines**

\_\_\_\_\_

#### **Portugal**

\_\_\_\_\_

#### **Poland**

\_\_\_\_\_

#### **Romania**

\_\_\_\_\_

#### **Russia**

Kaminskii, A▪\*

#### **Saudi Arabia**

\_\_\_\_\_

**Senegal**

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**Singapore**

Kwek, L▪

**Slovak Republic**

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**Slovenia**

---

**South Africa**

Gledhill, I  
Ngcobo, Z

---

**United Kingdom**

Knight, P▪  
Lambourne, R  
Lea, S  
Shore, A\*  
Tabakov, S\*  
Taylor, B  
Jaroszynski, D\*  
MacCallum, M\*  
Lam, Y\*

**United States**

Bader, S D▪\*  
Flatten, A  
Lakshminarayanan, V  
McBride, P\*  
Mohr, P\*  
Onuchic, J\*  
Reed, K\*  
Tonwar, S\*  
Gubernatis, J\*  
Hallock, R\*  
Moore, D\*

**Spain**

Calvo, M L.  
Delgado Barrio, G  
Fonseca, M-V\*  
Vina, L

**Sweden**

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**Switzerland**

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**Tunisia**

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**Presenters, Observers and Other Participants**

**Canada**

van Oers, W

**France**

Dudley, J  
Kuehne, M

**Italy**

Cifarelli, E

**Ireland**

Dainty, C  
Weaire, D

**Germany**

Sandow, B

**Switzerland**

Heuer, R

**UK**

Bourne, A,  
Elliott, R  
Enderby, J  
Friend, R  
Gleason, H  
Hill, E  
Kalmus, P  
Khoze, V  
Llewellyn Smith, C  
Melville, P  
Pendry, J  
Payne, D

**USA**

Arthurs, E  
Coleman, J  
Ferrerias, A  
Rubinstein, R

**IUPAP Officials (*present*)**

**President**

Ushioda, S (Japan)

**President Designate**

Jarlskog, C (Sweden)

**Past President**

Astbury, A (Canada)

**Secretary General**

Kirby-Harris, R (UK)

**Associate Secretary General**

Nemutudi, R (S Africa)

**Vice Presidents**

Kaminskii, A (Russia)  
Barbosa, M (Brazil)  
Barma, M (India)  
Orland, H (France)  
Maekawa, S (Japan)  
von Klitzing, K (Germany)  
Bader, S (USA)  
McBride, P (USA)

**UK Secretariat**

Lazaro, W  
Plaister, N

## **Appendix C**

### **PRESIDENT'S ADDRESS TO THE IUPAP GENERAL ASSEMBLY**

**London, UK, November 2011**

**Professor Sukekatsu Ushioda**

#### **1. Introduction**

It is a great pleasure to welcome you all to the 27<sup>th</sup> General Assembly of IUPAP here in London after a gap of 57 years. I was very pleased to welcome you to the last General Assembly in Tsukuba in the capacity of host – thankfully it has been the responsibility of others this time to organise the event over the next few days; and I hope you will all enjoy yourselves while of course working hard on behalf of physics. Here in London we will also celebrate the occasion of Cecilia Jarlskog taking over the Presidency at the end of the meeting – as the first woman physicist to head up IUPAP.

Last time my predecessor as President, Alan Astbury, was able to comment on the happy occasion for physics in Japan with the awards of Nobel prizes to Kobayashi and Maskawa. Over the last few years there have been equally happy occasions for the UK with the awards in 2010 of Nobel prizes to Andre Geim and Konstantin Novoselev for their work on graphene at the University of Manchester and in 2009 to Charles Kao for his work on fibre optics at Standard Telecom Laboratories, Harlow. This also demonstrates the international nature of physics with physicists educated in Russia and China becoming Nobel Laureates for their work in UK - and in the case of Kao a long career afterwards between USA and China – and elsewhere.

Physics moves on and a month ago we heard the announcement that this year's Nobel Prizes have been awarded to Saul Perlmutter, Adam Riess and Brian Schmidt - US and Australian pioneers of astrophysics - for the discovery of the accelerating expansion of the Universe through observations of distant supernovae. We present our congratulations to our colleagues - recognising and affirming - the continuing strength of the USA and the growing importance of Australia on the world stage; which may have bearing later on our proposal for the next IUPAP president elect!

At this point I would like you to join me in recognising one of the former presidents of IUPAP whom we sadly lost since we last met. He was Jan Nilsson, who served IUPAP for 30 years as President, Secretary General and Associate Secretary General.

#### **2. Council and Commission Chairs' Meetings**

Council and Commission Chairs have met four times since the last General Assembly to oversee IUPAP business. The first meeting was in February 2009 at the London offices of IOP. Here we focussed on learning our way into our new roles, and it was very useful to be able to call on Judy Franz to advise us.

I would like at this point to record my thanks to Judy Franz, past Secretary General (for her invaluable help particularly in the first transition year) and Jackie Beamon-Kiene, past Chief of Secretariat, for her considerable support and advice (which particularly for Jackie has continued right up to today).

The turnover of Council members has been very high over this cycle: with a new secretary general and associate secretary general, and new vice presidents at large - as well as a completely new set of commission chairs ( and vice presidents elected from them) as normal. In fact only the president and past president represented continuity! The resolution before this general assembly on expanding vice presidents at large was developed in part to reduce this turnover at each General Assembly by having two sets of these vice presidents out of phase with each other (as well as reasons to do with improving geographical representation). Our work at this meeting included agreeing the promulgation of the resolutions approved at the 2008 General Assembly: "Importance of Active Learning and Hands-on Physics Education" and "Statement on the Universality of Science". We also considered how to go about setting up the new administrative structure for IUPAP based on IOP London and now using Euros (not pounds sterling!)

We met next in late October of 2009 in Chicago to undertake our first normal programme of work: agreeing conferences for the year ahead, approving budgets and noting reports from the commissions. Associate members were appointed to the commissions, and we noted the significant administrative activity that had taken place: to develop the IUPAP office within IOP, transfer funds from the USA, and start setting up a UK charity (not-for profit organisation) to enable IUPAP to have a legal identity in UK and avoid taxation. This was the first meeting in USA for many years and was very successful with the small problems over travel and entry to the US being sorted out promptly. Our two commission chairs in the Chicago area, Sam Bader and Patricia McBride- apart from hosting the formal meetings - also organised excellent visits to both FermiLab and the Argonne National Laboratories.

Our third meeting took place in early November 2010 – just after the Commonwealth Games and during Diwali – in Delhi. It was an exciting time to be in India, and the meetings were well organised by our commission 14 chair Pratibha Jolly and vice president at large Mustansir Barma. The day prior to the meetings was given over to presentations on physics developments in India from leading scientists. In addition to the normal business we reviewed IUPAP membership issues, mostly positive, related to expansion in countries and increased share-holdings but including some problem areas. We also started to plan for this General Assembly. Resolutions concerning our governance arrangements were considered for submission here and we also discussed the proposal for an international year of light which comes to the general assembly as a formal resolution. Internal matters included noting the full establishment of the UK based charity and related formal accounting, and the transfers of commission websites to the UK based overall site.

### **3. Membership of IUPAP**

The total number of member countries stands at 60, one more than at the last GA (but one country has indicated that it wishes to leave). Several countries have increased their shares and we also have been successful in encouraging some member countries to pay backlogs in dues and commit to paying in future. In my travels representing IUPAP I have made presentations on its benefits and some countries have expressed interest in joining but as yet have not formally applied.

We are implementing the next phase in the encouragement of Type B and Type C countries to become full shareholding (Type A) members – Type B countries move up to a full share from up to two terms on half share; and Type C countries move up first to a half share with the intention of also progressing to full shares. We will be monitoring this closely as we do want to encourage the developing and the smaller emerging countries to pay a fuller part in IUPAP activities. There are four countries that are considering membership and there will now be 'space' within the limited C category membership (set at 5 countries prior to the last General Assembly). We should recall that type C countries get significant support with attendances at meetings (substantially greater in value than their dues) deliberately to encourage their active involvement and recognising their financial constraints; this means we need to limit the budgetary impact on IUPAP by setting an overall limit to the number of these countries at any one time.

### **4. Conferences and Workshops**

The major purpose of IUPAP remains the promotion and sponsorship of excellent international conferences as recommended by the commissions; and our associate secretary general, Rudzani Nemitodi, has coordinated proposal and facilitated decision making by council over the last 3 years – a considerable task well done. Apart from the 3 categories of these conferences a further type D category was introduced by the previous Council prior to the last General Assembly. These are smaller regional workshops intended to strengthen scientific collaboration between developing countries in particular. Commission C13 on physics for development has been closely involved in approving the proposals and in their implementation in addition to other commissions, and there has been an encouraging increase in number and improvement in quality of these workshops.



Numbers of the various types of conferences were as follows for the three years: 2008, 2009 and 2010.

2009		2010		2011	
Total number of conferences sponsored	24	Total number of conferences sponsored	32	Total number of conferences sponsored	26
A category	9	A category	11	A category	12
B category	11	B category	10	B category	11
C category	1	C category	5	C category	1
D category	3	D category	6	D category	2

## 5. Commissions

The commissions are the backbone of IUPAP through which we review and contribute to progress in the sub-disciplines of physics. The commissions plan major conferences (referred to above), oversee the awarding of specialist prizes, and award the Young Scientist Prizes within their fields as a direct encouragement to excellent young researchers. Since 2009, 37 Young Scientist Prizes have been awarded across the various commissions. IUPAP centrally now hosts and manages 12 of the commission websites: four of these were previously hosted elsewhere and the other eight have been inherited from commissions that did not have a commission site before.

Special presentations will be made by C13 Physics for Development and C14 Physics Education reflecting their crosscutting importance to us all in the world of physics. Reports for all the commissions are in the General Assembly packs. The shape of the physics endeavour changes over time and this is reflected here by a proposal to change the name of C17 and to consider the terms of reference (and names) of a number of commissions involved in the large field of condensed matter physics.

## 6. Working Groups

Much of the work done by IUPAP is carried out through the working groups. They have an agreed mandate and are generally of a limited duration. A few have a more permanent role related to long term developments in physics. All are supervised by the Council annually, and decisions whether to terminate, modify mandates or establish new working groups are made at the Council meeting prior to the GA. The Council agreed new general arrangements governing the terms of service and appointment procedures for all working groups at the meeting just prior to this GA in order to ensure we were adopting best governance practice. The GA will hear presentations from the working groups as usual.

We have responded to a proposal put forward by the OECD Global Science Forum (GSF) that IUPAP should play a major role in the coordination of developments in astroparticle physics. This proposal has coincided with an internal review of the Particle and Nuclear Astrophysics and Gravitation International Committee (PANAGIC) which concluded that this committee had too broad a remit to be effective. We agreed proposals that: the present WG4 PANAGIC would be disbanded in 2011; a new Working Group APPIC (Astroparticle Physics International Committee) would be formed; and the existing independent Gravitational Waves International Committee (GWIC) would become a IUPAP Working Group, bringing over its existing structure and membership.

The Council also agreed to endorse the proposal in the form of a resolution from the USA liaison committee to the General Assembly that we should re-establish the Energy Working Group and trusts this will be warmly welcomed by delegates to the GA.

We are also pleased to announce that revisions to the membership of the joint IUPAP/IUPAC working group to validate claims for the discovery of new elements are just being concluded following significant work from several senior members of the Executive Council in liaison with our representatives and colleagues in IUPAC.

## **7. Conclusion**

We should recognise that IUPAP has gone through a major transition over the last three years with the move of its administration to the Institute of Physics offices here in London UK – from the American Physical Society offices in Washington, USA. Our Secretary General, Bob Kirby-Harris and Chief of Secretariat, Williamina Lazaro have been heavily involved in this transition process. I would like to thank them both for their significant efforts in making this a success. I know that considerable support is also provided by the finance, IT and legal staff in the IOP to ensure the smooth running of the IUPAP administration; and of course many more have been involved in preparing for and running this General Assembly.

My thanks to you all.

## **IV - RESOLUTIONS PASSED BY THE 2011 GENERAL ASSEMBLY**

### **Resolution 1**

To increase membership dues by 3% each year, for the years 2012, 2013 and 2014 and to introduce a regular annual inflationary increase from then on based on an international inflation indicator.

### **Resolution 2**

The Statutes will be revised to permit a further two Vice Presidents at Large to be elected so that there are a total of five Vice Presidents at Large.

### **Resolution 3**

To amend By-Law IIB on Terms on Office (Appendix D).

### **Resolution 4**

That IUPAP endorses the global project to work through UNESCO to request a United Nations proclamation of an International Year of Light in 2015 (Appendix E).

### **Resolution 5**

The General Assembly approves the Executive Council's recommendations on the review of the structure of commissions and agrees to delegate powers to the Executive Council to approve changes of commission names and mandates that arise from working groups on this review (Appendix F).

### **Resolution 6**

IUPAP fully endorses the proposal to establish an International Year of Crystallography in 2013.

### **Resolution 7**

IUPAP endorses the revision to the IUPAP statement on the Universality of Science to include opposition to discrimination on the grounds of disability, gender identity, sex or sexual orientation (Appendix G).

### **Resolution 8**

The General Assembly notes with approval the decision taken by the Executive Council to re-establish the Working Group on Energy.

### **Resolution 9**

That IUPAP will appoint a gender champion from the Executive Council. A Vice President will act as gender champion. The chair, or other representative, of the Women in Physics Group is requested to liaise with the Gender Champion.

### **Resolution 10**

IUPAP resolves to support the International Association of Physics Students (Appendix H).

**Resolution 11**

The IUPAP General Assembly formally accepts the following names and symbols:

- Element 110 darmstadtium, symbol Ds
- Element 111 roentgenium, symbol Rg
- Element 112 copernicium, symbol Cn

**Resolution 12**

IUPAP will adopt the resolution on women in physics (Appendix I).

**Resolution 13**

IUPAP strongly endorses the principles and practices of peer review and recognises that peer review is an essential part of the scientific endeavour.

**Resolution 14**

That the resolution continuing IUPAP's support for SESAME be adopted (Appendix J).

**Resolution 15**

That the proposed slate of candidates for commission members and officers be adopted.

**Resolution 16**

That the proposed slate of Executive Council members be adopted.

## ***Appendix D***

### **To amend the By-Law IIB to the following:**

1. All elections are for a term of three years.
2. Chairs may not be re-elected to any position on the Commission beyond their term as Chair, and Vice Chairs/Secretaries may not be re-elected to the same positions nor be re-elected as an ordinary member - except in extraordinary circumstances, and, in such circumstances, special approval by the General Assembly is required. Ordinary members may be elected twice.
3. Normally the Secretary, Vice-Chair and Chair are to be chosen from among those who have served at least one term on the Commission.
4. Service in all capacities shall not exceed three terms.

The General Assembly may grant exceptions for those Commissions that undertake long-term projects or where continuity is particularly important.

## ***Appendix E***

The International Union of Pure and Applied Physics (IUPAP) endorses the global project led by the European Physical Society (EPS), the Optical Society (OSA), the Institute of Physics (IOP), the IEEE Photonics Society, SPIE, the International Commission on Optics and many other international partners to work through UNESCO to request a United Nations proclamation of an International Year of Light in 2015.

IUPAP expresses its strong support for International Year of Light goals that encompass science, education, outreach, and particularly its aims to promote physics education and improve the quality of life of citizens in the developing world.

## **Appendix F**

The General Assembly approves the Executive Council's recommendations on the review of the structure of commissions and agrees to delegate powers to the Executive Council to approve changes of commission names and mandates that arise from working groups on this review.

### **C4: Commission on Cosmic Rays**

It is proposed to rename C4 to "Commission on Astroparticle Physics".

*Executive Council recommendation: Chair of C4 should consult with C4 members and broader community in order to bring a recommendation on the action to be taken on this proposal to the late 2012 Executive Council meeting.*

### **C6: Commission on Biological Physics and AC4: International Organization on Medical Physics (IOMP)**

The proposal is to better connect both Commissions. The chair of C6 is a member of AC4 but the chair of AC4 is currently not an official member of C6. This should be corrected.

*Executive Council recommendation: The chair of AC4 is an associate member of C6 and this is considered a satisfactory way of ensuring good connections between C6 and AC4.*

### **C10: Commission on the Structure and Dynamics of Condensed Matter**

There is a substantial overlap between the Commissions C5, C8, C9 and C10 all covering aspects of condensed matter physics. It is proposed to dedicate C10 specifically to the emerging field of soft matter physics. The name could be either "Commission on Soft Matter" or "Commission on the Structure and Dynamics of condensed and soft matter".

*Executive Council recommendation: Chair of C10 should consult C10 members and broader community in order to bring a recommendation on the action to be taken with this proposal to the late 2012 Executive Council meeting.*

### **C17: Commission on Quantum Electronics**

The on-going efforts to align C17 with the research topics of modern optics and photonics are strongly supported. Possible new names to be considered for C17 include "Laser Physics and Photonics", "Quantum Optics and Photonics" or "Optics and Photonics".

*Executive Council recommendation: Working group to be set up by chair of C17 and to include representatives of all relevant commissions and affiliated commissions with remit to put some recommendations regarding Commission name to late 2012 IUPAP Executive Committee meeting.*

The GA will delegate power to the Executive Council to approve the change of name that might be resolved by the Working Group.

The GA will delegate power to the Executive Council to approve the changes of Commission names and mandates that might arise from working groups that might be established from the reporting back of C4 and C10 chairs in late 2012. It is envisioned that such working groups would report back in late 2013.

## **Appendix G**

IUPAP endorses the following revision of the resolution on the Universality of Science made at the 2008 GA.

1. The principle of the Universality of Science is fundamental to scientific progress. This principle embodies freedom of movement, association, expression and communication for scientists, as well as equitable access to data, information and research materials.
2. In pursuing its objectives with respect to the rights and responsibilities of scientists, the International Union of Pure and Applied Physics (IUPAP) actively upholds this principle, and, in so doing, opposes any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender, gender identity, sex, sexual orientation, age or disability. IUPAP should only sponsor conferences and events at institutions and in countries that uphold this principle. If scientists are excluded from attending IUPAP-sponsored international conferences by a host institution or country on the basis of any of these factors, IUPAP should register its concern at the highest level of that institution or country, and should not sponsor any future events in that country until such exclusions have been eliminated.



## **Appendix H**

In order to support the International Association of Physics Students (IAPS) in its central aim of encouraging and facilitating interaction between physics students from different countries, IUPAP should encourage all national bodies adhering to IUPAP to:

- support the formation of national organisations of physics students in their home countries;
- encourage these organisations to take part in the international activities organised by IAPS;  
and
- set aside a small budget to enable one or more student delegates to attend the annual International Conference of Physics Students through paying conference fees and contributing towards their travel costs.

Furthermore the Secretary General should contact IAPS and establish whether there are other ways in which IUPAP itself could support and encourage the development of IAPS

## ***Appendix I***

IUPAP resolves to:

1. Improve the effectiveness of girls' education in physics, encourage the Commission on Physics Education (C14) to collaborate with the Working Group on Women in Physics to summarize guidelines for the training of physics educators at all levels with special attention to research-based and gender-aware teaching.
2. Encourage the complete analysis of the Global Survey of Physicists and the wide dissemination through IUPAP Liaison Committees and physical societies of its results, and endorse collaborations between physicists and social scientists, to understand barriers to women's participation and advancement and to shape interventions.
3. Encourage its commissions and member countries to have a clear and transparent list of criteria for awards ensuring that women are nominated for prizes and that there are women on the selection committees for prizes and awards.
4. Request a response from each IUPAP Liaison Committee to its country's report in the Proceedings of the Fourth IUPAP International Conference on Women in Physics, including the progress of women physicists within their country and the actions taken or proposed to improve the inclusion and advancement of women in the field. The reports should be submitted to the IUPAP Working Group on Women for analysis.
5. Charge the IUPAP Working Group on Women in Physics (a) to make useful resources available globally through the Internet; (b) to analyse brief reports from country team leaders and IUPAP Liaison Committees regarding the status and progress for women in physics; (c) to organize the 5th International Conference on Women in Physics in 2014 and require IUPAP member countries to send a small delegation; and (d) to report at the 28th IUPAP General Assembly in 2014.

## ***Appendix J***

IUPAP continues to express very strong support for the establishment of SESAME as a critically important regional scientific facility, noting the progress to date.

As a matter of urgency, IUPAP calls upon the relevant bodies to come up with the necessary funding to enable the project's objectives to be achieved.

IUPAP commits, within its own resource limits, to provide financial support to SESAME.

## V. INTERNATIONAL CONFERENCES

Each year, IUPAP sponsors from 20 to 30 international conferences and awards grants to some of them. Conference organisers desiring IUPAP's sponsorship should submit the application form BOTH to the appropriate IUPAP Commission (according to the conference topic), and to the IUPAP Secretariat (or designate) and inform the liaison committee associated with the location of the conference. Organisers of interdisciplinary conferences, or those in doubt as to the appropriate Commission, should communicate with the Associate Secretary General.

To ensure that a conference be considered for IUPAP sponsorship in time, requests must be made **before June 1 of the year preceding the date** of the proposed conference. The request must include the required information indicated on the Application Form.

### 1. Categories of Conferences

#### **General Conferences - Type A**

These provide a broad overview of an entire field (typically the field of interest to a Commission), and normally occur at two- or three-year intervals, as advances in the field warrant. Attendance in the range of 750-1000 would be anticipated.

#### **Topical Conferences - Type B**

These concentrate on broad sub-fields (e.g. nuclear spectroscopy, nuclear reaction mechanisms, heavy ion physics, are possible sub-fields in the field of Nuclear Physics). They would normally be scheduled in the years between the corresponding Type A General conferences. Attendance in the range of 300-600 would be anticipated.

#### **Special Conferences - Type C**

These concentrate on much more specialised topics than in the case of Type B Conferences (e.g. angular correlations, lifetime measurements, neutron resonance studies in the field of Nuclear Physics). Attendance in the range of 50-200 would be anticipated.

#### **Workshops in Developing Countries - Type D**

These concentrate on meeting the needs of a developing region. Unlike the Type A, B and C conferences, they do not need to be truly international, but should involve neighbouring countries, and they should address the needs of the region. One Type D conference will be approved each year. All applications for Type-D Conferences must be submitted to the Commission on Physics for Development (C13).

### 2. Criteria and Requirements

The following criteria and requirements will be considered by the International Commissions in formulating their recommendation to the Executive Council of the IUPAP. Criteria A and B do not apply to Type D conferences.

#### A. Scientific Value and Composition of Organising Committees

1. There should be a clear need for the proposed conference. For conferences with a history of sponsorship, a statement should be given explaining why the series should be continued. For conferences without such a history, a description of the purpose and relationship to existing conferences should be given.
2. The members of the advisory and program committees and the invited speakers should be distinguished internationally. The composition of the significant organising committees should be broadly international, as well as the list of invited speakers. In keeping with IUPAP policy, it is expected that women be fully included in the membership of organising committees, program committees and the list of invited speakers.
3. The acceptance of papers should be based on a refereeing system which assures a level comparable with that of papers in regular journals. Every effort should be made to have the proceedings of the conference published in order to make them widely

and easily available to the scientific community. Publication of proceedings as a special issue of a regular journal or on the internet is encouraged.

## **B. International Character and Accessibility**

1. Only international conferences are sponsored. Such conferences have an international scientific advisory committee and move among different countries and continents. The participation should be genuinely international and not constitute effectively a national or regional conference to which a few physicists from outside are invited.
2. Generally satellite conferences are not sponsored separately but are implicitly endorsed by sponsorship of the main conference.
3. Because of their very large number and variety, IUPAP does not sponsor summer schools, workshops, symposia or annual conferences (without special justification).
4. Notwithstanding (A) above, a small number of regional conferences may be approved, where
  - i. the conference is held in a region in which physics activity is underdeveloped and in which some of the countries may not be members of IUPAP,
  - ii. such sponsorship has the potential of improving participation in the international community by physicists in developing regions and of leading to new membership in IUPAP, and
  - iii. attendance at the conference would be international, even though it might be limited to a region. Attendance from any one country should not exceed 50%. Conferences that are approved for sponsorship under this item are eligible for consideration for travel grants.
5. IUPAP sponsored conferences must conform to the detailed IUPAP Policy on Free Circulation of Scientists. (Implementation of this policy is described in Section 4 below).

## **C. Inclusion of Women**

It is the policy of IUPAP that all IUPAP sponsored conferences must include women on the organising and program committees and as invited speakers. The application should include a list of the program committee with evidence that women are included, and the numbers of women invited speakers should be recorded in the conference report.

## **D. Registration fee**

Most international conferences charge a registration fee. IUPAP requires that this not exceed a defined limit. For conferences held in 2013 the maximum registration fee is 550 Euros. This includes abstracts, preprints and/or proceedings, but does not include meals and/or accommodation. If proceedings are not included, the fee shall be substantially lower.

Conference organisers should give special financial consideration to unsupported young scientists and scientists from developing countries, and make every effort to waive or lower their fee. For the purpose of this item, 'developing countries' are defined by the World Bank's most recent list of 'low income' and 'lower middle income' countries.

## **3. Roles and Procedures**

### **A. Organising Committee**

1. The Organisers should send the application for IUPAP sponsorship both to the appropriate IUPAP Commission (please note that all Type D conference requests, irrespective of topic, must apply to C13 Physics for Development) and to the IUPAP Secretariat **before 1 June of the year preceding the date** of the proposed conference.

### **Early Approval**

The approval in October of conferences that will be held in the following year may provide too short a lead-time in many cases. It is desirable to have IUPAP sponsorship known at an early stage, particularly for the major Type A conferences.

### **Type A Conferences**

Type A conferences will be eligible for approval at least two years in advance. For example, conferences to be held in the summer of 2015 would be eligible for approval at the Council meeting in October of 2012, 2013, or 2014.

### **Approval of Type B Conferences**

Type B conferences will be eligible for approval at least one year in advance. For example, conferences to be held in the summer of 2014 would be eligible for approval at the Council meeting in October of 2012 or 2013.

**Note:** In both cases, the approval given would be provisional; if the requirements are not met when first approved, evidence that they have been met must be given in subsequent years for sponsorship to be maintained. In particular, the conference registration fee must be within the IUPAP limit. The exchange rates would be applied as of May 1 of the year before the one in which the conference is held.

2. The request must include the information indicated on the [Application Form](#). Conference organisers should show that their plans conform to the relevant general IUPAP policies for the sponsorship of IUPAP conferences. In particular they must conform to the criteria and requirements described under items '2.A. Scientific Value and Composition of Organising Committees', '2.B. International Character and Accessibility', and '2.C. Registration Fee'.
3. The motivation and the scientific value of the Conference should be explained. The composition of committees should give evidence of scientific quality and diversity; in particular a list of the programme committee should be provided with evidence that women are included.
4. The Organisers must state that the Conference fee will not exceed the defined limit set by IUPAP (550 Euros for conferences held in 2013). Such fee includes abstracts, preprints and/or proceedings, but does not include meals and/or accommodation. The Organisers should also explain the financial measures that are planned to give special consideration to unsupported young scientists and scientists from developing countries.
5. Conference organisers must publish the statement given in section 4. G (below) on free circulation of scientists in any circular or announcement and in the proceedings of the conference.
6. Conference organisers may request a travel grant to be used to assist with travel costs of scientists from developing countries. Funds from these grants are distributed by conference organisers. Travel grants are not awarded by IUPAP directly to individuals.
7. Precise beginning and ending dates, location of the conference, and name, address and e-mail address of the conference secretary or chief organiser are required. Conflict of dates with those for related conferences should be avoided.
8. It is very helpful to the IUPAP Council to have details of the organisation and budget for the proposed conference.
9. Information supplied should include a specific statement of plans for dissemination of the results or proceedings with particular reference to commitments regarding publication schedule, availability, and estimated cost, both for conference participants

and for the physics community at large.

10. **After the Conference**, the Organisers must complete a short Conference Report, using the web form, to the appropriate IUPAP Commission(s) and to the IUPAP Secretariat (or designate), containing basic information on the Conference and confirming that they complied to all IUPAP requirements. It is essential that you do this as IUPAP must keep statistics on the conferences that it supports. In particular, all visa issues should be reported.

***Helpful Advice:***

- (i) A time period of not less than six months should be allowed between the scheduled date of the conference and the first formal announcement and call for papers to permit participants sufficient time to obtain visas and to make other arrangements to attend.
- (ii) Specific information on accommodations, on ancillary tours, or spouses' programmes planned should be included in the first announcement.

## **B. Liaison Committee**

The role of the national liaison committee is to provide an assessment of the ability of the local organising committee to handle an international meeting (space, facilities, funding, assistance with visas as required, etc.). This assessment should go to (a) the IUPAP Commission and (b) to the IUPAP Secretariat (or designate).

## **C. IUPAP Commission**

The role of the IUPAP Commission is to provide an assessment of the science, the international character of the meeting, and the planning within the IUPAP guidelines for sponsored conferences. The Commissions should forward their recommendations to the Secretariat (or designate) ***not later than August 31***. If more than one conference is recommended by the commission for sponsorship in a given year, the conferences must be ranked in order of priority.

The commission is charged with planning ahead and placing conferences in the context of long term plans.

## **D. IUPAP Executive Council**

The IUPAP Executive Council meets in late September or early October of each year, at which meeting sponsorship of conferences is decided and grants are approved. The following matters will be considered by the Executive Council in deciding whether sponsorship will be granted to a proposed conference:

- the recommendation of the appropriate IUPAP Commission and local liaison committee;
- the density of international conferences planned by the Commission, by other Commissions on similar topics or by other Unions on similar topics, and the synchronization of dates;
- the current situation concerning the free circulation of scientists in the proposed conference site.

When the Executive Council has met and made the decisions on sponsorship, the information will be communicated to the organising committee by the relevant commission.

The President and Secretary-General of the Union, in consultation with the Commission Chair, may withdraw sponsorship of a conference, should extreme circumstances arise subsequent to its having been given warrant. Such action usually results from problems of free circulation of scientists (see section 4, below).

## **4. Implementation of IUPAP Policy on Free Circulation of Scientist**

- A. The free movement of scientists for international scientific purposes is one of the most important aims of IUPAP. IUPAP has made this policy the object of repeated resolutions, and adheres to the declarations of ICSU in this respect.
- B. While a host country may not be expected to declare in advance that any scientist will be admitted to any IUPAP-sponsored meeting, a minimum commitment is expected that the host country will declare in advance that individuals will not be excluded solely on ground of national origin or citizenship.
- C. While it is a right of the host country to decline an application on personal grounds, the test of the sincerity of such a commitment (declared or undeclared) is the country's willingness to allow participation of another scientist from the same country should they show an interest in the IUPAP sponsored conference.
- D. If no commitment is received from official sources in the host country, IUPAP will normally proceed as if the declaration has been made, and will plan the conference on the basis of its own policy. In this, it is guided by recent experience with the host country. If, subsequently, scientists are excluded from the host country on grounds of national origin, this fact will be publicised in IUPAP documents and reported to the ICSU Committee on Free Circulation of Scientists. IUPAP will not consider future events in that country until satisfactory changes have been made.
- E. If, after a conference has been granted IUPAP sponsorship, a host country issues a declaration that it will not grant visas to citizens of a particular country, then IUPAP sponsorship will normally be withdrawn. IUPAP recognises that scientists do not, in general, approve of restrictive visa practices. It therefore seeks redress by correction of the visa practices.
- F. IUPAP recognises that individual scientists have a responsibility to allow sufficient time for administrative procedures to take place. To this end, applications for visas should be forwarded by participants to the appropriate consular offices at least three months prior to the date of the conference.
- G. IUPAP has resolved that the following statement, as a standard declaration, **shall be published by the organisers** in any circular or announcement and in the proceedings of the conference:

**"To secure IUPAP sponsorship, the organisers have provided assurance that (Conference name) will be conducted in accordance with IUPAP principles as stated in the IUPAP resolution passed by the General Assembly in 2008. In particular, no bona fide scientist will be excluded from participation on the grounds of national origin, nationality, or political considerations unrelated to science."**



## **VI. IUPAP STATEMENT ON UNIVERSALITY OF SCIENCE**

The principle of the Universality of Science is fundamental to scientific progress. This principle embodies freedom of movement, association, expression and communication for scientists, as well as equitable access to data, information and research materials.

In pursuing its objectives with respect to the rights and responsibilities of scientists, the International Union of Pure and Applied Physics (IUPAP) actively upholds this principle, and, in so doing, opposes any discrimination on the basis of such factors as ethnic origin, religion, citizenship, language, political stance, gender, gender identity, sex, sexual orientation, age or disability. IUPAP should only sponsor conferences and events at institutions and in countries that uphold this principle. If scientists are excluded from attending IUPAP-sponsored international conferences by a host institution or country on the basis of any of these factors, IUPAP should register its concern at the highest level of that institution or country, and should not sponsor any future events in that country until such exclusions have been eliminated.

**INTERNATIONAL UNION  
OF PURE AND APPLIED PHYSICS**

## **VII IUPAP OFFICERS**

**OCTOBER 2011 – OCTOBER 2014**

**EXECUTIVE COUNCIL**  
**(to hold office until 2014 General Assembly)**

*President:* **Jarlskog, Cecilia** (2011) (2008) Division of Mathematical Physics, LTH Lund University, Box 118, SE-221 00 Lund, SWEDEN Fax: 46 46 222 4416  
E-mail: cecilia.jarlskog@matfys.lth.se

*Past-President:* **Ushioda, Sukekatsu** (2008) (2005) National Institute for Materials Science (NIMS), 1-2-1 Sengen, Tsukuba, Ibaraki 305-0047, JAPAN Phone: 81 29 859 2001 Fax: 81 29 859 2008  
E-mail: ushioda.sukekatsu@nims.go.jp

*President Designate:* **Mckellar, Bruce** (2011) School of Physics, University of Melbourne, Victoria 3010, AUSTRALIA Phone: 61 03 9650 0421 Fax: 61 03 9650 0725  
E-mail: bhjmckellar@mac.com

*Secretary General:* **Palmer, Stuart** (2012- ) The Institute of Physics, 76 Portland Place, London W1B 1NT, UK Fax: 44 020 7470 4937  
E-mail: secgen.iupap@iop.org

*Associate Secretary General:* **Nemutudi, Rudzani** (2011) (2008) Head Material Research Department, Itemba Lab, PO Box 722, Somerset West 7129, SOUTH AFRICA Fax: 27 12 481 4044  
E-mail: rudzi@tlabs.ac.za

*Vice Presidents Elected at Large*

**Kaminskii, Alexandr** (2011) (2008) Institute of Crystallography, Russian Academy of Sciences, 59, Leninsky Prospect, 117333 MOSCOW, Russia  
Fax: 7 499 135 1011  
E-mail: kaminalex@mail.ru

**Barbosa, Marcia** (2011) (2008) Instituto de Fisica, Universidade Federal do Rio, Grande do Sul, C.P. 15051, 91501-970 Porto Alegre, RS, BRAZIL Fax: 55 51 3316 7286  
E-mail: barbosa@if.ufrgs.br

**Barma, Mustansir** (2011) (2008) Tata Institute of Fundamental Research , Homi Bhabha Road, Colaba, Mumbai 400005, INDIA Fax: 91 022 2280 4501  
E-mail: barma@theory.tifr.res.in

**Zhan, Wenlong** (2011) Vice-President of Chinese Academy of Sciences, No. 52 Sanlihe Road, Beijing 100864, CHINA Phone: 86 10 6859 7612 Fax: 86 10 6858 1190  
E-mail: wlzhan@cashq.ac.cn

**Allotey, Francis** (2011) Director Of Institute Of Mathematical Sciences - Ghana, PO Box L197, Legon, Accra, GHANA Phone: 00 233 302 501360  
Fax: 00 233 302 501360  
E-mail: fkallotey@gmail.com

*Vice Presidents Elected from the Commission Chairs*

**Ruffo, Stefano** (C3) (2011) Dipartimento di Energetica, Università di Firenze, via s. Marta, 3. 50139 Firenze, ITALY Phone: 39 055 4796344 Fax: 39 055 4796342  
E-mail: stefano.ruffo@unifi.it

**Kono, Kimitoshi** (C5) (2011) Low Temperature Physics Laboratory, RIKEN, Hirosawa 2-1, Wako-shi, 351-0198, JAPAN Phone: 81 48 467 9327 Fax: 81 48 462 4652  
E-mail: kkono@riken.jp

**Mertig, Ingrid** (C9) (2011) Martin Luther Universitdt Halle-Wittenberg Fachbereich Physik, Fachgruppe Theoretische Physik, 06099 Halle, GERMANY Phone: 49 345 5525430 Fax: 49 345 5525446  
E-mail: ingrid.mertig@physik.uni-halle.de

**Gebbie, Katherine** (C15) (2011) Physics Laboratory, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8400, Gaithersburg, Maryland 20899-8400, USA Phone: 01 301 975 4201 Fax: 01 301 975 3038  
E-mail: katharine.gebbie@nist.gov

**Hansen, Alex** (C20) (2011) Department of Physics, The Norwegian University of Science and Thechnology, N-7491 Trondheim, NORWAY Phone: 47 73593649 Fax: 47 73593372  
E-mail: Alex.Hansen@ntnu.no

## **FORMER PRESIDENTS**

S. Ushioda	2008 - 2011
A. Astbury	2005 - 2008
Y. Petroff	2002 - 2005
B. Richter	1999 - 2002
J.S. Nilsson	1996 - 1999
Y. Yamaguchi	1993 - 1996
Yu. Ossipyan	1990 - 1993
L. Kerwin	1987 - 1990
D. A. Bromley	1984 - 1987
K. Siegbahn	1981 - 1984
L. Sosnowski	1978 - 1981
C. C. Butler	1975 - 1978
H. Maier-Leibnitz	1972 - 1975
R.F. Bacher	1969 - 1972
D.I. Blokhintsev	1966 - 1969
L. Neel	1963 - 1966
H. J. Bhabha	1960 - 1963
E. Amaldi	1957 - 1960
N. F. Mott	1951 - 1957
H.A. Kramers	1947 - 1951
M. Siegbahn	1934 - 1947
R. Millikan	1931 - 1934
Sir W. Bragg	1922 - 1931

## **FORMER SECRETARIES-GENERAL**

R. Kirby-Harris	2008 - 2011
J. Franz	2002 - 2008
R. Turlay	1999 - 2002
W. Heinicke	1993 - 1996
J. S. Nilsson	1984 - 1993
L. Kerwin	1972 - 1984
C. C. Bulter	1963 - 1972
P. Fleury	1947 - 1963
P. P. Ewald	1946 - 1947
H. Abraham	1922 - 1943

## **FORMER ASSOCIATE SECRETARIES-GENERAL**

P. Melville	2005 - 2008
R. Barber	2003 - 2005
E. Molinari	2002 - 2003
J. Franz	1999 - 2002
R. Barber	1993 - 1999
W. Heinicke	1990 - 1993
J. R. Klauder	1984 - 1990
J.S. Nilsson	1972 - 1984
L. Kerwin	1963 - 1972
C. C. Butler	1951 - 1963
M. A. P��rard	1947 - 1951
E. Bloch	1934 - 1944



## CHEFS de SECRÉTARIAT:

W. Lazaro	2008 -
J. Beamon-Kiene	2003 - 08
E. Ridgway	1999 - 03
C. Persson	1984 - 99
C. Gariépy-Baloux	1963 - 84

## FORMER VICE-PRESIDENTS

M. Barbosa	2008 - 11
M. Barma	2008 - 11
A. Kaminskii	2008 - 11
S. Bader	2008 - 11
H. Orland	2008 - 11
S. Maekawa	2008 - 11
P. McBride	2008 - 11
K. von Klitzing	2008 - 11
J. Chen	2005 - 08
C. Cisneros	2005 - 08
D. Dahlberg	2005 - 08
P. Exner	2005 - 08
B. Mckellar	2005 - 08
L. Pendrill	2005 - 08
J. Pratibha	2005 - 08
A. Suzor-Weiner	2005 - 08
S. Bagayev	2002 - 05
H. Fukuyama	2002 - 05
P. Ormos	2002 - 05
S. Rezende	2002 - 05
J. Sahm	2002 - 05
A. Sen	2002 - 05
M. Skolnick	2002 - 05
A. Ardeberg	1999 - 02
R. Barber	1999 - 02
K. Binder	1999 - 02
PIP. Kalmus	1999 - 02
JL. Morán-Lopez	1999 - 02
EC. Zingu	1999 - 05
PJ. Black	1997 - 99
J. Gyulai	1997 - 99
R. Klein	1997 - 99
GC.Righini	1997 - 99
FW. Sluijter	1997 - 99
LV. Keldysh	1996 - 99
P. Chaudhari	1993 - 96
F. Garcia-Moliner	1993 - 99
G. Marx	1993 - 96
BP. Stoicheff	1993 - 96
H. Yasuoka	1993 - 02
G-Z. Zhou	1993 - 99
A. Frova	1990 - 96
Jr. WW. Havens	1990 - 93
F. Pobell	1990 - 96

J. Werle	1990 - 96
H. Rohrer	1987 - 93
Y. PAL	1987 - 93
YMP. Farge	1987 - 93
K. Lanius	1987 - 90
Sir D. Wilkinson	1984 - 93
T. Mayer-Kuckuk	1984 - 90
PC. Hemmer	1984 - 90
VI. Goldanskii	1984 - 87
MGK. Menon	1981 - 87
M. Matyas	1981 - 87
PR. Aigran	1981 - 87
D. Sette	1978 - 84
P. Mazur	1978 - 84
O. Madelung	1978 - 84
I. Imali	1978 - 84
R. Kaischiew	1975 - 81
A. Abragam	1975 - 81
R. Street	1975 - 78
H. Wergeland	1972 - 78
BM. Vul	1972 - 78
A. Salam	1972 - 78
R. Kubo	1972 - 78
VF. Weisskopf	1969 - 75
L. Pal	1969 - 75
A. Kastler	1969 - 75
S. Rozental	1966 - 72
W. Dekeyser	1966 - 72
W. Boas	1966 - 72
S. Bhagavamtam	1966 - 72
G. Bernardini	1966 - 72
Sir G.Sutherland	1963 - 69
J. Jauch	1963 - 69
M. Danysez	1963 - 69
H. Yukawa	1963 - 66
F. Seitz	1960 - 66
E. Rüdberg	1960 - 66
HH. Nielsen	1960 - 66
CJ. Gorter	1960 - 66
J. Weyssenhoff	1957 - 63
F. Trendelenburg	1957 - 63
H. STAUB	1957 - 63
G. Herzberg	1957 - 63
E. Rasmussen	1957 - 60
A. Joffe	1957 - 60
RB. Brode	1954 - 60
M. Kotani	1954 - 60
J. De Boer	1954 - 60
JH. Van Vleck	1954 - 57
ML. Oliphant	1951 - 57
Sir KS. Krishnan	1951 - 57
P. Huber	1951 - 57
J. Heyrovsky	1951 - 57
G. Borelius	1951 - 57
JA. Wheeler	1951 - 54



JC. Slater	1949 - 54
P. Scherrer	1947 - 51
JC. Jacobsen	1947 - 51
CJ. Gorter	1947 - 51
PP. Ewald	1947 - 51
Sir C. Darwin	1947 - 51
KK. Darrow	1947 - 51
C. Bialobrzewski	1947 - 51
E. Fermi	1934
L. Vegard	1931 - 34
V. Posejpal	1931 - 34
Sir R. Glazebrook	1931 - 34
A. Cotton	1931 - 34
W. Keesom	1931 - 34
N. Cabrera	1925 - 34
J. Rateau	1925 - 31
W. Natanson	1925 - 31
CE. Guye	1925 - 31
H.A. Lorentz	1923 - 31
E. Van Aubel	1922 - 34
H. Nagaoka	1922 - 34
M. Knudsen	1922 - 34
M. Leblanc	1922 - 25
OM. Corbino	1922 - 25
M. Brillouin	1922 - 25

## IUPAP LIASION COMMITTEES

Country	Member	Shares	Votes	Contact Person
<b>Algeria</b>	CDTA	1	1	<b>EI-Hachemi Amara</b> Advanced Technologies Development Centre Po. Box 17 Baba-Hassen Algiers, Algeria Tel: 213 2135 1040 Fax: 213 2135 1039 Email: amara@cdta.dz
<b>Argentina</b> 1951 - 81; 1983 -	Asociacion Fisica Argentina	1	1	<b>Dr Antonio José Ramirez-Pastor</b> Secretary Asociación Física Argentina Departamento de Física-FCE Universidad Nacional de La Plata cc 67, (1900) La Plata Argentina Tel: +54 221 424 7201 int. 241 Fax: +54 221 425 2006 Email: antorami@unsl.edu.ar or secretaria@fisica.org.ar
<b>Australia</b> 1925 -	Australian Academy of Sciences	4	3	<b>Meaghan O'Brien</b> International Programmes Officer Australian Academy of Sciences Ian Potter House Gordon Street Canberra City Acton ACT 2601 Australia Tel: 61 (02) 6201 9456 Fax: 61 (02) 6201 9494 Email: meaghan.obrien@science.org.au
<b>Austria</b> 1957 -	Osterreichische Akademie der Wissenschaften	2	2	<b>Prof Joachim Burgdoerfer</b> A1040 Vienna, Austria Fax: 43-1-58801-13699 Email: burg@concord.itp.tuwien.ac.at
<b>Belgium</b> 1922 -	Belgian National Committee	4	3	<b>Prof émérite Pierre Defrance</b> Catholic University of Louvain IMCN-NAPS Bâtiment M. de Hemptinne, Chemin du Cyclotron, 2 bte L7.01.07 1348 Louvain-la-Neuve Tel: 32 (0) 10 473348 Email: <a href="mailto:pierre.defrance@uclouvain.be">pierre.defrance@uclouvain.be</a>
<b>Brazil</b> 1951 -	Brazilian Physical Society (SBF)	8	4	<b>Prof Celso Pinto de Melo</b> Departamento de Física Universidade Federal de Pernambuco 150.670-901 Recife PE Brazil Tel: +55 (0)81 2126 7612 Fax: +55 (0)81 3271 0359 Email: celso@df.ufpe.br or cpdemelo@gmail.com Website: www.sbfisica.org.br

<b>Cameroon</b> 2008	Cameroon Physical Society	1	1	<b>Prof Paul Wofo</b> Laboratory of Modelling and Simulation in Engineering, Biomimetics and Prototypes Faculty of Science University of Yaounde, Box: 812 Yaounde, Cameroon Tel: +237 9998 0567 Email: pwoafo1@yahoo.fr Private Box: 8210 Yaounde, Cameroon.
<b>Canada</b> 1922 -	National Research Council of Canada	8	4	<b>Kelly Thompson/Wendy Hansen</b> National Research Council Canada 100 Sussex Drive, Room 1038D Ottawa, Ontario, K1A 0R6 Canada Tel: +1 613 949 9674 Fax: +1 613 952 9696 Email: Kelly.Thompson@nrc-cnrc.gc.ca; Wendy.Hansen@nrc-cnrc.gc.ca
<b>Chile</b> 1983 -	Sociedad Chilena de Fisica	1	*	<b>Prof Rafael D. Benguria</b> Departamento de Física, Facultad de Física Pontificia Universidad Católica de Chile Casilla 306, Santiago 22, Chile Tel: +56 2 354 7072 Fax: +56 2 553 6468 Email: rbenguri@fis.puc.cl
<b>China</b> 1984 -	The Chinese Physical Society, Beijing Dongmei Gu cps@aphy.iphy.ac.cn	12	5	<b>Prof Li Lu</b> Institute of Physics Chinese Academy of Sciences P.O.Box 603 Beijing 100190 P.R. China Tel: +86 10 8264 9151 Fax: +86 10 8264 9019 Email: lilu@iphy.ac.cn or dmgu@iphy.ac.cn
<b>China</b> 1934 -	The Physical Society located in Taipei	5	3	<b>Dr Chin-Kun Hu</b> Institute of Physics Academia Sinica 128 Academia Road Section 2 Taipei 11529 Taiwan Tel: +886 2 2789 6720 Fax: +886 2 2783 4187 Email: huck@phys.sinica.edu.tw
<b>Columbia</b> 2008 -	Columbia Physical Society	1	1	<b>José Herman Muñoz</b> , President Sociedad Colombiana de Fisica Universidad del Atlántico Kilometro 7 vía Puerto Colombia Barranquilla - Colombia Tel: (+5) 3548118 Email: jhmunoz@ut.edu.co or <a href="mailto:socofi@gmail.com">socofi@gmail.com</a>

<b>Costa Rica</b> 2008 -	National Academy of Sciences	1	1	<b>Dr Gabriel Macaya Trejos</b> Centro de Investigación en Biología Celular y Molecular, Ciudad de la Investigación Universidad de Costa Rica Costa Rica Tel: +506 207 3191 Fax: +506 201 3190 Email: gmacaya@gmail.com or anc@anc.cr
<b>Croatia</b> 1993 -	Croatian Physical Society	1	1	<b>Prof Roman Caplar</b> Division of Experimental Physics Rudjer Boskovic Institute Bijenicka Cesta 54 HR-10000 Zagreb Croatia Tel: +385 1 4561 031 Fax: +385 1 4680 239 Email: caplar@irb.hr
<b>Cuba</b> 1969 - 1994 1995 -	Cuban Physical Society	1	*	<b>Dr Ernesto Althshuler Álvarez</b> Facultad de Fisica Universidad de la Habana Habana 10400 Cuba Tel: +53 7878 8950 Email: ealthshuler@fisica.uh.cu
<b>Cyprus</b> 2003	University of Cyprus	1	1	<b>Constantia Alexandrou</b> University of Cyprus Department of Physics P.O. Box 20537 Cy-1678 Nicosia Cyprus Email: alexand@ucy.ac.cy
<b>Czech Republic</b> 1923, 1993 -	Academy of Science of the Czech Republic	4	3	<b>Pavel Exner</b> Chair Nuclear Physics Institute AS CR 250 68 Rez near Prague Czech Republic Fax: +420 2 2094 0165 Email: exner@ujf.cas.cz
<b>Denmark</b> 1922 -	Kgl. Danske Videnskabernes Selskab	3	2	<b>Jørgen Schou</b> President Danish Physical Society DTU Fotonik, Risø Campus DK-4000 Roskilde Phone: +45-46774755 Email: <a href="mailto:josc@fotonik.dtu.dk">josc@fotonik.dtu.dk</a>
<b>Egypt</b> 1948 -	Academy of Scientific Research and Technology	1	1	<b>Dr Hamdy A Morsy</b> ASRT for Scientific & Cultural Relations 101 El-Kasr El-Aini Street Cairo Egypt Fax: +20 2 594 1270

				Email: asrt@asrt.sci.eg
<b>Estonia</b> 2001	Estonian Academy of Sciences	1	1	<b>Prof Ergo Nommiste</b> Institute of Physics University of Tartu Riia Street 142, Tartu 51014, Estonia Tel. +372 7 374606 GSM: +372 56 616 428 Email: ergo.nommiste@ut.ee
<b>Ethiopia</b> 2008	Physics Society of Ethiopia	1	1	<b>Dr Mulugeta Bekele</b> , President Physics Society of Ethiopia Meserete Kristos College Ethiopia Email: mbekele@phys.aau.edu.et
<b>Finland</b> 1947 -	Finnish Physica Society	3	2	<b>Ella Hanninen</b> , Secretary General Finnish Physical Society P.O. Box 64 00014 Helsingin Yliopisto Finland Fax: +358 9 191 50553 Email: toimisto@fyysikkoseura.fi
<b>France</b> 1922 -	Académie des Sciences (COFUSI)	15	5	<b>Mme Dr V Brisson</b> Academie des Sciences Comite Français de ide Lab. de Physique Lab de l'Accélérateur Linéaire Centre d'Orsay Batimént 208 F-91405 Orsay Cedex France Fax: +33 1 6446 8546 Email: brisson@lal.in2p3.fr
<b>Germany</b> 1954 -	Deutsche Physikalische Gesellschaft	15	5	<b>Dr Bernhard Nunner</b> Deutsche Physikalische Gesellschaft Hauptstr. 5 D-53604 Bad Honnef Germany Tel: +49 2224 9232 11 Fax: +49 2224 9232 50 Email: nunner@dpg-physik.de Website: www.dpg-physik.de
<b>Ghana</b> 1997 -	The Society of African Physicists and Mathematicians	1	1	<b>Prof F.K.A. Allotey</b> The African Physical Society c/o Edward Bouchet Centre for Science and Technology P.O. Box LG 197 Legon - Accra Ghana Tel: +233 21 501 360 Fax: +233 21 501 965 Email: fka@ghana.com
<b>Greece</b> 2008	University of Athens	1	1	<b>Prof Angelos Angelopoulos</b> University of Athens Faculty of Physics University Campus

				15701 Ilissia Athens Greece Tel: +30 210 727 6886 Fax: +30 210 361 0690 Email: angel@phys.uoa.gr
<b>Hungary</b> 1948 -	Hungarian Academy of Sciences	3	2	<b>Prof Peter Domokos</b> Wigner Research Centre Hungarian Academy of Sciences P.O. Box 49 H-1525 Budapest Hungary Tel: 36 13922222 ext. 1392 Fax: +36 1 392 2768 Email: <a href="mailto:domokos.peter@wigner.mta.hu">domokos.peter@wigner.mta.hu</a>
<b>India</b> 1948 -	Indian National Science Academy	8	4	<b>Dr Brotati Chattopadhyay</b> Assistant Executive Secretary Indian National Science Academy Bahadur Shah Zafar Marg New Delhi-110002 India Tel: +91 11-23221931-50 Fax: +91 11-23221959; 23231095 Email: icsu@insa.nic.in
<b>Iran</b> 2011	Sharif University of Technology	1	1	<b>Prof Reza Mansouri</b> Department of Physics Sharif University of Technology Tehran Iran Email: mansouri@ipm.ir
<b>Ireland</b> 1966 -	Royal Irish Academy	1	1	<b>Dr Sheila Gilheany</b> Institute of Physics in Ireland c/o School of Physical Sciences Dublin City University Dublin 9 Ireland Tel: +353 86 260 0903 Fax: +353 1 700 5384 Email: sheila.gilheany@iop.org
<b>Israel</b> 1951 -	The Israel Academy of Sciences and Humanities	2	2	<b>Prof Moty Heiblum</b> Department of Physics Weizmann Institute Rehovot 76100 Israel Tel: : +972-8-934-3896 Fax: +972-8-934-4127 Email: moty.heiblum@weizmann.ac.il
<b>Italy</b> 1923 -	Consiglio Nazionale delle Ricerche	12	5	<b>Prof Dino Fiorani</b> CNR - Istituto di Struttura della Materia Via del Fosso del Cavaliere 100 00133 Roma Italy Tel: 0039-06-45488155 Fax: 0039-06-90672470

				Email: dino.fiorani@ism.cnr.it
<b>Kenya</b> 2012	The National Council for Science and Technology	1	1	<b>Prof Julius Mwabora</b> Department of Physics University of Nairobi P. O. Box 30197-00100 Nairobi Kenya Tel: +254 20 4447552 (Office) +254 722709507(Cell) E-mail: <a href="mailto:mwabora@uonbi.ac.ke">mwabora@uonbi.ac.ke</a>
<b>Japan</b> 1922 -	Science Council of Japan	15	5	<b>Kimitoshi Kono</b> Science Council of Japan Low Temperature Physics Laboratory, RIKEN Hirosawa 2-1, Wako-shi, 351- 0198 JAPAN Tel: +81 48 467 9327 Fax: +81 48 462 4652 Email: <a href="mailto:kkono@riken.jp">kkono@riken.jp</a>
<b>Korea</b> 1969 -	Korean Physical Society	7	4	<b>Prof Young Dong Kim</b> Department of Physics Kyung Hee University 26 KyungHee-DaeRo, DongDaeMun-Gu Seoul, 130-701 Republic of Korea Fax: +82-2-957-8408 E-mail : <a href="mailto:ydkim@khu.ac.kr">ydkim@khu.ac.kr</a>
<b>Latvia</b> 2002	Latvian Physical Society	1	*	<b>Erna Karule</b> Institute of Atomic Physics and Spectroscopy University of Latvia Raina Blvd. 19 LV-1586 Riga Latvia Fax: +371 7 901 214 Email: <a href="mailto:karule@latnet.lv">karule@latnet.lv</a>
<b>Lithuania</b> 2001	Lithuanian Physical Society	1	1	<b>Prof Juozas Vaitkus</b> Vilnius University Saulėtekio al. 9-III Vilnius LT-10222 Lithuania Fax: +370 5 2366059 E-mail: <a href="mailto:juozas.vaitkus@ff.vu.lt">juozas.vaitkus@ff.vu.lt</a>
<b>Mexico</b> 1925 -	Sociedad Mexicana de Fisica, A.C.	1	1	<b>Dr Romeo de Coss Gómez</b> Sociedad Mexicana de Fisica A. C., Apartado Postal 70-348 Coyoacan, 04511 Mexico Fax: +52 5 483 5683, 673 6094 Email: <a href="mailto:smf@servidor.unam.mx">smf@servidor.unam.mx</a>
<b>Mongolia</b> 2008	Mongolia Physical Society	1	1	<b>Dr Undraa Agvaanluvsan</b> MonAme Scientific Research Centre P.O. Box 24-603 Ulaanbaatar 210524 Mongolia

				Email: undraa@stanford.edu or undraa@monamescience.org
<b>Netherlands</b> 1922 -	Netherlands' Physical Society	4	3	<b>Prof. Dr. J. Knoester</b> RUG Faculty of Mathematics and Natural Sciences Nijenborgh 4 9747 AG Groningen The Netherlands Email: <a href="mailto:j.knoester@rug.nl">j.knoester@rug.nl</a>
<b>New Zealand</b> 1954 -	The Royal Society of New Zealand	1	1	<b>Dr Paul Behrens</b> The Royal Society of New Zealand 4 Halswell Street Thorndon PO Box 598 Wellington 6140 New Zealand Tel: +64 4 4705777 Email: <a href="mailto:paul.behrens@royalsociety.org.nz">paul.behrens@royalsociety.org.nz</a>
<b>Norway</b> 1922 -	Det Norske Videnskaps Akademi	3	2	<b>Øyvind Sørensen</b> Det Norske Videnskaps-Akademi Drammensveien 78 N-0271 Oslo 2 Norway Phone: +47 22 98 10 90 Fax: +47 22 12 10 99 Email: <a href="mailto:oyvind.sorensen@dnva.no">oyvind.sorensen@dnva.no</a>
<b>Peru</b> 2008	Peruvian Physical Society	1	1	<b>Justo Rojas</b> President Peruvian Physical Society PO Box 11-089 Lima 11 PeruSan Isidro Peru Email: <a href="mailto:presidencia@soperfi.org">presidencia@soperfi.org</a>
<b>Philippines</b> 2008	Physics Society of the Philippines	1	1	<b>Dr Benjamin O. Chan</b> Physics Society of the Philippines University of the Philippines Quezon City Philippines Tel: +63 2 426 6001 (local 5692) Email: <a href="mailto:bchan@ateneo.edu">bchan@ateneo.edu</a>
<b>Poland</b> 1922 -	Polish Academy of Sciences	4	3	<b>Robert R. Galazka</b> Institute of Physics Polish Academy of Sciences Al.Lotnikow 32/46 02 668 Warsaw Poland Tel: +48 22 843 56 26 Fax: +48 22 843 09 26 Email: <a href="mailto:galaz@ifpan.edu.pl">galaz@ifpan.edu.pl</a>
<b>Portugal</b> 1984 -	Portuguese Physical Society	1	1	<b>Prof Maria Helena Nazaré</b> Sociedade Portuguesa de Física



				Avenida da República Nº45 3ºEsq 1050 - 187 Lisboa Portugal NIF: 501094628 Tel: +351 21 799 36 65 Email: mhnazare@ua.pt
<b>Romania</b> 2008	National Inst. Of Physics and Nuclear Engineering	1	1	<b>Director General N.V. Zamfir</b> National Institute of Physics and Nuclear Engineering 407 Atomistilor Street P.O. Box MG-6 Bucharest-Magurele 077125 Romania Email: zamfir@tandem.nipne.ro
<b>Russia</b> 1957 -	National Committee of Russian Physicists, Russian Academy of Science	18	6	Department of Physical Sciences Russian Academy of Sciences Leninsky Prospect, 32A 117 993 Moscow Russia  <b>Prof. Dr. Michael Romanovsky</b> Phone: +7-495-952-0645 Fax: +7-495-938-1714 Email: myrom@gpad.ac.ru or physica@gpad.ac.ru  <b>Ms Svetlana Shikova</b> Phone: +7-495-993-4844 Fax: +7-495-993-5817 Email: sveta@chg.ru
<b>Saudi Arabia</b> 1990 -	King Abdulaziz City for Science & Technology (KACST)	1	1	<b>Mohammed Al-Badrani</b> Director Directorate of International Cooperations P.O. Box 6086 Riyadh 11442 Kingdom of Saudi Arabia Tel: +966-1-4813384 Fax: +966-1-4813441 Email: mbadrani@kacst.edu.sa OR int_coop@kacst.edu.sa
<b>Senegal</b> 2003 -	Minister of Science and Technology	1	1	<b>Prof Ahmadou Wague</b> Departement de Physique Faculte des Scienes et Techniques Universite Cheikh Anta Diop Dakar Senegal Tel: +221 820 6660 Fax: +221 825 6980 Email: wague@ucad.refer.sn
<b>Singapore</b> 2008	National University of Singapore	1	1	<b>Prof K.K. Phua</b> Director Institute of Advanced Studies Nanyang Technological University

				Nanyang Executive Centre # 02-18 60 Nanyang View Singapore 639673 Singapore Tel: +65 790 6491 Fax: +65 794 4941 Email: <a href="mailto:kkphua@wspc.com.sg">kkphua@wspc.com.sg</a>
<b>Slovak Republic</b> 1923, 1993 -	Slovak Academy of Sciences	1	1	<b>Prof Peter Bury</b> Department of Physics Zilina University 010 26 Zilina Slovak Republic Fax: +421 41 513 1516 Email: <a href="mailto:bury@fel.uniza.sk">bury@fel.uniza.sk</a>
<b>Slovenia</b> 1994 -	National Committee for Physics of Slovenia (NCRS)	1	1	<b>Zvonko Trontelj</b> National Committee for Physics of Slovenia (NCRS) University of Ljubljana Faculty of Mathematics and Physics Jadranska 19, 1000 Ljubljana Slovenia Fax: +386 1 251 7281
<b>South Africa</b> 1922 -	National Research Foundation (NRF)	3	2	<b>The Secretary</b> South African Institute of Physics Postnet Suite 165 Private Bag X025 Lynnwood Ridge, 0040 South Africa Tel: +27 31 260 1663 Fax: +27 31 261 6550 Email: <a href="mailto:secretary@saip.org.za">secretary@saip.org.za</a>
<b>Spain</b> 1922 -	Presidencia del Gobierno Oficina de Ciencia y Tecnologia (OCYT)	8	4	<b>Prof Luis Viña</b> Departamento de Física de Materiales, C-IV. Universidad Autónoma. Cantoblanco. 29049 Madrid. Phone: (91) 497-4782. Fax: (91) 497-8579 Email: <a href="mailto:luis.vina@uam.es">luis.vina@uam.es</a>
<b>Sweden</b> 1923 -	The Royal Swedish Academy of Sciences	8	4	<b>Prof Elisabeth Rachlew</b> Department of Physics Royal Institute of Technology Roslagstullsbacken 21 10691 Stockholm Tel: 46 (0)8 5537 8111 Email: <a href="mailto:erk@kth.se">erk@kth.se</a>
<b>Switzerland</b> 1922 -	The Swiss Academy of Sciences	4	3	<b>Dr Tibor Gyalog</b> Universität Basel Klingelbergstrasse 82 CH-4056 Basel Switzerland Tel: +41 61 267 14 72 Fax: +41 61 267 37 84 Email: <a href="mailto:Tibor.Gyalog@unibas.ch">Tibor.Gyalog@unibas.ch</a>

<b>Tunisia</b> 2006	Tunisian Physical Society (STP)	1	1	<b>Mourad Telmini</b> Tunisian Physical Society Department of Physics Faculty of Sciences of Tunis 2092 Tunis El Marar Tunisia Fax: +216 70 861 599 Email: mourad.telmini@fst.rnu.tn
<b>UK</b> 1922 -	The Institute of Physics	15	5	<b>Dr Beth Taylor</b> Institute of Physics Director of Communications & International Relations 76 Portland Place London W1B 1NT United Kingdom Tel: +44 (0)20 7470 4951 Fax: +44 (0)20 7470 4861 Email: beth.taylor@iop.org
<b>USA</b> 1922 -	National Academy of Sciences	18	6	<b>Dr Amy Flatten</b> American Physical Society 1 Physics Ellipse College Park, MD 20740 USA Email: flatten@aps.org Website: U.S. Liaison Committee

## SPECIALIZED COMMISSIONS

During the course of its history, the Union has established a number of expert committees or Commissions. The purpose of these committees varies considerably. For example, one of the important ones, called Symbols, Units, Nomenclature, Atomic Masses and Fundamental Constants (SUNAMCO), meets regularly and prepares recommendations on various symbols and units as its title suggests, which are submitted for approval by the General Assembly. Several of the special committees confine their work to the organisation of international conferences. The 1931 General Assembly decided that the President and the Secretary-General should be *ex officio* Members of all Union Commissions.

A Commission usually meets during an international conference held under the auspice of the Commission. Some Commissions, for example Commission SUNAMCO, may need to hold special meetings from time to time. Commissions are granted a travel allowance from Union funds for these meetings. However, it is usually necessary for Members of Commissions to seek additional travel grants in their respective countries, in order that an adequate number of meetings may be held.

At present there are 19 specialised Commissions. The membership of these Commissions is given on the following pages.

Each Commission has a mandate Article 1, which is specific (see individual Commission) except the Commission on Finance (C1) which has four specific mandates.

- Article 2** To recommend for Union sponsorship international conferences which qualify for support under Union regulations (see IUPAP Coutumier). To initiate such conferences as their need arises from the evolution of the Commission field. To assist in the organization of such conferences when practical. To ensure the compatibility of international conferences in its field and to discourage clashes and incompatibility of dates.
- Article 3** To promote the free circulation of scientists; to assist conference organizers in ensuring such free circulation and in resolving potential infringements.
- Article 4** To organize where feasible the award of medals or other testimonials of excellence in its field.
- Article 5** To publish where feasible newsletters, circulars, occasional books, journals or handbooks in its area.
- Article 6** To maintain liaison with other IUPAP Commissions, with the Commissions or Committees of other Unions or of the International Council of Scientific Unions (ICSU) or other scientific organizations, with a view to collaborating and cooperating in sponsoring joint conferences and to participating in joint projects when need arises.
- In particular to maintain close liaison with the other General Commissions of IUPAP (SUNAMCO, Physics Education and Development), so as to ensure suitable input from its field into these physics-wide activities.
- Article 7** To make available to each General Assembly of the Union a summary of activities and progress in its field since the previous Assembly.

# C1

## COMMISSION on FINANCE (1931)

**Mandate:**

- Article 1** To examine the auditor's report on the finances of the Union and to make appropriate recommendations to the General Assembly.
- Article 2** To recommend to the General Assembly policy concerning dues, contracts and other sources of income. To recommend action to the Executive Council in the case of arrears.
- Article 3** To recommend to the General Assembly policy on the spending envelope of the Union and its distribution in the form of grants, traveling, administration, etc.
- Article 4** To recommend to the Executive Council the external audit group to be retained to audit the financial records of the Union.
- 

**Jarlskog, Cecilia** (2011)

Division of Mathematical Physics, LTH, Lund University, Box 118, SE-221 00 Lund, Sweden, Fax: +46 46 222 4416, E-mail: cecilia.jarlskog@matfys.lth.se

**Ushioda, Sukekatsu** (2011) (2008)

Japan Advanced Institute of Science and Technology, Asahidai 1-1, Nomi 923-1292, Japan, Fax: +81 761 51 1058, E-mail: president@jaist.ac.jp

## C2

### COMMISSION on SYMBOLS, UNITS, NOMENCLATURE, ATOMIC MASSES & FUNDAMENTAL CONSTANTS (SUNAMCO) (1931)

#### Mandate:

- Article 1** To promote the exchange of information and views among the members of the international scientific community in the general field of Fundamental Constants including:
- physical measurements;
  - pure and applied metrology;
  - nomenclature and symbols for physical quantities and units;
  - encouragement of work contributing towards improved recommended values of atomic masses and fundamental physical constants and facilitation of their universal adoption.

#### Article 2 - 7: see page 65

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#### Officers/Members

**Chair:** **Lea, Stephen N** (2011) (2008) Senior Research Scientist, National, Physical Laboratory, Hampton Road, Teddington, Middlesex TW11 0LW, UK, Tel: 44 (0)20 8614 0446, Email: stephen.lea@npl.co.uk

**Vice-Chair:** **Stenger, Jörn** (2011) (2008), Physikalisch-Technische Bundesanstalt (PTB), Presidential Board, Bundesallee 100, 38116 Braunschweig, GERMANY, Tel: 49 531 592 3000, Fax: 49 531 592 3003, Email: joern.stenger@ptb.de

**Secretary:** **Dilling, Jens** (2011) (2008) (2005), TRIUMF, 4004 Wesbrook Mall, Vancouver, BC V6T 2A3, CANADA, Fax: +1 604 222 1074, Email: jdilling@triumf.ca

#### Members:

**Bagnato, Vanderlei Salvador** (2011), Instituto de Física de São Paulo, Universidade de São Paulo, Av. Trabalhador Sao Carlense, 400, São Carlos – SP 13566 – 590, BRAZIL, Tel: 55 16 3373 9829, Fax: +55 16 3373 9811, Email: vander@ifsc.usp.br

**Biraben, François** (2011), Kastler-Brossel Laboratory, Pierre et Marie Curie University, 4, place Jussieu, 75005 PARIS, FRANCE, Fax: 33 01442 77039, Email: francois.biraben@spectro.jussieu.fr

**Hosaka, Kazumoto** (2011) (2008), National Metrology Institute of Japan (NMIJ), Time and Frequency Division, Wavelength Standards Section, Tsukuba Central 3, Umezono 1-1-1, Tsukuba 305-8563, JAPAN, Tel: 81 29 861 4185, Fax: +81 29 861 4045, Email: kazu.hosaka@aist.go.jp

**Holst, Bodil** (2011) (2008), University of Bergen, Department of Physics and Technology, Allegaten 55, 5007 Bergen, NORWAY, Fax: +47 55 58 9440, Email: bodil.holst@uib.no

**Ivanchik, Alexandr** (2011) (2008), Ioffe Physico-Technical Institute, 26 Polytekhnicheskaya, 194021 St. Petersburg, RUSSIA, Tel: 7 812 292 7180, Fax: +7 812 297 1017, Email: lav@astro.ioffe.ru

**Kim, Jinhee** (2011), Korea Research Institute of Standards and Science (KRISS), 267 Gajeong-ro, Yuseong-gu, Daejeon 305-340, REPUBLIC OF KOREA, Fax: 82 42 868 5953, Email: jinhee@kriss.re.kr

**Kuehne, Michael** (2011), Pavillon de Breteuil, F-92312 Sèvres Cedex, FRANCE, Tel: 33 1 45 07 70 01, Fax: 33 1 45 34 86 70, Email: [mkuehne@bipm.org](mailto:mkuehne@bipm.org)

**Manninen, Antti** (2011), Centre for Metrology and Accreditation (MIKES), PO Box 9, 02151 Espoo, FINLAND, Tel: 358 10 6054 416, Fax: 358 10 6054 498, Email: [antti.manninen@mikes.fi](mailto:antti.manninen@mikes.fi)

**Phillips, William** (2011), National Institute of Standards and Technology, Mail Stop 8424, Gaithersburg, Maryland 20899-8424, USA, Tel: 01 301 975 6554, Fax: 01 301 975 8272, Email: [william.phillips@nist.gov](mailto:william.phillips@nist.gov)

**Sen Gupta, Amitava** (2011) (2008), National Physical Laboratory, Dr.K.S.Krishnan Road, New Delhi - 110 012, INDIA, Tel: 91 011 4560 8343, Fax: 91 011 4560 9240, Email: [sengupta@mail.nplindia.ernet.in](mailto:sengupta@mail.nplindia.ernet.in)

**Wei, Zhiyi** (2011) (2008), No. 8, 3rd Street South, Zhong Guan Cun, Haidian District, Beijing 100190, Institute of Physics, Chinese Academy of Sciences, CHINA, Tel: 86 10 8264 8115, Fax: 86 10 8264 8115, Email: [zywei@iphy.ac.cn](mailto:zywei@iphy.ac.cn)

#### **Associate Members 2013-2015:**

**Clemens Elster** , Physikalisch-Technische Bundesanstalt (PTB), Bundesallee 100, D-38116 Braunschweig, GERMANY, Tel: + 49 531 592 7492, Fax: +49 531 592 3008, Email: [clemens.elster@ptb.de](mailto:clemens.elster@ptb.de)

**Kumar S. Sharma**, (former C2 member), Department of Physics and Astronomy University of Manitoba, Winnipeg, MB R3T 2N2, CANADA, Tel: +1 204 464 6181, Fax: +1 204 474 7622, Email: [sharma@physics.umanitoba.ca](mailto:sharma@physics.umanitoba.ca)

**Savely G. Karshenboim**, (former C2 member), The Central Astronomical Observatory of the Russian Academy of Sciences at Pulkovo, Pulkovskoye chaussee 65/1, 196140 Saint-Petersburg, RUSSIA, Tel: +7 812 363 7400, Fax: +7 812 388 2242, Email : [S.G.Karshenboim@gao.spb.ru](mailto:S.G.Karshenboim@gao.spb.ru)

**Wolfgang Woeger**, (former C2 member), Wolfgang Woeger Drosselweg 1, 50735 Koeln , GERMANY, Tel: +49 221 715 0423 , Email: [wolfgang.woeger@ptb.de](mailto:wolfgang.woeger@ptb.de)

# C3

## COMMISSION on STATISTICAL PHYSICS (1945) (1990)

### Mandate:

#### Article 1

To promote the exchange of information and views among the members of the international scientific community in the general field of Statistical Physics including:

- statistical and thermodynamic methods concerning the static and dynamic properties of mesoscopic and macroscopic states of matter;
- applications of statistical physics to related fields and non-linear dynamics, turbulence, chemical kinetics, polymers, colloids, liquid crystals, non-crystalline solids, heterogeneous media, neural networks and computational physics.

#### Article 2 - 7: see page 65

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**Chair:** **Ruffo, Stefano** (2011) (2008) Dipartimento di Energetica, Università di Firenze, via s. Marta, 350139 Firenze, ITALY, Tel: 39 055 4796344, Fax: 39 055 4796342, Email: stefano.ruffo@unifi.it

**Vice-Chair:** **Lu, Yu** (2011) (2008), Institute of Physics, Chinese Academy of Sciences, No. 8, 3rd Street South, Zhong Guan Cun, Beijing 100190, CHINA, Tel: 86 10 8264 0073, Fax: 86 10 8264 0073, Email: lyu@iphy.ac.cn

**Secretary:** **Hans Werner Diehl** (2011) (2008), Universitaet Duisburg-Essen, Fachbereich Physik, Lotharstr. 1-21, 47057 Duisburg, GERMANY, Tel: 49 203 379 4690, Fax: 49 203 379 4692, Email: h.w.diehl@uni-due.de

### Members:

**Ejtehadi, Mohammad Reza** (2011), Department of Physics, Sharif University of Technology, Azadi st., Tehran, IRAN, Tel: 0098 21 6616 4525, Fax: 0098 21 6602 2711, Email: ejtehadi@sharif.edu

**Herrmann, Hans** (2011) (2008), Computational Physics, 1fB, Schafmattstr. 6, 8093 Zurich, SWITZERLAND, Tel: 41 44 633 2701, Fax: 41 44 633 1147, Email: hjherrmann@ethz.ch

**Joanny, Jean-Francois** (2011), Director of Physicochimie-Curie, Institut Curie, 25, rue d'Ulm, 75005 PARIS, FRANCE, Fax: 33 01 43 29 02 03, Email: jean-francois.joanny@curie.fr

**Pandit, Rahul** (2011), Division of Physical & Mathematical Sciences, Indian Institute of Science, Bangalore, INDIA, Tel: 91 080 2293 2249, Fax: 91 080 2360 2602, Email: rahul@physics.iisc.ernet.in

**Procaccia, Itamar** (2011) (2008), The Weizmann Institute of Science, Rehovot 76100, ISRAEL, Tel: 972 8 934 3810, Fax: 972 8 934 4123, Email: Itamar.Procaccia@gmail.com

**Sano, Masaki** (2011), Department of Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-ku, Tokyo, 113-0033, JAPAN, Tel: 81 3 5841 4188, Fax: 81 3 5841 4876, Email: sano@phys.s.u-tokyo.ac.jp

**San Miguel, Maxi** (2011), IFISC, Campus Universitat Illes Balears, 07122 Palma de Mallorca, SPAIN, Fax: 34 971173229, Email: maxi@ifisc.uib-csic.es

**Schmittmann, Beate** (2011), Physics Department, Robeson Hall (0435), Virginia Polytechnic Institute & State University, Blacksburg, Virginia 24061, USA, Tel: 01 540 231 6518, Fax: 01 540 231 7511, Email: schmittm@vt.edu



**Van Beijeren, Henk** (2011) (2008), Institute of Theoretical Physics, Utrecht University, Leuvenlaan 4, 3584 CE Utrecht, NETHERLANDS, Tel: 31 302532805, Fax: 31 302535937, Email: [h.vanbeijeren@uu.nl](mailto:h.vanbeijeren@uu.nl)

**Wofo, Paul** (2011) (2008), Lab. Modelling and Simulation in Engineering and Biological Physics, Faculty of Science, University of Yaoundé I, PO Box 813, Yaoundé, CAMEROON, Tel: 237 9998 0567, Email: [pwoafo1@yahoo.fr](mailto:pwoafo1@yahoo.fr)

**Yeomans, Julia** (2011), St Hilda's College, The Rudolf Peierls Centre for Theoretical Physics, 1 Keble Road, Oxford, OX1 3NP, UK, Tel: +44 1865 273992, Email: [j.yeomans1@physics.ox.ac.uk](mailto:j.yeomans1@physics.ox.ac.uk)

**Associate Members: 2013-2015:**

**Alcaraz, Francisco C.** Universidade de Sao Paulo, Instituto de Fisica de Sao Carlos -IFSC - Cx. P 369, CEP 13560-590, Sao Carlos, SP, Phone: +55.16.33738079, Email: [alcaraz@ifsc.usp.br](mailto:alcaraz@ifsc.usp.br)

**Romanovsky, Michael**, Deputy Academician-secretary, Physical Science Department, RAS, Leninsky ave., 32A, 119991 Moscow, Russia, Tel: 495 952 06 45, Email: [physician@gpad.ac.ru](mailto:physician@gpad.ac.ru)

# C4

## COMMISSION on COSMIC RAYS (1947)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Cosmic Ray Physics including:
- the nature and characteristics of the electromagnetic, particle and other radiation present in the cosmos;
  - the theory and models concerning the origin of this radiation;
  - non-accelerator high energy physics;
  - the specialized technologies necessary in the field and their application. Art. 2

### Article 2 - 7: see page 65

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Chair: **Knapp, Johannes** (2011) (2008), Deutsches Elektronen-Synchrotron (DESY), Platanenallee 6, D-15738 Zeuthen, Germany, Tel: +49 33762 77349, E-mail : [johannes.knapp@desy.de](mailto:johannes.knapp@desy.de)

Vice - Chair: **Flueckiger, Erwin** (2011) (2008) (2005), University of Bern, Sidlerstrasse 5, CH-3012, Bern, SWITZERLAND, Fax: 41 31 631 4056, Email: [erwin.flueckiger@space.unibe.ch](mailto:erwin.flueckiger@space.unibe.ch)

Secretary: **Kampert, Karl-Heinz** (2011) (2008), University Wuppertal, Fachbereich Physik, Gaustr. 20, 42097 Wuppertal, GERMANY, Tel: 49 202 439 2856, Fax: 49 202 439 2662, Email: [kampert@uni-wuppertal.de](mailto:kampert@uni-wuppertal.de)

### Members:

**Berezhko, Evgeny** (2011) (2008) (2005), Institute for Cosmophysical Research and Aeronomy, Siberian Branch of the RAS, 31 Lenin avenue, 677891 Yakutsk, RUSSIA, Tel: 7 4112 390400, Fax: 7 4112 39045, Email: [berezhko@sci.yakutia.ru](mailto:berezhko@sci.yakutia.ru)

**Bertrand, Daniel** (2011) (2008), Service des Particules Elementaires-ULB, Campus Plaine-CP 230, B-1050 Brussels, BELGIUM, Fax: 32 2693816, Email: [Daniel.Bertrand@ulb.acbe](mailto:Daniel.Bertrand@ulb.acbe)

**Burger, R. Andriaan** (2011), Centre for Space Research, North West University, Potchefstroom Campus, Private Bag X6001, Potchefstroom, SOUTH AFRICA

**Fonseca, Maria Victoria** (2011), Departamento de Fisica Atomica, Facultad de Ciencias Fisicas, Universidad Complutense, 28040 Madrid, SPAIN, Fax: 34 913945193, Email: [fonseca@sagan.gae.ucm.es](mailto:fonseca@sagan.gae.ucm.es)

**Gupta, Sunil** (2011), HECR Group, Tata Institute of Fundamental Research, Homi Bhabha Road, Mumbai 400005, Maharashtra, INDIA, Tel: 91 9869 439435, Fax: 91 2222 804610, Email: [gupta.crl@gmail.com](mailto:gupta.crl@gmail.com)

**Hoerandel, Joerg** (2011), Department of Astrophysics, Radboud University Nijmegen, PO Box 9010, 6500 GL Nijmegen, THE NETHERLANDS, Tel: 31 24 36 52802, Fax: 31 24 36 52807, Email: [j.horandel@astro.ru.nl](mailto:j.horandel@astro.ru.nl)

**Hu, Hongbo** (2011) (2008), No. 19B, Yu Quan Road, Shijingshan District, Beijing 100049, Institute of High Energy Physics, Chinese Academy of Sciences, CHINA, Tel: 86 10 8823 6109, Fax: 86 10 8823 3086, Email: [huhb@ihep.ac.cn](mailto:huhb@ihep.ac.cn)

**Mori, Masaki** (2011), Department of Physics, Ritsumeikan University, Institute of Science and Engineering, Noji Higashi, Kusatsu, Shiga 525-8577, JAPAN, Tel: 81 77 561 2719, Fax: 81 77 561 2657, Email: [morim@fc.ritsumeai.ac.jp](mailto:morim@fc.ritsumeai.ac.jp)

**Ostrowski, Michal** (2011), Astronomical Observatory, Jagiellonian University, ul. Orla 171, POLAND, Tel: 48 12 4251294 ext. 46, Fax: 48 12 4251318, Email: [mio@oa.uj.edu.pl](mailto:mio@oa.uj.edu.pl)

**Seo, Eun-Suk** (2011), Institute for Physical Science and Technology, University of Maryland, College Park, Maryland 20742, USA, Tel: 01 301 405 4855, Fax: 01 301 314 9363, Email: [seo@umd.edu](mailto:seo@umd.edu)

**Shellard, Ronald Cintra** (2011), Centro Brasileiro de Pesquisas Fisicas, Rua Xavier Sigaud 150, Rio de Janeiro, RJ 22290-180, BRAZIL, Tel: 55 21 2141 7331, Fax: 55 21 2141 7400, Email: [shellard@cbpf.br](mailto:shellard@cbpf.br)

#### **Associate Members 2013-2015:**

**Barwick, Steven W**, School of Physical Sciences, University of California, Irvine 3156 Frederick Reines Hall, Irvine, CA 92697, USA, Tel: (949) 824-2626, 2646, Email: [sbarwick@uci.edu](mailto:sbarwick@uci.edu)

**Bertone, Gianfranco**, GRAPPA Institute, University of Amsterdam, Science Park 904, Postbus 94485, 1090 GL Amsterdam, The Netherlands, Tel: +31 20 525 7658, Email: [gf.bertone@gmail.com](mailto:gf.bertone@gmail.com)

**van den Berg, Adriaan. M**, Kernfysisch Versneller Instituut (KVI), Experimental Nuclear Physics, Zernikelaan 25, 9747 AA Groningen, The Netherlands, Tel: +31 50 363 3629, +31 50 363 3599 (Secretariat), Email: [berg@kvi.nl](mailto:berg@kvi.nl)

# C5

## COMMISSION on LOW TEMPERATURE PHYSICS (1949)

### Mandate:

- Article 1** To promote the exchange of information and views among the members of the international scientific community in the general field of Low Temperature Physics including:
- the low temperature properties of solids, particularly those that only manifest themselves at low temperatures;
  - quantum solids and liquids, particularly of the lightest elements;
  - the basic mechanisms and physics of superconductivity;
  - low temperature techniques;
  - practical applications of low temperatures physics

### Article 2 - 7: see page 65

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**Chair:** **Kono, Kimitoshi** (2011) (2008) (2005), Low Temperature Physics Laboratory, RIKEN , Hirosawa 2-1, Wako-shi, 351-0198 , JAPAN , Tel: 81 48 467 9327, Fax: 81 48 462 4652, Email: [kkono@riken.jp](mailto:kkono@riken.jp)

**Vice - Chair:** **Hallberg, Karen** (2011) (2008) (2005), Bustillo 9500, San Carlos de Bariloche , Rio Negro, ARGENTINA, Tel: 54 2944 445100, Fax: 54 2944 445100, Email: [karen@cab.cnea.gov.ar](mailto:karen@cab.cnea.gov.ar)

**Secretary:** **Saunders, John** (2011) (2008), Department of Physics, Royal Holloway University of London, Egham TW20 0EX, Surrey, UK, Tel: 44 (0) 1784 443486 , Fax: 44 (0) 1784 472794, Email: [j.saunders@rhul.ac.uk](mailto:j.saunders@rhul.ac.uk)

### Members:

**Beamish, John** (2011), Department of Physics, University of Alberta, Edmonton, AB, CANADA, Tel: 1 780 492 5692, Fax: 1 780 492 5692, Email: [jbeamish@ualberta.ca](mailto:jbeamish@ualberta.ca)

**Brisson, Jean-Pascal** (2011), SPSMS - UMRE –CEA, Universite Joseph-Fourier INA, 17, rue des Martyrs, 38054 GRENOBLE Ce dex 9, FRANCE, Fax: +33 0438785098, Email: [jean-pascal.brisson@cea.fr](mailto:jean-pascal.brisson@cea.fr)

**Feher, Alexander** (2011) (2008), Institute of Physics, Faculty of Science, P.J. Šafarik University Park Angelinum 9, 041 54 Košice, Slovak Republic, Tel: +421 55 234 2220, Fax: 421 62 221 24, Email: [alexander.feher@upjs.sk](mailto:alexander.feher@upjs.sk)

**Hallock, Robert** (2011) (2008) (2005), Department of Physics, University of Massachusetts, 666 North Pleasant St., Hasbrouck Laboratory, Amherst, Massachusetts 01003, USA, Tel: 1 413 545 3529, Fax: 1 413 545 1691, Email: [hallock@physics.umass.edu](mailto:hallock@physics.umass.edu)

**Hilgenkamp, Hans** (2011), Faculty of Science and Technology and MESA+ Institute for Nanotechnology, University of Twente, PO Box 217, 7500 AE Enschede, THE NETHERLANDS, Tel: 31 53 4892806, Fax: 31 53 4891099, Email: [j.w.m.hilgenkamp@tnw.utwente.nl](mailto:j.w.m.hilgenkamp@tnw.utwente.nl)

**Lee, Hu-Jong** (2011) (2008), Department of Physics, Pohang University of Science and Technology (POSTECH), Hyojadong San 31, Pohang, Gyeongbuk 790-784, Republic of Korea, Tel: 82 10 9535 3072, Fax: 82 54 279 5564, Email: [hjlee@postech.ac.kr](mailto:hjlee@postech.ac.kr)

**Pekola, Jukka** (2011) (2008), O.V. Lounasmaa Laboratory, Aalto University School of Science, PO Box 13500, 00076 AALTO, FINLAND, Tel: 358 (0)9 47024913, 358 (0)40 7009290, Fax: 358 (0)9 47022967, Email: pekola@boojum.hut.fi

**Pfleiderer, Christian** (2011), Technische Universität München, Physik-Department E21, James-Frank-Strasse, 85748 Garching, GERMANY, Tel: 49 89 289 14720, Fax: 49 89 289 14713, Email: christian.pfleiderer@frm2.tum.de

**Ramakrishnan, Srinivasan** (2011), Department of Condensed Matter Physics, Tata Institute of Fundamental Research, Homi Bhabha Road, Navy Nagar, Mumbai, INDIA, Tel: 91 022 2282257, Fax: 91 022 22804610, Email: ramky@tifr.res.in

**Smirnov, Alexander** (2011) (2008), P.L. Kapitza Institute of Physical Problems of the Russian Academy of Sciences, 2, Kosygina str., 119334 Moscow, RUSSIA, Tel: 7 499 1370998, Fax: 7 495 6512125, Email: smirnov@kapitza.ras.ru

**Wang, Nan Lin** (2011) (2008), Institute of Physics, Chinese Academy of Sciences, No. 8, 3rd Street South, Zhong Guan Cun, Haidian District, Beijing 100190, CHINA, Tel: 86 10 8264 9584, Fax: 86 10 8264 0223, Email: nlwang@iphy.ac.cn

#### **Associate Members 2013-2015:**

**Kossut, Jacek**, Institute of Physics, Polish Academy of Sciences, Al. Lotnikow, Warsaw, POLAND, Tel: +48 22 843 6871. Fax: +48 22 843 0926, Email: kossut@ifpan.edu.pl

**Lin, Juhn-Jong**, Taiwan, Institute of Physics, National Chiao Tung University, 1001 University Road, Hsinchu 30010, TAIWAN, Tel: +886-3-5731652, Email: jjlin@mail.nctu.edu.tw

**Otani, YoshiChica** Email: yotani@issp.u-tokyo.ac.jp, ISSP, University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa 277-8581, JAPAN, Tel: +81 4 7136 3475, Fax: +81 4 7136 3475. Email: yotani@issp.u-tokyo.ac.jp

# C6

## COMMISSION on BIOLOGICAL PHYSICS (1990)

### Mandate:

Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Biological Physics. Biological Physics deals with the concepts and laws that underlie the structure and function of biological systems. Scientific activities in Biological Physics include experimental, theoretical, and computational studies of biomolecules and other biological systems of interest to physicists.

### Article 2 - 7: see page 65

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Chair: **Yoshikawa, Kenichi** (2011) (2008), Laboratory of Physics, Faculty of Life and Medical Sciences, Doshisha University, Kyotanaba, Kyoto 610-0394, JAPAN, Tel: +81-774-65-6243, Fax: +81-774-65-6243, Email: [keyoshik@mail.doshisha.ac.jp](mailto:keyoshik@mail.doshisha.ac.jp)

Vice - Chair: **Xie, Aihua** (2011), Department of Physics, Oklahoma State University, 145 Physical Science II, Stillwater, Oklahoma 74078-3072, USA, Tel: 1 405 744 6589, Fax: 1 405 744 6811, Email: [aihua.xie@okstate.edu](mailto:aihua.xie@okstate.edu)

Secretary: **Grubmuller, Helmut** (2011) (2008), Max-Planck-Institute for, Biophysical Chemistry, Am Fassberg 11, 37077 Göttingen, GERMANY, Tel: 49 551 201 2300, Fax: 49 551 201 2302, Email: [hgrubmu@gwdg.de](mailto:hgrubmu@gwdg.de)

### Members:

**Antalík, Marián** (2011), Institute of Experimental Physics, Slovak Academy of Sciences, Watsonova 47, Košice, SLOVAK REPUBLIC, Tel: 421 55633 6292, Email: [antalik@saske.sk](mailto:antalik@saske.sk)

**Bensimon, David** (2011) (2008), Laboratoire de Physique Statistique et Département de Biologie, Ecole Normale Supérieure, 24, rue Lhomond, 75005 PARIS, FRANCE, Fax: 33 01 44 32 34 33, Email: [david@lps.ens.fr](mailto:david@lps.ens.fr)

**Cunha de Almeida, Rita Maria** (2011), Instituto de Física, Universidade Federal do Rio Grande do Sul, Av Bento Gonçalves 9500, Porto Alegre, RS 91501-970, BRAZIL, Tel: 55 51 3308 6521, Fax: 55 51 3308 7286, Email: [rita@if.ufrgs.br](mailto:rita@if.ufrgs.br)

**Derenyi, Imre** (2011), Department of Biological Physics, Eötvös University, Pázmány Péter Stny 1A, H-1117 Budapest, HUNGARY, Tel: 36 1 3722766, Fax: 36 1 3722757, Email: [derenyi@angle.elte.hu](mailto:derenyi@angle.elte.hu)

**de los Rios, Paolo** (2011), Institute of Theoretical Physics, École Polytechnique Fédérale de Lausanne (EPFL), 1015 Lausanne, SWITZERLAND, Tel: 41 21 6930510, 30509, Fax: 41 21 6930523, Email: [Paolo.delosrios@epfl.ch](mailto:Paolo.delosrios@epfl.ch)

**Golestanian, Ramin** (2011), The Rudolf Peierls Centre for Theoretical Physics, University of Oxford, 1 Keble Road, Oxford, OX1 3NP, UK, Tel: 44 01865 273960, Fax: 44 01865 273947, Email: [ramin.golestanian@physics.ox.ac.uk](mailto:ramin.golestanian@physics.ox.ac.uk)

**Morante, Silvia** (2011), President of SIPA, (Italian Society of Pure and Applied Biophysics), Department of Physics, University of Rome "Tor Vergata", Via della Ricerca Scientifica, 1, 00133 Roma - ITALY, Tel: 39 0672594554, Fax: 39 062023507, Email: [Silvia.Morante@roma2.infn.it](mailto:Silvia.Morante@roma2.infn.it)

**Ou-Yang, Zhong-can** (2011) (2008), Institute of Theoretical Physics, Chinese Academy of Sciences, PO Box 2735, Beijing 100190, CHINA, Tel: 86 10 6255 4467, Fax: 86 10 6256 2587, Email: oy@itp.ac.cn

**Ramaswamy, Ramakrishna** (2011) (2008), University of Hyderabad, Hyderabad 500 046, INDIA, Tel: 91 040 23010121, Fax: 91 040 23010145, Email: r.ramaswamy@gmail.com

**Riznichenko, Galina** (2011), Biophysical Dept, Biological Faculty, Moscow State Lomonosov University, Leninsky prosp.57-23, 119333 Moscow, RUSSIA, Tel: 7 495 9390289, Fax: 7 495 9391115, Email: riznich46@mail.ru

**Tarazona, Pedro** (2011), Dept. Fisica Teorica de la Materia Condensada, Facultad de Ciencias, Universidad Autonoma de Madrid, Madrid 28049, SPAIN, Tel: 34 914974907, Fax: 34 914974950, Email: pedro.tarazona@uam.es

**Associate Members: 2013-2015:**

**Nusslin, Fridtjof**, Klinik für Strahlentherapie, Klinikum Rechts der Isar, Technische Universität München, Ismaninger Str.22, D-81675 München, Phone: +49 89 4140 4517/4500, Fax: +49 89 4140 4882, Mobile: +49 172 7220635, Email: [nuesslin@lrz.tu-muenchen.de](mailto:nuesslin@lrz.tu-muenchen.de) or [nuesslin@lrz.tum.de](mailto:nuesslin@lrz.tum.de)

# C8

## COMMISSION on SEMICONDUCTORS (1957)

### Mandate:

- Article. 1** To promote the exchange of information and views among the members of the international scientific community in the general field of Semiconductor Physics including:
- electronic states, lattice dynamics and properties of matter in bulk, at surfaces and interfaces, and in systems or reduced dimensionality (in collaboration with other commissions as appropriate);
  - defects, imperfections, impurities and amorphous semiconductors;
  - application of semiconductor physics to technology.

### Article 2 - 7: see page 65

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**Chair:** **Nicholas, Robin** (2011) (2008) (2005), Physics Dept., Oxford University , Clarendon, Laboratory , Parks Road, Oxford OX1 3PU, UK, Tel: 44 01865 272250, Fax: 44 01865 272250, Email: r.nicholas@physics.ox.ac.uk

**Vice-Chair:** **Lee, Seung Joo** (2011) (2008) (2005), Quantum-functional Semiconductor Research Center (QSRC), Dongguk University , 26 Pildong-3ga , Joong-gu, Seoul, Korea, Tel: 82 2 2260 3953, Fax: 82 2 2260 3945, Email: leesj@dongguk.edu

**Secretary:** **Thewalt, Michael** (2011), Department of Physics, Simon Fraser University, 8888 University Drive, Burnaby, BC V5A 1S6, CANADA, Tel: 1 778 782 5740, Fax: 1 778 782 3592, Email: thewalt@sfu.ca

### Members:

**Awschalom, David** (2011), Department of Physics, University of California, Santa Barbara, California 93106-9530, USA, Tel: 01 805 893 2121, Fax: 01 805 893 4170, Email: awsch@physics.ucsb.edu

**Borghs, Gustaaf** (2011), IMEC VZW, Kapeldreef 75, BE-3001, Leuven, BELGIUM, Tel: 32 016 256094, Fax: 32 016 281501, Email: Borghs@imec.be

**Ensslin, Klaus** (2011) (2008), Solid State Physics Laboratory, ETH Zürich, 8093 Zürich , SWITZERLAND, Email: [ensslin@phys.ethz.ch](mailto:ensslin@phys.ethz.ch)

**Haug, Rolf** (2011), Institute for Solid State Research, Universitaet Hannover Appelstr. 2, 30167 Hannover, GERMANY, Tel: 49 511 762 2901, Fax: 49 511 762 2904, Email: haug@nano.uni-hannover.de

**Holtz, Per-Olof** (2011), Department of Physics, Chemistry and Biology/IFM, Linköping University, SE-58 183 Linköping, SWEDEN, Tel: 46 013 282628, Fax: 46 013 142337, Email: poh@ifm.liu.se

**Koiller, Belita** (2011) (2008), Instituto de Fisica, Universidade Federal do Rio de Janeiro, Rio de Janeiro, RJ 21941-972, BRAZIL, Tel: 55 21 2259 8735, Fax: 55 21 2512 6618, Email: bkoiller@gmail.com

**Kossut, Jacek** (2011), Institute of Physics, Polish Academy of Sciences, Al. Lotnikow Warsaw, POLAND, Tel: 48 22 843 6871, Fax: 48 22 843 0926, Email: kossut@ifpan.edu.pl



**Salvador, Arnel** (2011) (2008), National Institute of Physics, University of the Philippines, Diliman, Quezon City, PHILIPPINES, Tel: 632 920 9749, Fax: 632 920 9749, Email: [asalvador.nip@gmail.com](mailto:asalvador.nip@gmail.com)

**Senellart, Pascale** (2011), Laboratoire de Photonique et Nanostructures, CNRS - UPR2D, Route de Nozay, 91460 Marcoussis, FRANCE, Fax: 33 01 69 63 60 06, Email: [pascale.senellart@lpn.cnrs.fr](mailto:pascale.senellart@lpn.cnrs.fr)

**Suris, Robert** (2011), Ioffe Physical-Technical Institute of the Russian Academy of Sciences, Polytekhnicheskaya 26, Saint Petersburg 194021, RUSSIA, Tel: 7 812 292 7367, Fax: 7 812 297 1017, Email: [suris@theory.ioffe.ru](mailto:suris@theory.ioffe.ru)

**Tarucha, Seigo** (2011) (2008), Applied Physics Department, University of Tokyo, 7-3-1, Hongo, Bunkyo-ku, Tokyo 113-8656, JAPAN, Tel: 81 3 5841 6834, Fax: 81 3 5841 6834, Email: [tarucha@ap.t.u-tokyo.ac.jp](mailto:tarucha@ap.t.u-tokyo.ac.jp)

**Associate Members: 2013-2015:**

**Pekola, Jukka** Low Temperature Laboratory, Aalto University School of Science, PO Box 13500, 00076 AALTO, FINLAND, Tel: +358 (0)9 47024913, +358 (0)40 7009290, Fax: +358 (0)9 47022967, Email: [pekola@booium.hut.fi](mailto:pekola@booium.hut.fi)

**Petta, Jason** Department of Physics, Princeton University, Jadwin Hall, Princeton, New Jersey 08544, USA, Tel: +01 609 258 4400, Fax: +01 609 258 1124, Email: [petta@princeton.edu](mailto:petta@princeton.edu)

# C9

## COMMISSION on MAGNETISM (1957)

### Mandate:

- Article 1** To promote the exchange of information and views among the members of the international scientific community in the general field of Magnetism including:
- phenomena which result in the determination of magnetic interactions at the atomic level;
  - magnetic properties of matter including reduced dimensionality systems (in collaboration with other commissions as appropriate);
  - technical applications of magnetic materials and generation of magnetic fields.

### Article 2 - 7: see page 65

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Chair: **Mertig, Ingrid** (2011) (2008) (2005), Martin Luther Universitdt Halle-Wittenberg, Fachbereich Physik, Fachgruppe Theoretische Physik, 06099 Halle, GERMANY, Tel: 49 345 5525430, Fax: +49 345 5525446, Email: [ingrid.mertig@physik.uni-halle.de](mailto:ingrid.mertig@physik.uni-halle.de)

Vice - Chair: **Chang, Ching-Ray** (2011) (2008) (2005), National Taiwan University, Taipei, Taiwan, CHINA, TAIPEI, Tel: 886 2 33665176, Fax: 886 2 2363 9984, Email: [crchang@phys.ntu.edu.tw](mailto:crchang@phys.ntu.edu.tw)

Secretary: **Vazquez, Manuel** (2011) (2008), Institute of Materials Science at Madrid, CSIC, Campus Universitario , 28049 Madrid , SPAIN, Fax: 34 913720623 , Email: [mvazquez@icmm.csic.es](mailto:mvazquez@icmm.csic.es)

### Members:

**Boothroyd, Andrew** (2011), Clarendon Laboratory, Oxford University, Oxford, OX1 3PU, UK, Tel: 44 01865 272376, Fax: 44 01865 282208, Email: [a.boothroyd@physics.ox.ac.uk](mailto:a.boothroyd@physics.ox.ac.uk)

**Borchers, Julie** (2011), NIST Center for Neutron Research, National Institute of Standards and Technology (NIST), 100 Bureau Drive, Stop 6102, Bldg. 235, E151, Gaithersburg, Maryland 20899-6102, USA , Tel: 01 301 975 6597, Fax: +01 301 921 9847, Email: [julie.borchers@nist.gov](mailto:julie.borchers@nist.gov)

**Cabal-Mirabal, Carlos** (2011), Chemical Physics Division, Center for Genetic Engineering and Biotechnology (CIGB), La Habana, CUBA, Tel: 537 7 836 68 45, Fax: 537 7 836 68 46, Email: [carlos.cabal@cigb.edu.cu](mailto:carlos.cabal@cigb.edu.cu)

**Jin, Xiaofeng** (2011), Department of Physics, Fudan University, Shanghai 200433, CHINA, Tel: 86 21 5566 4480, Fax: 86 21 5566 4480, Email: [xfjin@fudan.edu.cn](mailto:xfjin@fudan.edu.cn)

**Johansson, Borje** (2011) (2008), Applied Materials Physics, Department of Materials Science and Engineering, Royal Institute of Technology, S-100 44 Stockholm, SWEDEN, Tel: +46 18 471 3623, Fax: +46 18 471 3524, Email: [borje.johansson@fysik.uu.se](mailto:borje.johansson@fysik.uu.se)

**Kaul, Sharika Nandan** (2011), Centre for Nanotechnology, School of Physics, University of Hyderabad, Central Univ. P.O, Hyderabad-500 046, INDIA, Tel: 91 040 23134322, Fax: 91 040 23010227, Email: [kaul.sn@gmail.com](mailto:kaul.sn@gmail.com); [kaulsp@uohyd.ernet.in](mailto:kaulsp@uohyd.ernet.in)

**Otani, YoshiChika** (2011), ISSP, University of Tokyo, 5-1-5 Kashiwanoha, Kashiwa 277-8581 , JAPAN, Tel: 81 4 7136 3475, Fax: 81 4 7136 3475, Email: [yotani@issp.u-tokyo.ac.jp](mailto:yotani@issp.u-tokyo.ac.jp)

**Sanvitos, Stefano** (2011) (2008) (2005). School of Physics, Trinity College Dublin, Dublin 2, IRELAND, Tel: 353 1 8963065, Fax: 353 1 6711759, Email: [sanvitos@tcd.ie](mailto:sanvitos@tcd.ie)

**Shin, Sung-Chul** (2011) (2008), DGIST - Daegu Gyeongbuk Institute of Science and Technology, Sangri 50-1, Hyunpoongmyun, Dalsung-gun, Daegu 711-873, Republic of Korea, Tel: 82 53 785 1000, Fax: 82 53 785 1209, Email: [scshin@dgist.ac.kr](mailto:scshin@dgist.ac.kr)

**van Dau Frederic, Nguyen** (2011) (2008), CNRS-THALES, Rd 128, 91767 Palaiseau Cedex, FRANCE, Fax: +33 (0)16941, Fax: [frederic.vandau@thalesgroup.com](mailto:frederic.vandau@thalesgroup.com)

**Ustinov, Vladimir** (2011), Institute of Metal Physics, Ural Branch of the Russian Academy of Sciences, 18, Sofia Kovalevskaya St., Ekaterinburg, 620219, RUSSIA, Tel: 7 3432 74 02 30, Fax: 7 343 374 52 44, Email: [ustinov@imp.uran.ru](mailto:ustinov@imp.uran.ru)

#### **Associate Members 2013-2015:**

**Cheikhrouhou, Abdelwaheb** Directeur du Laboratoire de Physique des Matriaux, Facult des Sciences de Sfax B.P. 802, 3018 Sfax, Tunisia, TI-Fax: 00 216 74 676607, Mobile: 00 216 98 656481, Email: [abdcheikhrouhou@yahoo.fr](mailto:abdcheikhrouhou@yahoo.fr)

**Kes, Peter. H.** Director Leiden Institute of Physics (LION), Leiden University, Niels Bohrweg 2, Leiden, The Netherlands POB 9504, 2300 RA Leiden, The Netherlands Phone: 31-71-527.5472 (direct) Fax. 31-71-527.5404, Phone: 31-71-527.5479 (Secretary, Barry Cats), E-mail: [kes@physics.leidenuniv.nl](mailto:kes@physics.leidenuniv.nl)

**Pfleiderer, Christian** Technische Universitaet München, Physik-Department E21, James-Franck Strasse, 85748 Garching, Germany, Tel: +49 89 289 14720, Fax: +49 89 289 14713, Email: [christian.pfleiderer@frm2.tum.de](mailto:christian.pfleiderer@frm2.tum.de)

**Rezende, Sergio** Departamento de Fisica Universidade Federal de Pernambuco 50 670-901, Recife, PE, BRAZIL Fax:(55-81) 271 0359, E-mail: [smr@df.ufpe.br](mailto:smr@df.ufpe.br)

# C10

## COMMISSION on the STRUCTURE and DYNAMICS of CONDENSED MATTER (1960) (1981)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Condensed Matter Physics including:
- a. the properties and behaviour of atoms and molecules in the liquid and solid states;
  - b. the characteristics of the solid and liquid states of matter including reduced dimensionality systems (in collaboration with other commissions as appropriate);
  - c. the modelling of condensed matter;
  - d. the application of condensed matter physics to technology.

### Article 2 - 7: see page 65

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- Chair: **Fujii, Yasuhiko (2011)**, Research Center for Neutron Science & Technology, CROSS (Comprehensive Res. Org. for Sci. & Soc.), Rm. D301, Bldg. IQBRC, 162-1 Shirakata, Tokai, Ibaraki 319-1106, JAPAN, Tel: 81 29 219 5300, Fax: 81 29 219 5311, Email: y\_fujii@cross.or.jp
- Vice Chair: **Erhart, Jiří (2011)**, Department of Physics, Technical University of Liberec, Studentska 2, 46117 Liberec 1, Czech Republic, Tel: 420-48-535 3400, Fax: 420-48-535 3530, Email: Jiri.erhart@tul.cz
- Secretary: **Kwo, J. Raynien (2011)**, Center for Condensed Matter Sciences, National Taiwan University, No. 1, Sec. 4, Roosevelt Road, Taipei, Taiwan, TAIWAN, Tel: 886 2 3366 200, Fax: 886 2 2365 5404, Email: raynien@ntu.edu.tw

### Members:

**Fransson, Jonas (2011)**, Department of Physics and Astronomy, Uppsala University SE-751 20 Uppsala, SWEDEN, Tel: 46 018 4715864, Email: jonas.fransson@physics.uu.se

**Garcia-Ruiz, Joaquin (2011) (2008) (2005)**, Instituto de Ciencia de Materiales de Aragón, CSIC, C/ Pedro Cerbuna 12, 50009 Zaragoza, SPAIN, Fax: 34 9767161229, Email: jgr@unizar.es

**Greene, Laura (2011)**, Department of Physics, University of Illinois at Urbana-Champaign, 1110 West Green Street, Urbana, IL 61801-3080, USA, Tel: 01 217 333 7315, Fax: 01 217 244 8544, Email: lhgreene@illinois.edu

**Groma, Istvan (2011)**, Department of Materials, Eötvös University Budapest, 1117 Budapest, Pázmány Péter Stny 1A, HUNGARY, Tel: 36 1 3722802, Fax: 36 1 3722811, Email: groma@metal.elte.hu

**Kveder, Vitaly (2011) (2008)**, Institute of Solid State Physics of the Russian Academy of Sciences, Institutskaya 2, Chernogolovka, Moscow district.142432, RUSSIA, Tel: 7 496 522 1982, Fax: 7 496 524 9701, Email: kveder@issp.ac.ru

**Lambin, Philippe (2011) (2008)**, Laboratoire de Physique du Solide, Facultés Universitaires N-D de la Paix, Rue de Bruxelles 61, BE-5000 Namur, BELGIUM, Tel: 32 081 725240, Fax: 32 081 725241, Email: philippe.lambin@fundp.ac.be

**Lecomte, Claude (2011)**, Director of UMR CRM2, CNRS 7036, BP 70239, 54506 Vandoeuvre-les-Nancy, FRANCE, Fax: 33 03 83 68 48 65, Email: claude.lecomte@crm2.uhp-nancy.fr

**Leipner, Hartmut S.** (2011), Interdisziplinäres Zentrum für Material-,  
Wissenschaften der Universität Halle-Wittenberg, Heinrich-Damerow-Str. 4, 06120  
Halle, GERMANY, Tel: 49 345 5528473, Fax: 49 345 5527390, Email:  
hartmut.leipner@cmat.uni-halle.de

**Robinson, Rob** (2011), ANSTO, Locked Bag 2001, Kirrawee DC, NSW 2232,  
AUSTRALIA, Tel: 61 02 9717 9204, Fax: 61 02 9717 3606, Email:  
robert.robinson@ansto.gov.au

**Thabet Mliki, Najeh** (2011), Department of Physics, Faculty of Science of Tunis,  
University of Tunis El Manar, 2092 Tunis, TUNISIA, Tel: 216 98957001, Fax: 216  
71885073, Email: najeh.mliki@fst.rnu.tn

**Wang, Mu** (2011), School of Physics, Nanjing University, 22 Hankou Road, Nanjing  
210093, CHINA, Tel: 86 25 8358 4496, Fax: 86 25 8359 5535, Email:  
muwang@nju.edu.cn

**Associate Members 2013-2015:**

**Noh, TaeWon** (2012), Department of Physics and Astronomy, Seoul National  
University, 599 Gwanak-ro, Gwanak-gu, Seoul 151-747, Republic of Korea, Tel: 2-  
880-6616, Email: [twnoh@snu.ac.kr](mailto:twnoh@snu.ac.kr)

# C11

## COMMISSION on PARTICLES and FIELDS (1957)

### Mandate:

#### Article 1

- To promote the exchange of information and views among the members of the international scientific community in the general field of Particles and Fields including:
- a. the theory and experiment concerned with the nature and properties of the fundamental constituents of matter and the forces acting between these constituents;
  - b. the maintaining of liaison with ICFA;
  - c. the accelerators, detectors and techniques used in these investigations;
  - d. the industrial applications of relevant technologies.

#### Article 2 - 7: see page 65

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Chair: **Aihara, Hiroaki** (2011) (2008), Department of Physics, The University of Tokyo, 7-3-1 Hongo, Bunkyo-Ku, Tokyo 113-0033, JAPAN, Tel: 81 3 5841 4213, Fax: 81 3 5841 8058, Email: [aihara@phys.s.u-tokyo.ac.jp](mailto:aihara@phys.s.u-tokyo.ac.jp)

Vice - Chair: **Le Diberder, Francois** (2011) (2008), Laboratoire de l'Accelérateur Lineaire, Batiment 200 - Université Paris - Sud 11, 91898 Orsay cedex, FRANCE, Fax: 33 01 64 46 85 46, Email: [diberder@lal.in2p3.fr](mailto:diberder@lal.in2p3.fr)

Secretary: **Schellman, Heidi** (2011), Department of Physics & Astronomy, Northwestern University, 2145 Sheridan Road, Evanston, Illinois 60208-3112, USA, Tel: 01 847 467 3036, Fax: 01 847 491 9982, Email: [h-schellman@northwestern.edu](mailto:h-schellman@northwestern.edu)

#### Members:

**Dosselli, Umberto** (2011) (2008), INFN Padova, Via Marzolo 8, 35100 Padova, ITALY, Fax: +39 0498756233, Email: [umberto.dosselli@pd.infn.it](mailto:umberto.dosselli@pd.infn.it)

**Fuster, Juan** (2011), IFIC, Instituto de Fisica Corpuscular, Centro Mixto CSIC-Universitat de Valencia, Nuevos Edificios de Institutos Universitarios de Paterna, Apartado de Correos 22085. ES-46071, SPAIN, Fax: 34 963543488, Email: [Juan.Fuster@ific.uv.es](mailto:Juan.Fuster@ific.uv.es)

**Hořejší, Jiří** (2011), Institute of Particle and Nuclear Physics, Faculty of Mathematics and Physics, Charles University, V Holesovickach 2, 180 00 Prague 8, Czech Republic, Email: [Jiri.Horejsi@mff.cuni.cz](mailto:Jiri.Horejsi@mff.cuni.cz)

**Hulth, Per Olof** (2011), Stockholm University, Department of Physics, AlbaNova, SE-106 91, SWEDEN, Tel: 46 08 55378668, Fax: 46 08 55378601, Email: [hulth@physto.se](mailto:hulth@physto.se)

**Kekelidze, Vladamir** (2011), Joliot-Curie 6, Dubna, Moscow region, 141980, RUSSIA, Tel: 7 49621 65815, Fax: 7 49621 65767, Email: [Vladimir.Kekelidze@cern.ch](mailto:Vladimir.Kekelidze@cern.ch)

**Lancaster, Mark** (2011), Department of Physics and Astronomy, University College London, Gower Street, London, WC1E 6BT, UK, Tel: 44 0207 679 7141, Fax: 44 0207 679 7145, Email: [m.lancaster@ucl.ac.uk](mailto:m.lancaster@ucl.ac.uk)

**Mann, Robert** (2011), Department of Physics and Astronomy, University of Waterloo, Waterloo, Ontario N2L 3G1, CANADA, Fax: 1 519 885 1211, Email: [rbrmann@sciborg.uwaterloo.ca](mailto:rbrmann@sciborg.uwaterloo.ca)

**Mueller, Thomas** (2011) (2008), Institut für Experimentelle Kernphysik, Karlsruher Institut für Technologie KIT, Wolfgang-Gaede-Str. 1, 76131 Karlsruhe, GERMANY, Tel: 49 721 608 43524, Fax: 49 721 608 25968, Email: [mullerth@kit.edu](mailto:mullerth@kit.edu)

**Novaes, Sergio Ferraz** (2011), Instituto de Fisica Teórica, UNESP, Rua Dr. Bento Teobaldo Ferraz, 271, Bldg II - Ground Floor, São Paulo, SP 01140-070, BRAZIL, Tel: 55 11 3393 7806, Fax: 55 11 3393 7899, Email: [Sergio.Novaes@cern.ch](mailto:Sergio.Novaes@cern.ch)

**Phua, Kok Khoo** (2011), Institute of Advanced Studies, Nanyang Technological University, Nanyang Executive Centre #02-18, 60 Nanyang View, SINGAPORE, Tel: 65 64665775, Fax: 65 6794 4941, Email: [KKPhua@ntu.edu.sg](mailto:KKPhua@ntu.edu.sg)

**Shen, Xiaoyan** (2011), No. 19B, Yu Quan Road, Institute of High Energy Physics, Chinese Academy of Sciences (CAS), Beijing 100049, CHINA, Tel: 86 10 8823 3083, Fax: 86 10 8823 3083, Email: [shenxy@ihep.ac.cn](mailto:shenxy@ihep.ac.cn)

**Associate Members 2013-2015:**

**Kim, Soo-Bong**, Dept. of Physics, Seoul National University, 599 Gwanak-ro, Gwanak-gu, Seoul 151-742, Republic of Korea, Tel: 2-880-5755, Email: [sbk@snu.ac.kr](mailto:sbk@snu.ac.kr)

**Knapp, Johannes** (2011) (2008), Deutsches Elektronen-Synchrotron (DESY), Platanenallee 6, D-15738 Zeuthen, Germany, Tel: +49 33762 77349, E-mail : [johannes.knapp@desy.de](mailto:johannes.knapp@desy.de)

**Padmanabhan, Thanu**, Post Bag 4, IUCAA, Pune University Campus, Ganeshkhind, Pune 411 007, INDIA, Tel: +91 020 25604202, Fax: +91 20 25604699 Email: [paddy@iucaa.ernet.in](mailto:paddy@iucaa.ernet.in)

**Poutissou, Jean-Michel** TRIUMF, 4004 Wesbrook Mall, Vancouver, BC, V6T 2A3, Canada. Fax: 1-604-222-1074. Email: [jmp@triumf.ca](mailto:jmp@triumf.ca)

# C12

## COMMISSION on NUCLEAR PHYSICS (1960)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Nuclear Physics including:
- a. the properties and characteristics of the atomic nucleus and its constituents;
  - b. the interaction of atomic nuclei with other nuclei, with particles and with radiation;
  - c. the apparatus and technologies used in nuclear investigations;
  - d. the applications of nuclear physics to technology.

### Article 2 - 7: see page 65

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Chair: **Sakai, Hideyuki** (2011) (2008) (2005), Nishina Center, RIKEN, Hirosawa 2-1, Wako-shi, 351-0198, JAPAN, Tel: 81 48 467 9453, Fax: 81 48 461 5301, Email: hidesakai@riken.jp

Vice-Chair: **Poutissou, Jean-Michel** (2011) (2008), TRIUMF, 4004 Wesbrook Mall, Vancouver, BC, V6T 2A3, CANADA, Fax: 1 604 222 1074 , Email:jmp@triumf.ca

Secretary: **Lepine-Szily, Alinka** (2011) (2008), Instituto de Fisica , Universidade of Sao Paulo, Travessa R da Rua do Matão, 187, Sao Paulo, SP 05508-090, BRAZIL, Tel: 55 11 3091 6952, Fax: 55 11 3031 2742 , Email: alinka@if.usp.br

### Members:

**Agvaanluvsan, Undraa** (2011) (2008), Mongolian-American Scientific Research Center, P.O.Box 24-603, Ulaanbaatar, MONGOLIA, Fax:976 11331093, Email:undraa@monamescience.org

**Fahlander, Claes** (2011), Department of Physics, Lund University , SE-221 00 Lund, SWEDEN, Tel: 046 2220332, Fax: 046 2224907, Email: claes.fahlander@nuclear.lu.se

**Fortuna, Graziano** (2011), INFN Headquarter, piazza dei Caprettari 70, 000044 Roma, ITALY, Tel: 39 3298312306, Fax: 39 0668307924, Email: fortuna@lnl.infn.it

**Geesaman, Donald** (2011) (2008), Argonne National Laboratory, 9700 S. Cass Avenue, Argonne, Illinois 60439, USA, Tel: +01 630 252 4059, Fax: +01 630 252 3903, Email: geesaman@anl.gov

**Guillemaud-Mueller, Dominique** (2011), CNRS, 3, rue Michel-Ange, 75794 Paris cedex 16, FRANCE, Fax: 33 01 44 96 63 90, Email: guillema@ipno.in2p3.fr

**Julin, Rauno** (2011), Department of Physics, University of Jyväskylä, PO Box 35, 40014 University of Jyväskylä, FINLAND, Tel: 358 14 260 2426, Fax: 358 14 260 2351, Email: rauno.julin@phys.jyu.fi

**Korsheninnikov, Alexei** (2011) (2008), Institute of General and Nuclear Physics, Russian Research Center "Kurchatov Institute", 123181 Moscow, RUSSIA, Tel: 7 499 1969343, Fax: 7 499 4624689, Email: korsheninnikov@mail.ru

**Liu, Wei-Ping** (2011) (2008), China Institute of Atomic Energy, PO Box 275(1), Beijing 102413, CHINA, Tel: 86 10 6935 8015, Fax: 86 10 6935 7008, Email: wpliu@ciae.ac.cn

**Stroth, Joachim** (2011), GSI Helmholtzzentrum für, Für Schwerionenforschung GmbH, Planckstrasse 1, 64291 Darmstadt, GERMANY, Tel: 49 6159 71 2151, Fax: 49 6159 71 2155, Email: j.stroth@gsi.de



**Regan, Patrick** (2011), Department of Physics, University of Surrey, Guildford, GU2 7XH, UK, Tel: 44 01483 686783, Fax: 44 01483 686781, Email: P.Regan@surrey.ac.uk

**van Duppen, Piet (2011)**, Instituut voor Kern en Stralingsfysica, Dpt Natuurkunde en Sterrenkunde, K U Leuven, Celestijnenlaan 200 D, B 3001 Leuven, BELGIUM, Tel: 3216327272 (73), Fax: 3216327985, Email: Piet.VanDuppen@fys.kuleuven.be

**Associate Members 2013-2015:**

**Nagy, Dénes Lagos**, KFKI Research Institute for Particle and Nuclear Physics, Hungarian Academy of Sciences, H-1525 Budapest, P.O.B. 49, Hungary, Tel: +36 1 392 2517, Fax: 36 1 392 2518, Email: [nagy@rmki.kfki.hu](mailto:nagy@rmki.kfki.hu)

**Schellman, Heidi** Department of Physics & Astronomy, Northwestern University, 2145 Sheridan Road, Evanston, Illinois 60208-3112, USA, Tel: +01 847 467 3036 , Fax: +01 847 491 9982, Email: [h-schellman@northwestern.edu](mailto:h-schellman@northwestern.edu)

**Waelkens, Christoffel** Institute of Astrophysics ,KU-Leuven, Celestijnenlaan 200B, 3001 Leuven, Belgium, Tel: +32 16327036, Fax: +32 16327999, Email: [Christoffel.Waelkens@ster.kuleuven.be](mailto:Christoffel.Waelkens@ster.kuleuven.be)

# C13

## COMMISSION on PHYSICS for DEVELOPMENT (1981)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Physics for Development including:
- a. to help in appropriate ways the improvement of the conditions of physics and physicists in developing countries;
  - b. to propose and, if appropriate, support initiatives to promote the contribution of physics to industrial development;
  - c. to collect and distribute relevant information on opportunities for Physics Development.

### Article 2 - 7: see page 65

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Chair: **Oliveira, Paulo Murilo de Castro** (2011) (2008) (2005), Instituto de Fisica, Universidade, Federal Fluminense, Campus da Praia Vermelha, Niterói - RJ 24210-346, BRAZIL, Tel: 55 21 2629 5825, Fax: 55 21 2629 5887, Email: pmco@if.uff.br

Vice-Chair: **Scandolo, Sandro** (2011), The Abdus Salam International Centre for Theoretical Physics, Strada Costiera 11, I-34151 Trieste, ITALY, Tel: 39 0402240209, Fax: 39 39040224163, Email: scandolo@ictp.it

Secretary: **Wague, Ahmadou** (2011) (2008) (2005), Department of Physics, University Cheikh Anta, Diop of Dakar, Dakar -Fann Dakar, SENEGAL, Tel: 221 77 634 19 61, Fax: 221 338246318, Email: wague@refer.sn

### Members:

**Bhatt-Chauhan, Dipali** (2011) (2008), 76 Portland Place, London W1B 1NT, UK, Tel: 44 020 7470 4825, Fax: 44 020 7470 4861, Email: dipali.bhatt-chauhan@iop.org

**Cisneros, Carmen** (2011) (2008), Av. Universidad S/N Col. Chamilpa, Cuernavaca, Morelos C.P.62210, MEXICO, Tel: 52 7773291731, Fax: 52 7773175388, Email: carmen@fis.unam.mx

**Dvurechensky, Anatoly** (2011), Institute of Semiconductor Physics, Siberian Branch Russian Academy of Science, Lavrentiev Prospect 13, Novosibirsk, 630090, RUSSIA, Tel: 7 3833332466, Fax: 7 3833332771, Email: dvurech@isp.nsc.ru

**Estrada, Walter** (2011) (2008), Av. Tejada 183, San Antonio, Miraflores, PERU, Email: westrada@uni.edu.pe

**Long, Gui Lu** (2011) (2008), Department of Physics, Tsinghua University, Beijing 100084, CHINA, Tel: 86 10 6277 2692, Fax: 86 10 6277 2692, Email: gllong@tsinghua.edu.cn

**Malek, Farouz** (2011) (2008), LPSC - GRENOBLE, 53, avenue des Martyrs, 38026 Grenoble cedex, FRANCE, Fax: 33 0476284004, Email: fmalek@lpsc.in2p3.fr

**Mensah, Samuel Yeboah** (2011), Department of Physics, University of Cape-Coast, GHANA, Tel: 00233304 4230667, Fax: 00233304 4234864, Email: profsymensah@yahoo.co.uk

**Mtingwa, Sekazi** (2011), Massachusetts Institute of Technology, 77 Massachusetts Avenue, Room 16-127, Cambridge, MA 02139, USA, Tel: 01 617 253 7602, Fax: 01 617 252 1619, Email: mtingwa@mit.edu

**Nagy, Dénes Lajos** (2011) (2008), KFKI Research Institute for Particle and Nuclear Physics, Hungarian Academy of Sciences, Budapest, PO Box 49, HUNGARY, Tel: 36 1 392 2517, Fax: 36 1 392 2518, Email: nagy@rmki.kfki.hu

**Platt, Ulrich** (2011), Institut für Umweltphysik, University Heidelberg, Im Neuenheimer Feld 229 (INF 229), 69120 Heidelberg, GERMANY, Tel: 49 6221 54 6339, Fax: 49 6221 54 6405, Email: ulrich.platt@iup.uni-heidelberg.de

**Telmini, Mourad** (2011), National Centre for Nuclear Science and Technology, Sidi Thabet Technopark, 2020 Ariana, TUNISIA, Tel: 216 98417878, Fax: 216 71537555, Email: mourad.telmini@cnsn.rnrt.tn

**Associate Members 2013-2015:**

**Lepine-Szily, Alinka**, Instituto de Fisica, Universidade of Sao Paulo, Travessa R da Rua do Matão, 187, Sao Paulo, SP 05508-090 Brazil, Tel: +55 11 3091 6952, Email: alinka@if.usp.br

**Piuzzi, François**, CEA, France, Tel: +33 1 69 08 30 79, Email: Francois.PIUZZI@cea.fr

**Quevedo, Fernando**, Director of ICTP, Trieste, Italy, Email: director@ictp.it

**Reed, Kennedy**, Physics & Advanced Technologies Directorate Lawrence Livermore National Laboratory (LLNL), MS L-41, Livermore CA, USA, Fax: 925-423-0246, Email: reed5@llnl.gov

# C14

## COMMISSION on PHYSICS EDUCATION (1960)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Physics Education including:
- a. the collection, evaluation, coordination and distribution of information concerning education in the physical sciences at all levels;
  - b. information relation to the assessment of standards of physics teaching and learning;
  - c. suggesting ways in which the facilities for the study of physics at all levels might be improved, stimulating experiments at all levels, and giving help to physics teachers in all countries in incorporating current knowledge of physics, physics pedagogy, and the results of research in physics education into their courses and curricula.

### Article 2 - 7: see page 65

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Chair: **Lambourne, Robert** (2011) (2008) (2005), Department of Physics and Astronomy, The Open University, Walton Hall, Milton Keynes MK7 6AA, UK, Tel: 44 01908652521, Fax: 44 01908654192, Email: [r.j.lambourne@open.ac.uk](mailto:r.j.lambourne@open.ac.uk)

Vice - Chair: **Nitta, Hideo** (2011) (2008), Department of Physics Tokyo Gakugei University, Koganei, Tokyo 184-8501, JAPAN, Tel: 81 42 329 7485, Fax: 81 42 329 7485, Email: [nitta@u-gakugei.ac.jp](mailto:nitta@u-gakugei.ac.jp)

Secretary: **Dvořák, Leoš** (2011) (2008), Department of Physics Education, Charles University, Faculty of Mathematics and Physics, V Holesovickach 2, 180 00 Prague 8, CZECH REPUBLIC, Email: [Leos.Dvorak@mff.cuni.cz](mailto:Leos.Dvorak@mff.cuni.cz)

### Members:

**Gangoso, Zulma** (2011) (2008), Tanti 1404, Córdoba, C.P: 5014, ARGENTINA, Tel: 54 351 4334051, Fax: 54 351 4334054, Email: [zulma@famaf.unc.edu.ar](mailto:zulma@famaf.unc.edu.ar)

**Glans, Lotten** (2011), Mid Sweden University, SE-851 70 Sundsvall, SWEDEN, Tel: +46 060 148881, Email: [lotten.glans@miun.se](mailto:lotten.glans@miun.se)

**Khokhlov, Dmitry** (2011), Physics Department, M.V. Lomonosov Moscow State University, 1 bld.2 Leninskie Gory, Moscow 119991, RUSSIA, Tel: 7 495 939 1151, Fax: 7 495 932 8876, Email: [khokhlov@mig.phys.msu.ru](mailto:khokhlov@mig.phys.msu.ru)

**Laws, Priscilla** (2011), Dept. of Physics and Astronomy, Dickinson College, Carlisle, Pennsylvania 17013, USA, Tel: 01 717 245 1242, Email: [lawsp@dickinson.edu](mailto:lawsp@dickinson.edu)

**Naido, Deena** (2011), Department of Physics, University of Witwatersrand Private Bag 3, Wits 2050, SOUTH AFRICA, Tel: 27 011 717 6866, Fax: 27 011 717 6879, Email: [Deena.Naidoo@wits.ac.za](mailto:Deena.Naidoo@wits.ac.za)

**Nardi, Roberto** (2011), Department de Educação, Faculdade de Ciências de Bauru, Universidade Estadual Paulista Jolio de Mesquita Filho, Av. Engenheiro Luiz Edmundo C. Coube, s/n., 17033-360 - Bauru, SP, BRAZIL, Tel: 55 14 3103 6095, Fax: 55 14 3103 6095, Email: [nardi@fc.unesp.br](mailto:nardi@fc.unesp.br)

**NicChormaic, Sile** (2011), Quantum Optics Group, Physics Dept. & Tyndall National Institute, University College Cork, IRELAND, Tel: 353 021 4904864, Fax: 353 021 4904880, Email: [S.NicChormaic@ucc.ie](mailto:S.NicChormaic@ucc.ie)

**Planinsic, Gorazd** (2011), Department of Physics, Faculty for Mathematics and Physics, University of Ljubljana, Jadranska 19, 1000 Ljubljana, SLOVENIA, Tel: 386 1 4766575, Fax: 386 1 2517281, Email: [gorazd.planinsic@fmf.uni-lj.si](mailto:gorazd.planinsic@fmf.uni-lj.si)

**Ramadas, Jayashree** (2011), Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, V.N.Purav Marg, Mankhurd, Mumbai, INDIA, Tel: 91 022 2258 0890, Fax: 91 022 2556 6803, Email: [jr@hbcse.tifr.res.in](mailto:jr@hbcse.tifr.res.in)

**Vollmer, Michael** (2011) (2008), Physikalische Ingenieurwissenschaften, Fachhochschule Brandenburg, Magdeburger Str. 50, 14770 Brandenburg, GERMANY, Tel: 49 3381 355 347, Fax: +49 3381 355 367, Email: [vollmer@fh-brandenburg.de](mailto:vollmer@fh-brandenburg.de)

**Wu, Nianle** (2011) (2008), Department of Physics, Tsinghua University, Beijing 100084, CHINA, Tel: 86 10 6277 2685, Fax: 86 10 6278 1886, Email: [nwu@tsinghua.edu.cn](mailto:nwu@tsinghua.edu.cn)

#### **Associate Members 2013-2015:**

**Mazzolini, Alex** Faculty of Engineering & Industrial Sciences (H38), Swinburne University of Technology PO Box 218 Hawthorn, Victoria, 3122 Australia Phone: +61 3 9214 8866, Fax: +61 3 9214 8264, Email: [amazzolini@swin.edu.au](mailto:amazzolini@swin.edu.au)

**Saddul-Hauzaree, Sarojiny** , Science Education Department, Mauritius Institute of Education, Réduit, Mauritius, Phone: (MIE number) +230 401 6555 Email: [sarojiny.saddul@gmail.com](mailto:sarojiny.saddul@gmail.com)

**Taşar, Mehmet Fatih** İlköğretim Bölümü, K Blok 210, Gazi University, The Gazi Faculty of Education, Department of Primary Education, 06500, Teknikokullar, Ankara, Turkey, Phone: +90 (312) 202 8192, Email: [mftasar@gazi.edu.tr](mailto:mftasar@gazi.edu.tr)

# C15

## COMMISSION on ATOMIC, MOLECULAR, and OPTICAL PHYSICS (1966) (1994) (1996)

### Mandate:

#### Article 1

To promote the exchange of information and views among the members of the international scientific community in the general field of **Atomic, Molecular and Optical Physics** including:

- a. the properties of charged and neutral atoms and molecules;
- b. the dynamics and these entities, including interaction with electromagnetic radiation and with electric and magnetic fields and the results of collisions;
- c. applications of optical and laser techniques to the manipulation of atomic and molecular species;
- d. the application of atomic and molecular physics to technology.

#### Article 2 - 7: see page 65

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Chair: **Gebbie, Katharine** (2011) (2008) (2005), Physics Laboratory, National Institute of Standards and Technology, 100 Bureau Drive, Stop 8400, Gaithersburg, Maryland 20899-8400, USA, Tel: 01 301 975 4201, Fax: 01 301 975 3038, E-mail: [katharine.gebbie@nist.gov](mailto:katharine.gebbie@nist.gov)

Vice - Chair: **Mathur, Deepak** (2011) (2008) (2005), Tata Institute of Fundamental Research, 1, Homi, Bhabha Road, Mumbai-400 005, INDIA, Tel: 91 022 22782736, Fax: 91 022 22806411, Email: [atmol1@tifr.res.in](mailto:atmol1@tifr.res.in)

Secretary: **Azuma, Toshiyuki** (2011) (2008), Atomic, Molecular & Optical Physics Laboratory, RIKEN, Hirosawa 2-1, Wako, 351-0198, JAPAN, Tel: 81 48 462 1614, Fax: 81 48 462 4686, Email: [toshiyuki-azuma@riken.jp](mailto:toshiyuki-azuma@riken.jp)

#### Members:

**Becker, Uwe** (2011), Fritz-Haber-Institut, der MPG, Faradayweg 4-6, 14195 Berlin, GERMANY, Tel: 49 30 8413 5694, Fax: 49 30 8413 3155, Email: [becker\\_u@fhi-berlin.mpg.de](mailto:becker_u@fhi-berlin.mpg.de)

**Blatt, Rainer** (2011) (2008), Institute for Experimental Physics, Universitaet Uppsbruck, Technikerstrasse 25, 6020 Innsbruck, AUSTRIA, Tel: 43 512 507 6350, Fax: 43 512 507 2952, Email: [rainer.blatt@uibk.ac.at](mailto:rainer.blatt@uibk.ac.at)

**Čapková, Pavla** (2011), Faculty of Science, J.E. Purkyne University, Ceske mladeze 8, 40096 Usti nad Labem, CZECH REPUBLIC, Email: [pavla.capkova@vsb.cz](mailto:pavla.capkova@vsb.cz)

**Ding, Dajun** (2011), Institute of Atomic and Molecular Physics, Jilin University, Changchun 130000, CHINA, Tel: 86 431 8516 8819, Fax: 86 431 8516 8816, Email: [dajund@jlu.edu.cn](mailto:dajund@jlu.edu.cn)

**Dowek, Danielle** (2011) (2008), Institut des Sciences Moleculaires d'Orsay, Batiment 200 – Universite Paris-Sud 11, 91405 ORSAY, FRANCE, Fax: 33 01 69 15 58 11, Email: [danielle.dowek@u-psud.fr](mailto:danielle.dowek@u-psud.fr)

**Drummond, Peter** (2011), Centre for Atom Optics and Ultrafast Spectroscopy, Swinburne University of Technology, PO Box 218, Melbourne VIC 3122, AUSTRALIA, Tel: 61 3 9214 8043, Fax: 61 3 9214 5160, Email: [peterdrummond@gmail.com](mailto:peterdrummond@gmail.com)

**Jhe, Wonho** (2011), Dept of Physics, Seoul National University, 599 Gwanak-ro, Gwanak-gu, Seoul 151-742, Republic of Korea, Tel: 82 2 880 6600, Fax: 82 2 884 3002, Email: [whjhe@snu.ac.kr](mailto:whjhe@snu.ac.kr)

**Nommiste, Ergo** (2011) Institute of Physics, University of Tartu, Riia Street 142, 51014, Tartu, Estonia, Email: ergo.nommiste@ut.ee

**Pichler, Goran** (2011) (2008), Institute of Physics, Bijenicka cesta 46, HR 10000 Zagreb, CROATIA, Tel: 385 1 469 8807, Fax: 385 1 469 8889, Email: [pichler@ifs.hr](mailto:pichler@ifs.hr)

**Taichenachev, Alexei** (2011) (2008), Institute of Laser Physics, Siberian Branch of the Russian Academy of Sciences, Prospect Lavrentyev 13/3, 630090 Novosibirsk, RUSSIA, Tel: 7 383 3309922, Fax: 7 383 3332067, Email: [llp@laser.nsc.ru](mailto:llp@laser.nsc.ru)

**Thywissen, Joseph H.** (2011), Department of Physics, 60 St. George, Toronto, Ontario, M5S 1A7, CANADA, Fax: 01 416 978 2537, Email: [jht@physics.utoronto.ca](mailto:jht@physics.utoronto.ca)

**Associate Members 2013-2015:** To be confirmed

# C16

## COMMISSION on PLASMA PHYSICS (1969)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Plasma Physics including:
- a. the physics of ionized gases, of partially ionized gases, and of gaseous electronics;
  - b. the applications of such physics including thermonuclear fusion, space physics, astrophysics, and plasma technology.

### Article 2 - 7: see page 65

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Chair: **Bingham, Robert** (2011) (1996) (1993), STFC Rutherford Appleton Laboratory, Chilton, Didcot, Oxfordshire, UK, Phone: 44 1235 445800, Email: bob.bingham@stfc.ac.uk

Vice - Chair: **Hidalgo, Carlos** (2011) (2008), Laboratorio Nacional de Fusion, EURATOM-CIEMAT Avenida Complutense 22, Madrid 28040, SPAIN, Fax: 34 913466124, Email: carlos.hidalgo@ciemat.es

Secretary: **Thomas, Hubertus** (2011), Max-Planck-Institut, Für Extraterrestrische Physik, Giessenbachstrasse, 85741 Garching, GERMANY, Tel: 49 89 30000 3838, Fax: 49 89 30000 3399, Email: thomas@mpe.mpg.de

### Members:

**Carati, Danielle** (2011) (2008), Statistical and plasma physics, CP 231, Campus Plaine, Universite Libre de Bruxelles, Boulevard du Triomphe, 1050 Brussels, BELGIUM, Tel: 32 02 650 58 13, Fax: 32 02 650 58 24, Email: dcarati@ulb.ac.be

**Galvão, Ricardo Magnus Osorio** (2011) (2008), Centro Brasileiro de Pesquisas Fisicas, rua Xavier Sigaud 150, Rio de Janeiro, RJ 22290-180, BRAZIL, Tel: 55 21 2141 7249, Fax: 55 21 2141 7400, Email: rgalvao@cbpf.br

**Gicquel, Alix** (2011), LIMHP - University Paris 13, CNRS Institut Galilee, 99, avenue Jean-Baptiste Clement, 93430 VILLETANEUSE, FRANCE, Fax: 33 01 49 40 34 57, Email: [alix.gicquel@lspm.cnrs.fr](mailto:alix.gicquel@lspm.cnrs.fr)

**Hau, Lin-Ni** (2011), National Central University, Jhongli, TAIWAN, Tel: 856 3 4227151 ext 65761, Fax: 856 3 425 1175, Email: [Inhau@jupiter.ss.ncu.edu.tw](mailto:Inhau@jupiter.ss.ncu.edu.tw)

**Hirose, Akira** (2011) (2008), Department of Physics, University of Saskatchewan, 116 Science Place, Saskatoon, Saskatchewan S7N 5E2, CANADA, Fax: 01 306 966 1977, Email: akira.hirose@usask.ca

**Ignatov, Alexadr** (2011), Prokhorov General Physics Institute, Russian Academy of Sciences, Vaviliva, 38, 119991, Moscow, RUSSIA, Tel: 7 499 1350247, Fax: 7 499 1350247, Email: [aign@fpl.gpi.ru](mailto:aign@fpl.gpi.ru)

**Jha, Ratneshwar** (2011), Institute for Plasma Research, Bhat, Near Indira Bridge, Gandhinagar-382 428, INDIA, Tel: 91 079 2396 2075, Fax: 91 079 2396 2277, Email: [rjha@ipr.res.in](mailto:rjha@ipr.res.in)



**Khalifaoui, Abdelhamid** (2011), Advanced Technologies Development Centre-CDTA, Lotissement du 20 Août 1956, PO Box 17, Baba-Hassen, Algiers, ALGERIA, Tel: +213 21 351 040, Fax: +213 21 351 039, Email: [khalfoui@cdta.dz](mailto:khalfoui@cdta.dz)

**Merlino, Robert** (2011), University of Iowa, Iowa City, USA, Tel: 1 3193351756, Email: [robert-merlino@uiowa.edu](mailto:robert-merlino@uiowa.edu)

**Mlynář, Jan** (2011), Institute of Plasma Physics AS CR, Za Slovankou 3, 18200 Prague 8, CZECH REPUBLIC, Email: [mlynar@ipp.cas.cz](mailto:mlynar@ipp.cas.cz)

**Yitzhak Maron** (2011), Faculty of Physics, The Weizmann Institute of Science, Rehovot , 76100, ISRAEL, Tel: +972 8 934 4055, Fax: +972 8 934 2560, Email: [Yitzhak.Maron@weizmann.ac.il](mailto:Yitzhak.Maron@weizmann.ac.il)

#### **Associate Members 2013-2015:**

**Mendonca, Jose Tito**, GoLP, Centro de Fisica de Plasmas, Instituto Superior Tecnico, 1096 Lisboa Codex, Portugal, Email: [titomend@beta.ist.utl.pt](mailto:titomend@beta.ist.utl.pt), Tel: 00351 21-8419324

**Mori, Warren B**, Professor of Physics and Astronomy and of Electrical Engineering, University of California, Los Angeles (UCLA) , Department of Physics and Astronomy, Los Angeles, CA 90095-1547, Email: [mori@physics.ucla.edu](mailto:mori@physics.ucla.edu), Tel: 001(310) 206-0372

# C17

## COMMISSION on QUANTUM ELECTRONICS (1975)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Quantum Electronics including:
- a. the physics of coherent electromagnetic energy generation and transmission;
  - b. the physics of interaction of coherent electromagnetic radiation with matter;
  - c. the application of quantum electronics to technology.

### Article 2 - 7: see page 65

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Chair: **Zadkov, Victor** (2011) (2008), Faculty of Physics of Moscow State University , Vice-Director, International Laser Center MSU , Faculty of Physics and Intl Laser Center, MSU 119991, RUSSIA , Tel: 7 495 939 23 71, Fax: 7 495 932 9802, Email: zadkov@phys.msu.ru

Vice - Chair: **Kane, Deborah** (2011), Dept. of Physics and Astronomy, Macquarie University, Sydney NSW, AUSTRALIA, Tel: 61 2 9850 8907, Fax: 61 2 9850 8115, Email: debkane@physics.mq.edu.au

Secretary: **Masoller, Cristina** (2011), Departament de Física i Enginyeria Nuclear, Universitat Politècnica de Catalunya, Colom 11, Terrassa 08222, Barcelona, SPAIN, Tel: 34 937398507, Fax: 34 937398500, Email: cristina.masoller@upc.edu

### Members:

**Cerf, Nicolas** (2011), Faculté des Sciences Appliquées, Université Libre de Bruxelles (ULB), Campus du Solbosch CP165/59, 50 Ave F D Roosevelt, BELGIUM, Tel: 3226502858, Fax: 3226502941, Email: Nicolas.Cerf@ulb.ac.be

**Desai, Narayana Rao** (2011), School of Physics, University of Hyderabad, Prof.C.R.Rao Road, Gachibowli, Hyderabad-500 046, INDIA, Tel: 91 040 23134335, Fax: 91 040 23010227, Email: dnrsp@uohyd.ernet.in

**Galperin, Yuri** (2011), Department of Physics, PO Box 1048, Blindern, 0316 Oslo, NORWAY, Tel: 47 22 85 64 95, Fax: 47 22 85 64 22, Email: [iouri.galperine@fys.uio.no](mailto:iouri.galperine@fys.uio.no)

**Kiss, Tamás** (2011), Department of Quantum Optics and Quantum Information, Research Institute for Solid State Physics and Optics, Hungarian Academy of Sciences, Konkoly-Thege u. 29-33, HUNGARY, Tel: 36 1 3922222 ext. 1394, Fax: 36 1 39222215, Email: tkiss@szfki.hu

**Midorikawaa, Katsumi** (2011) (2008), Laser Technology Laboratory, RIKEN, Hirosawa 2-1, Wako-shi, Saitama 351-0198, JAPAN, Tel: 81 48 467 9492, Fax: 81 48 462 4682, Email: kmidori@riken.jp

**McCall, Martin** (2011), Imperial College, London, SW7 2AZ, UK, Tel: 44 020 7594 7749, Fax: 44 020 7594 7714, Email: [m.mccall@imperial.ac.uk](mailto:m.mccall@imperial.ac.uk)

**Nam, Change Hee** (2011), Dept of Physics, KAIST - Korea Advanced Institute of Science & Technology, Yuseong-gu, Daejeon 305-701, Republic of Korea, Tel: 82 42 350 2534, Fax: 82 42 350 2510, Email: chnam@kaist.ac.kr

**Pan, Ci-Ling** (2011), Department of Physics, National Tsing Hua University, Hsinchu City, TAIWAN, Tel: 886 3 5742275, Fax: 886 3 5723052, Email: [clpan@phys.nthu.edu.tw](mailto:clpan@phys.nthu.edu.tw)

**Petta, Jason** (2011), Department of Physics, Princeton University, Jadwin Hall, Princeton, New Jersey 08544, USA, Tel: 01 609 258 4400, Fax: 01 609 258 1124, Email: [petta@princeton.edu](mailto:petta@princeton.edu)

**Qihuang, Gong** (2011), Department of Physics, Peking University, Beijing 100871, CHINA, Tel: 86 10 6276 5884, Fax: 86 10 6275 2540, Email: [qhong@pku.edu.cn](mailto:qhong@pku.edu.cn)

**Zilio, Sérgio Carlos** (2011), Instituto de Física de Sao Carlos, Universidade de Sao Paulo, Av. Trabalhador Sao Carlense 400, Sao Carlos, SP 13566-590, BRAZIL, Tel: 55 16 3373 9807, Fax: 55 16 3373 8085 , Email: [zilio@ifsc.usp.br](mailto:zilio@ifsc.usp.br)

#### **Associate Members 2013-2015:**

**Dudley, John**, EPS/QEOD, President elect EPS, Laboratoire d'Optique P.M. Duffieux, Institut FEMTO CNRS UMR 6174, 16 Route de Gray, 25030 Besançon cedex, FRANCE, Phone: +33 (0)3 81 66 64 01, Fax : +33 (0)3 81 66 64 23, Email: [john.dudley@univ-fcomte.fr](mailto:john.dudley@univ-fcomte.fr)

**Lee, David**, Secretary General, European Physical Society Secretariat, Secretary General, European Physical Society, 6 rue des Frères Lumière, F-68200 Mulhouse, France , Tel: +33 (389) 329440, Email: [d.lee@eps.org](mailto:d.lee@eps.org)

# C18

## COMMISSION on MATHEMATICAL PHYSICS (1981)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international scientific community in the general field of Mathematical studies of problems originating in or relevant to Physics, including:
- mathematical models of physical systems;
  - mathematical aspects of physical theories;
  - computational techniques.

### Article 2 - 7: see page 65

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Chair: **Yngvason, Jakob** (2011) (2008), Institute for Mathematical Physics, Universitaet Wien, Boltzmanngasse 5, 1090 Vienna, AUSTRIA, Tel: 43 1 4277 51506, Fax: 43 1 4277 9731, Email: [jakob.yngvason@univie.ac.at](mailto:jakob.yngvason@univie.ac.at)

Vice - Chair: **Kupiainen, Antti** (2011) (2008), Mathematics Department, University of Helsinki, PO Box 68, 00014 University of Helsinki, FINLAND, Tel: 358 9 19151460, Fax: 358 9 19151462 Email: [ajkupiai@cc.helsinki.fi](mailto:ajkupiai@cc.helsinki.fi)

Secretary: **Dorey, Patrick** (2011) (2008), Department of Mathematical Sciences, Science Site, South Road, Durham DH1 3LE, UK, Tel: 44 0191 334 3070, Fax: 44 0191 334 3051, Email: [p.e.dorey@durham.ac.uk](mailto:p.e.dorey@durham.ac.uk)

### Members:

**Arai, Asao** (2011), Department of Mathematics, Hokkaido University, Nishi-8, Kita-10, Kita-ku, Sapporo-shi, 060-0810, JAPAN, Tel: 81 11 706 2616, Fax: 81 11 706 2616, Email: [arai@math.sci.hokudai.ac.jp](mailto:arai@math.sci.hokudai.ac.jp)

**Carlen, Eric** (2011), Department of Mathematics, Rutgers, The State University of New Jersey, Hill Center for the Mathematical Sciences, 110 Frelinghuysen Rd., Piscataway, New Jersey 08854-8019, USA, Tel: 01 732 445 2390 ext. 5788, Fax: 01 732 445 5530, Email: [carlen@math.rutgers.edu](mailto:carlen@math.rutgers.edu)

**Dick, Rainer** (2011), Department of Physics, University of Saskatchewan, 116 Science Place, Saskatoon, Saskatchewan S7N 5E2, CANADA, Fax: 01 306 966 6400, Email: [rainer.dick@usask.ca](mailto:rainer.dick@usask.ca)

**Gould, Mark** (2011) (2008), School of Mathematics and Physics, University of Queensland, Brisbane, St Lucia, QLD 4072, AUSTRALIA, Fax: 61 033651320, Email: [m.gould1@uq.edu.au](mailto:m.gould1@uq.edu.au)

**Gopakumar, Rajesh** (2011), Harish Chandra Research Institute, Chhatnag Road Jhusi, Allahabad, INDIA, Tel: 91 0532 2567732, Fax: 91 0532 2667576, Email: [gopakumr@hri.res.in](mailto:gopakumr@hri.res.in)

**Klopp, Frederic** (2011) (2008), Institut Galilee – Department de Physique, Université Paris 13, 99, avenue Jean-Baptiste Clement, 93430 VILLETANEUSE, FRANCE, Fax: 33 01 49 40 35 68, Email: [klopp@math.jussieu.fr](mailto:klopp@math.jussieu.fr)

**Purice, Radu** (2011) (2008), Institute of Mathematics, Romanian Academy, PO Box 1-764, Bucuresti, ROMANIA, Tel: 40 21 319 65 09, Fax: 40 21 319 65 05, Email: [radu.purice@imar.ro](mailto:radu.purice@imar.ro)

**Renner, Renato** (2011) (2008), Institut fuer Theoretische Physik, Wolfgang-Pauli - Str. 27, 8093 Zuerich, SWITZERLAND, Tel: 41 44 633 34 58, Fax: 41 44 633 11 15, Email: [renner@phys.ethz.ch](mailto:renner@phys.ethz.ch)

**Salmhofer, Manfred** (2011), Institut für Theoretische Physik, Universität Heidelberg, Philosophenweg 19, 69120 Heidelberg, GERMANY, Tel: 49 6221 549433, Fax: 49 6221 549431, Email: [M.Salmhofer@thphys.uni-heidelberg.de](mailto:M.Salmhofer@thphys.uni-heidelberg.de)

**Slavnov, Andrei** (2011), Steklov Mathematical Institute, Russian Academy of Sciences, Gubkina, 8, 119991, Moscow, RUSSIA, Tel: 7 495 9388141 ext. 3791, Fax: 7 499 1350555, Email: [slavnov@mi.ras.ru](mailto:slavnov@mi.ras.ru)

**Titi, Edriss** (2011) (2008), Weizmann Institute, Faculty of Applied Mathematics, POB 26 Rehovot 76100, ISRAEL, Tel: 972 8 934 3540, Fax: 972 8 934 4122, Email: [etiti@math.uci.edu](mailto:etiti@math.uci.edu)

**Associate Members 2013-2015:** To be confirmed

# C19

## COMMISSION on ASTROPHYSICS (1984)

### Mandate:

Article 1 To promote the activities of interested physicists who are working in the area (gravitation, plasma physics, nuclear physics, high energy physics, atomic and molecular physics and condensed matter) with the object of synthesising their contributions into a better understanding of astrophysical phenomena and the nature of the cosmos.

### Article 2 - 7: see page 65

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Chair: **Padmanabhan, Thanu** (2011) (2008) (2005), Post Bag 4, IUCAA, Pune University Campus, Ganeshkhind, Pune 411 007, INDIA, Tel: 91 020 25604202, Fax: 91 20 25604699, Email: [paddy@iucaa.ernet.in](mailto:paddy@iucaa.ernet.in)

Vice - Chair: **Kaspi, Victoria** (2011) (2008), Physics Department, McGill University, Montreal, P.Q. H3A 2T8, CANADA, Fax: 01 514 398 3733 , Email: [vkaspi@physics.mcgill.ca](mailto:vkaspi@physics.mcgill.ca)

Secretary: **Tautvaisiene, Grazina** (2011) (2008), Institute of Theoretical Physics and Astronomy, Vilnius University, Gostauto 12, LT-01108, LITHUANIA, Fax: +370 5 2125361, Email: [grazina.tautvaisiene@tfai.vu.lt](mailto:grazina.tautvaisiene@tfai.vu.lt)

### Members:

**Balega, Yuri** (2011), Special Astrophysical Observatory, Nizhnij Arkhyz, Karachai-Cherkesia, 369167, RUSSIA, Tel: 7 8787846436, Fax: 7 8787846527, Email: [balega@sao.ru](mailto:balega@sao.ru)

**Gilmore, Gerry** (2011) (2008), Professor of Experimental Philosophy, Institute of Astronomy, Cambridge University, Madingley Road, Cambridge CB3 0HA, UK, Tel: 44 01223 337506, Fax: 44 01223 339910, Email: [gil@ast.cam.ac.uk](mailto:gil@ast.cam.ac.uk)

**Hadrava, Petr** (2011), Astronomical Institute, Academy of Sciences of the Czech Republic, 25165 Ondrejov, CZECH REPUBLIC, Email: [had@sunstel.asu.cas.cz](mailto:had@sunstel.asu.cas.cz)

**Kouveliotou, Chryssa** (2011), NASA Marshall Space Flight Center, NSSTC, Rm 2057, 320 Sparkman Drive, Huntsville, Alabama 35805, USA, Tel: 01 256 961 7604, Fax: 01 256 961 7215, Email: [chryssa.kouveliotou@nasa.gov](mailto:chryssa.kouveliotou@nasa.gov)

**Lee, Hyun Kyu** (2011) (2008), Dept of Physics, Hanyang University, 17 Haengdangdong, Seongdonggu, Seoul 133-791, KOREA, Fax: 82 2 2296 3364, Email: [hyunkyu@hanyang.ac.kr](mailto:hyunkyu@hanyang.ac.kr)

**Liu, Bifang** (2011), National Astronomical Observatory, Chinese Academy of Sciences, 20A Datun Road, Chaoyang District, Beijing, CHINA, Fax: 0086 10 64807673, Email: [bfliu@nao.cas.cn](mailto:bfliu@nao.cas.cn)

**Rebolo, Rafael** (2011), Instituto de Astrofísica de Canarias, C/ Via Láctea s/n, La Laguna 38201, SPAIN, Fax: 34 922605200, Email: [rrl@iac.es](mailto:rrl@iac.es)

**Rodriguez, Luis Felipe** (2011), Centro de Radioastronomía y Astrofísica, Antigua Carretera a Pátzcuaro # 870, Michoacán C.P.52089, MEXICO, Tel: 52 4433222742, Fax: +2 4433222726, Email: [l.rodriquez@crya.unam.mx](mailto:l.rodriquez@crya.unam.mx)

**Waelkens, Christoffel** (2011) (2008), Institute of Astrophysics, KU-Leuven, Celestijnenlaan 200B, 3001 Leuven, BELGIUM, Tel: 32 16327036, Fax: 32 16327999, Email: [Christoffel.Waelkens@ster.kuleuven.be](mailto:Christoffel.Waelkens@ster.kuleuven.be)

**Woudt, Patrick** (2011) (2008), Astrophysics, Cosmology and Gravity Centr,  
Department of Astronomy, University of Cape Town, Private Bag X3, Rondebosch  
7701, SOUTH AFRICA, Tel: 27 021 650 2392, Fax: 27 021 650 2392, Email:  
[pwoudt@ast.uct.ac.za](mailto:pwoudt@ast.uct.ac.za)

**Yokoyama, Junichi** (2011), Research Center for the Early Universe (RESCEU),,  
School of Science, The University of Tokyo, Hongo 7-3-1, Bunkyo-ku, Tokyo, 113-  
0033, JAPAN, Tel: 81 3 5841 7637, Fax: 81 3 5841 7638, Email:  
[yokoyama@resceu.s.u-tokyo.ac.jp](mailto:yokoyama@resceu.s.u-tokyo.ac.jp)

**Associated Members 2013-2015:**

**Fonseca, Maria Victoria**, Dept. Fisica Atomica, Molecular y Nuclear, Facultad de  
Ciencias, Universidad Complutense de Madrid, E-28040 Madrid, SPAIN, Fax: (34-  
9130 945 193, Email: [fonseca@gae.ucm.es](mailto:fonseca@gae.ucm.es)

**Liu, Wei-Ping**, China Institute of Atomic Energy, PO Box 275(1), Beijing 102413,  
CHINA, Tel: 86 10 6935 8015, Fax: 86 10 6935 7008, Email: [wpliu@ciae.ac.cn](mailto:wpliu@ciae.ac.cn)

**Trimble, Virginia, Dept.** Physics and Astronomy, University of California-Irvine,  
Irvine, CA 92697, USA, Fax; 1 (949) 824 2174, Email: [ytrimble@astro.umd.edu](mailto:ytrimble@astro.umd.edu)

# C20

## COMMISSION on COMPUTATIONAL PHYSICS (1996)

### Mandate:

- Article 1 To promote the exchange of information and views among the members of the international community of physicists in the area of Computational studies of problems originating in or relevant to physics, including
- numerical and symbolic models and algorithms for the simulation of physical systems
  - computational control and data processing of experiments
  - programming and computational environments
  - the physical basis of computer machinery.

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Chair: **Hansen, Alex** (2011) (2008) , Department of Physics, The Norwegian University of Science and Thechnology , N-7491 Trondheim, NORWAY, Tel: 47 73593649, Fax: 47 73593372, Email: Alex.Hansen@ntnu.no

Vice - Chair: **Adler, Joan** (2011) (2008) , Physics Department , Technion, Haifa 32000, ISRAEL, Tel: 972 4 8293 397, Fax: 972 4 8295 755, Email: phr76ja@tx.technion.ac.il

Secretary: **Lin, HaiQing** (2011), 3 HeQing Road, Haidian District, Beijing 100084, Beijing, Computitional Science Research Center, CHINA, Tel: 86 10 8268 7022, Fax: 86 10 8268 7002, Email: haiqing0@csrc.ac.cn

### Members:

**Alexandrou, Constantia** (2011), Department of Physics, University Campus , University of Cyprus , Nicosia, CYPRUS, Tel: 357 22892829, Fax: 357 22892821 , Email: alexand@ucy.ac.cy

**Ciccoti, Giovanni** (2011) (2008), Dipartimento di Fisica, Università La Sapienza, Piazzale A.Moro, 5, 00185 Roma, ITALY, Tel: 39 0649914378, Fax: 39 064957697, Email: Giovanni.Ciccotti@roma1.infn.it

**Dickman, Ronald** (2011), Departamento de Fisica - ICEX, Universidade Federal de Minas Gerais, Av. Antonio Carlos 6627, Belo Horizonte, MG 31270-901, BRAZIL, Tel: 55 31 3409 6628, Fax: 55 31 3409 5600, Email: dickman@fisica.ufmg.br

**Fangor, Hans** (2011), 312 Hill Lane, Southampton, SO15 7NW, UK, Tel: 44 02380 598345, Email: fangohr@soton.ac.uk

**Guo, Guang-Yu** (2011) (2008), Department of Physics, National Taiwan University, 1 Sec. 4 Roosevelt Road, Taipei 106, TAIWAN, Tel: 886 2 33665180, Fax: 886 2 23639984, Email: gyguo@phys.ntu.edu.tw

**Imada, Masatoshi** (2011), Department of Applied Physics, University of Tokyo, Hongo 7-3-1, Bunkyo-ku, Tokyo, 113-8656, JAPAN, Tel: 81 3 5841 6805, Fax: +81 3 5841 6805, Email: imada@ap.t.u-tokyo.ac.jp

**Landau, David** (2011), Department of Physics & Astronomy, The University of Georgia, Athens, Georgia 30602-2451, USA, Tel: 01 706 542 2908, Fax: 01 706 542 2492, Email: dlandau@physast.uga.edu

**Marro, Joaquin** (2011) (2008), University of Granada, Facultad de Ciencias (Fisicas), Campus de Fuentenueva, 18071 - Granada, SPAIN, Fax: 34 958242862, Email: jmarro@ugr.es

**Shchur, Lev** (2011), Landau Institute for Theoretical Physics, Russian Academy of Sciences, pl Semenova 1a, 142432 Chernogolovka, Moscow region, RUSSIA, Tel: 7 4959934844, Fax: 7 4959935817, Email: lev@landau.ac.ru



**Waghmare, Umesh** (2011), Theoretical Sciences Unit, Jawaharlal Nehru Centre for Advanced Scientific Research, Jakkur Post, Bangalore-560064, Karnataka, INDIA, Tel: 91 080 22082842, Fax: 91 080 22082766, Email: [waghmare@jncasr.ac.in](mailto:waghmare@jncasr.ac.in)

**Williams, Tony** (2011) (2008), Room 125 Physics Building, University of Adelaide, SA 5005, AUSTRALIA, Tel: 61 8 8303 3546, Fax: 61 8 8303 3551, Email: [anthony.williams@adelaide.edu.au](mailto:anthony.williams@adelaide.edu.au)

**Associate Members 2013-2015:**

**Chetty, Nithaya**, Department of Physics, University of Pretoria, Private bag X20, Hatfield, 0028, South Africa, Telephone: +27-12-420-6204. Email: [Nithaya.Chetty@up.ac.za](mailto:Nithaya.Chetty@up.ac.za)

**Gubernatis, James**, Los Alamos National Laboratory, MS B262. T-11, Los Alamos, NM 87545, USA, Email: [jg@lanl.gov](mailto:jg@lanl.gov)

**Takabe , Hideaki**, Osaka University, Institute of Laser Engineering, Osaka University +81-6-6879-8731 (or 8719), Yamada-oka 2-6, Suita, Osaka 565-0871, JAPAN , Email: [takabe@ile.osaka-u.ac.jp](mailto:takabe@ile.osaka-u.ac.jp)

## **AFFILIATED COMMISSIONS**

It occasionally happens that an international committee or organisation of physicists decides to join with the Commissions of IUPAP. It may do so as a specialised Commission, in which case its organisation and administration follow the pattern of the others and it may receive sponsorship and grants for its international conferences. If its own administrative structure is well developed, it may become instead an *affiliated* Commission. Such as Commissions may have their own Members and dues structures, statutes and assemblies. They endorse and assist in implementing IUPAP principles concerning, for example, the free circulation of scientists and participate in joint activities. IUPAP delegates Members to the governing board or council, and approves the constitution or statutes. Affiliated Commissions report their activities to the IUPAP General Assemblies, and their financial statements to the Executive Council.

Physicists interested in the activities of Affiliated Commissions are invited to contact the Commission's Secretary directly with copy to the Secretary-General of IUPAP for information.

# AC.1

## INTERNATIONAL COMMISSION for OPTICS (1948)

The **International Commission for Optics** is an Affiliated Commission of the International Union of Pure and Applied Physics (IUPAP) and a Scientific Associate of the International Council for Science (ICSU). ICO was created in 1947 with the objective, to contribute to the worldwide progress and diffusion of knowledge in Optics. Its membership consists of **53 Territorial Committees** representing the Optics community from defined geographical areas all around the world and Six international professional societies: The LAM Network, the European Optical Society\_(EOS), the IEEE Photonics Society, the International Society on Optics Within Life Sciences (OWLS), The Optical Society (OSA) and SPIE - the International Society for Optics and Photonics.

The governing body of ICO is its General Assembly, comprised of all Territorial Representatives. The General Assembly meets every three years at the **Congress of the International Commission for Optics**, where eligible members are elected to the ICO Bureau. In the years between General Congresses ICO holds topical meetings that host the annual ICO Bureau Meeting. ICO endorses and/or co-sponsors around ten international workshops, conferences, meetings and/or schools annually. ICO works in close collaboration with the Abdus Salam Centre for Theoretical Physics (ICTP) and provides expert advice to the ICTP's applied physics research and education programs in the area of optics and laser physics. ICO is a permanent member of the Steering Committee of the series of conferences on Education and Training in Optics and Photonics and publishes quarterly its ICO Newsletter. ICO administers the IUPAP Young Scientists Prize in Optics and recognizes scientific achievements consistent with its mission through three internationally well-credited awards: the ICO Prize, the Galileo Galilei Award and the ICO/ICTP Gallieno Denardo Award.

*President:* **Duncan Moore**, University Of Rochester, P.O. Box 270186, Rochester, NY 14627-0186, Tel: 585-275-5248, Email: moore@optics@rochester.edu

*Past President:* **Maria Calvo**, Universidad Complutense de Madrid, Department de Optica, Facultad de Ciencia Fisicas Ciudad Universitaria E28040, Madrid, Spain, Tel: 34 91 394 4684, Email: [mlcalvo@fis.ucm.es](mailto:mlcalvo@fis.ucm.es)

*Secretary General:* **Angela Guzmán**, The College Of Optics And Photonics, Univ. of Central Florida, P.O. Box 162700, 4000 Central Florida Blvd., Orlando, FL 32816-2700, Tel: 407-823-6858, Email: angela.guzman@creol.ucf.edu

*Associate Secretary:* **Gert von Bally**, Center for Biomedical Optics and Photonics (CEBOP), University of Münster, Robert-Koch-Str.45, D-48149 Münster, Germany, Tel: 49 251 8356888, Email: ce.bop@uni-muenster.de

*Treasurer:* **James Harrington**, Rutgers University, 607 Taylor Rd., Piscataway, NJ 08854-8065, Tel: (732) 445-3932, Email: jaharrin@rutgers.edu

### Vice Presidents, elected:

Zhou Bingkun, China  
Yasuhiko Arakawa, Japan  
Zohra Ben Lakhdar, Tunisia  
Moshe Oron, Israel  
Tomasz Szoplík, Poland  
Humberto Michinel, Spain  
Roberta Ramponi, Italy  
Frank Höller, Germany

**Vice Presidents, appointed:**

Appointed by OSA: Ursula Gibson, Norway

Appointed by SPIE: Maria Yzuel, Spain

Appointed by the IEEE Photonics Society: Yujie Ding, USA

Appointed by EOS: Hans Peter Herzig, Switzerland

Appointed by OWLS: Alberto Diaspro, Italy

Appointed by LAM Network: Ahmadou Wague, Senegal

IUPAP Executive Council Delegate: Carmen Cisneros, Mexico

## AC.2

### INTERNATIONAL COMMISSION on GENERAL RELATIVITY and GRAVITATION (1957) (1972)

The International Society on General Relativity and Gravitation, ISGRG, is an international learned society. It acts as Affiliated Commission 2 (AC.2) of the International Union of Pure and Applied Physics (IUPAP).

The Society's purposes are "to promote the study of GRG and to exchange information in the interest of its members and the profession". It pursues these aims in several ways: it organizes a triennial conference, publishes a journal "General Relativity and Gravitation," sponsors a bulletin and website service, Hyperspace, and represents its research community in international science politics through IUPAP, acting as its responsible commission for other relevant conferences

#### **PRESIDENT elected 2010 for 2010-13 (Deputy-President 2013-16)**

*President:* **Prof. Malcolm A.H. MacCallum**, School of Mathematical Sciences, Queen Mary, University of London, Mile End Road, London E1 4NS, United Kingdom, Phone: +44 20 7882 5445, Fax: +44 20 8981 9587, Email: m.a.h.maccallum@qmul.ac.uk,

#### **DEPUTY-PRESIDENT 2010-13 (President elected 2007 for 2007-10)**

*Deputy President:* **Prof. Abhay Ashtekar**, Institute for Gravitation and the Cosmos, The Pennsylvania State University, 104 Davey Laboratory, University Park, PA 16802-6300, USA, Phone: +1 814 863 9601 and 9605, Fax: +1 814 863 9608, Email: ashtekar@gravity.psu.edu

#### **SECRETARY (and Treasurer) 2010-13**

*Secretary:* **Dr. Beverly K. Berger**, P.O. Box 3388, Livermore, CA 94551-3388, Phone: +1 925-371-8979

#### **IUPAP REPRESENTATIVES nominated 2007 (retiring 2013)**

**Prof. Nigel Bishop**, Rhodes University, Department of Mathematics and Applied Mathematics, Grahamstown 6140, South Africa, Email: n.bishop@ru.ac.za

**Prof. Yongge Ma**, Department of Physics, Beijing Normal University, Beijing 100875, China, Phone: +86-10-58809499, Fax: +86-1-62209742, Email: mayg@bnu.edu.cn

#### **IUPAP REPRESENTATIVES nominated 2010 (retiring 2016)**

**Prof. David C. McClelland**, Dept of Quantum Science, College of Physical Sciences, The Australian National University, Canberra, ACT 0200, Australia, Phone: +612 612 59888, Fax: +612 612 50741, Email: david.mcclelland@anu.edu.au

**Dr. Nadja Magalhaes**, Centra Federal de Educacao Tecnologica de Sao Paulo, Rua Medina 82, Parque Ideal, Carapicuiaba, SP 06355-140 Brazil, Phone: +55 11 6763 7579, Email: nadjam@cefetsp.br

#### **MEMBERS OF COMMITTEE elected Dublin 2004 (retiring 2013)**

**Prof. Nils Andersson**, School of Mathematics, University of Southampton, Southampton SO9 5NH, U.K., Phone: +44 23 8059 4551, Fax: +44 23 8059 5147, Email: na@maths.soton.ac.uk

**Prof. Massimo Cerdonio**, Dipartimento di Fisica, Universita di Padova, Via Marzolo 8, I-35131 Padova, Italy, Phone: +39 49 8277082, Fax: +39 49 662263, Email: massimo.cerdonio@pd.infn.it

**Prof. Piotr Chruściel**, Gravitational Physics, University of Vienna, Boltzmanngasse 5, A 1090 Vienna, Austria, Phone: (43 for Austria) (0 when calling from Austria) 4277 51556, email: Piotr.Chrusciel@univie.ac.at

**Prof. James Isenberg**, Department of Mathematics, University of Oregon, Eugene, OR 97403-1222, U.S.A., Phone: +1 541 346 4725, Email: isenberg@uoregon.edu

**Prof. Andrzej Krasinski**, Nicholas Copernicus Astronomical Center, Polish Academy of Sciences, ul. Bartycka 18, 00-716 Warszawa, Poland, Phone: +48 22 651 05 00 ext. 132, Fax: +48 22 841 00 46, Email: akr@camk.edu.pl

**Prof. Oscar Reula**, Facultad de Matematica, Astronomia y Fisica, Universidad Nacional de Cordoba, Ciudad Universitaria, (5000) Cordoba, Argentina, Phone: +54 51 334051 / 334055, Fax: +54 51 334054, Email: reula@fis.uncor.edu

**Prof. Misao Sasaki**, Yukawa Institute for Theoretical Physics, Kyoto University, Sakyo-ku, Kyoto 606-8502, Japan, Phone and Fax: +81 75 753 7043, Email: misao@yukawa.kyoto-u.ac.jp

**Prof. Peter Saulson**, Department of Physics, Syracuse University, 201 Physics Building, Syracuse, NY 13244-1130, U.S.A., Phone: +1 315 443 5994, Fax: +1 315 443 9103, Email: saulson@physics.syr.edu

#### **MEMBERS OF COMMITTEE elected Sydney 2007 (retiring 2016)**

**Prof. Marek A. Abramowicz**, Physics Department, Göteborg University, SE-412-96 Göteborg, Sweden, Phone: +46 31772 3135, Fax: +46 31772 3204, Email: Marek.Abramowicz@physics.gu.se

**Prof. Gary Horowitz**, Physics Department, UCSB, Santa Barbara, CA 93106, USA, Phone: +1 805 893 2742, Fax: +1 805 893 8838, Email: gary@physics.ucsb.edu

**Prof. Kostas Kokkotas**, Theoretical Astrophysics (TAT), IAAT, Eberhard Karls University of Tübingen, Auf der Morgenstelle 10, 72076 Tuebingen, Germany, Tel: +49-7071-29-77685, Fax: +49-7071-29-5889, Email: kostas.kokkotas@uni-tuebingen.de

**Prof. Kei-Ichi Maeda**, Dept of Physics, Waseda University, Okubo 3-4-1, Shinjuku, Tokyo 169-8555, Japan, Phone: +81 3 5286 3442, Fax: +81 3 3205 4839, Email: maeda@waseda.jp

**Prof. Reza Mansouri**, Department of Physics, Sharif University of Technology, P.O. Box 11365-9161, Tehran, Iran, Phone: +98 21 6600 54 10, Fax: +98 21 6602 27 11, Email: mansouri@ipm.ir

**Prof. Eric Poisson**, Department of Physics, University of Guelph, Guelph, Ontario N1G 2W1, Canada, Phone: +1 519 824 4120 x 53949, Fax: +1 519 836 9967, Email: poisson@physics.uoguelph.ca

**Prof. Bernard Schutz**, Max-Planck Inst. fur Gravitationsphysik (Albert Einstein Institut), Am Mühlenberg 1, D-14476 Golm, Germany, Phone: +49 331 567 7220, Fax: +49 331 567 7298, Email: bernard.schutz@aei.mpg.de

**Prof. Matt Visser**, School of Mathematics, Statistics, and Computer Science, Victoria University, P.O. Box 600, Wellington, New Zealand, Phone: +64 4 463 5341, Fax: +64 4 463 5045, Email: matt.visser@mcs.vuw.ac.nz

#### **MEMBERS OF COMMITTEE elected Mexico 2010 (retiring 2019)**

**Prof. Bernd Bruegmann**, TPI-Friedrich-Schiller-Universität Jena, Max-Wein-Platz 1 D07743 Jena, Germany, Phone: +49 3641 947120, Email: Bernd.Bruegmann@uni-jena.de

**Prof. Roberto Emparan**, Dept de Fisica Fonamental, University of Barcelona, Martí i Franques 1, E-08028 Barcelona, Spain, Phone: +34 9340384818, Fax: +34 934021149, Email: emparan@ub.edu

**Prof. Valeria Ferrari**, Dipartimento di Fisica, University of Rome La Sapienza, P.le A. Moro 2, 00185 Rome, Italy, Phone: +39 06 49914276, Fax: +39 06 495 7697, Email: [valeria.ferrari@roma1.infn.it](mailto:valeria.ferrari@roma1.infn.it)

**Prof. Gabriela Gonzalez**, Department of Physics and Astronomy, 202 Nicholson Hall, Tower Drive Louisiana State University, Baton Rouge, LA 70803-4001, U.S.A., Phone: +1 (225) 578-0468, Fax: +1 (225) 578-5855, Email: [gonzalez@phys.lsu.edu](mailto:gonzalez@phys.lsu.edu)

**Dr. Eric Gourgoulhon**, Laboratoire Univers et Théories, CNRS/Observatoire de Paris, 5 Place Jules Janssen, F-92195 Meudon Cedex, France, Tel: +33 1 450 77433, Fax: +33 1 450 77971, Email: [eric.gourgoulhon@obspm.fr](mailto:eric.gourgoulhon@obspm.fr)

**Prof. Bala Iyer**, Raman Research Institute, CV Raman Ave, Sadashivanagar, Bangalore 560080, India, Phone: +91 80 236 10002, Fax: +91 80 236 10492, Email: [bri@rri.res.in](mailto:bri@rri.res.in)

**Dr. Frans Pretorius**, Department of Physics, Princeton University, Princeton NJ 08544, Phone: +1 609 258-5858 Fax: +1 609 258-1124, Email: [fpretori@princeton.edu](mailto:fpretori@princeton.edu)

**Prof. Alexei Starobinski**, Landau Institute for Theoretical Physics, USSR Academy of Sciences, Kosygina 2, Moscow 117334, Russia, Phone: +7 095 9385417, Fax: +7 095 9382077, Email: [alstar@landau.ac.ru](mailto:alstar@landau.ac.ru)

## AC.3

### INTERNATIONAL COMMISSION for ACOUSTICS (1998)

The purpose of the ICA is to promote international development and collaboration in all fields of acoustics including research, development, education, and standardisation.

Means for the Commission to fulfil its mission are:

a) to maintain close contacts with national and regional acoustical societies and associations as well as other relevant professional organisations and seek consensus in matters of mutual interest; ii to provide an information service on societies, congresses, symposia, etc., research and education organisations in the field of acoustics; iii to take a pro- active role in co-ordinating the main international meetings within acoustics.

b) to convene the International Congresses on Acoustics in accordance with the Commission's guidelines and to act as the International Advisory Committee for these congresses.

c) to sponsor or co-sponsor other topical and special international conferences normally in close cooperation with national and/or regional organisations and to give financial support (grants or guarantees), as a grant to organising committees for such meetings or as a travel grant to participants.

#### Board Membership 2011-2013

*ICA President:* **Michael Vorländer**; Germany  
Email: ICAPresident@icacommission.org

*Vice-President:* **Charles Schmid**, USA  
Email: ICAVicePresident@icacommission.org

*Secretary General:* **Marion Burgess**, Australia  
Email: ICASecGen@icacommission.org

*Treasurer:* **Antonio Perez-Lopez**, Spain  
Email: ICATreasurer@icacommission.org

*Past President:* **Samir Gerges**, Brasil

#### Board:

**Canada** - Michael Stinson

**China** - Jing Tian

**Denmark** - Claus- Møller Petersen

**France** - Philippe Blanc-Benon

**Italy** - Adriano Alippi

**Japan** - Sonoko Kuwano

**Korea** - Jeong-Guon Ih

**Poland** - Eugeniusz Kozaczka

**Russia** - Viacheslav Maslov

**United Kingdom** - Yiu Lam

#### International Affiliate Representatives

**AES** - Jan Abildgaard Pedersen

**EAA** - Jean Kergomard

**FIA** - Jorge Patricio

**ICBEN** - Stephen A. Stansfeld

**ICU** - Bogumil Linde

**IIAV** - J. L. Bento Coelho

**I-INCE** - Rajendra Singh

**WESPAC** - Masayuki Morimoto



# AC.4

## INTERNATIONAL ORGANISATION ON MEDICAL PHYSICS (2005)

The mission of IOMP is to advance medical physics practice worldwide by disseminating scientific and technical information, fostering the educational and professional development of medical physicists, and promoting the highest quality medical services for patients.

### Officers (2012-2015)

Kin Yin Cheung (President IOMP, [kinycheung@yahoo.com](mailto:kinycheung@yahoo.com))  
Slavik Tabakov (Vice-President, [slavik.tabakov@emerald2.co.uk](mailto:slavik.tabakov@emerald2.co.uk))  
Fridtjof Nüsslin (Past-President IOMP, AC-4 Chair, [nuesslin@lrz.tu-muenchen.de](mailto:nuesslin@lrz.tu-muenchen.de))  
Madan Rehani (Secretary General IOMP, [sg.iomp@gmail.com](mailto:sg.iomp@gmail.com))  
Anchali Krisanachinda (Treasurer, [kanchali@yahoo.com](mailto:kanchali@yahoo.com))

### IOMP Committee Chairs:

William Hendee (Science, SC, [whendee@mcw.edu](mailto:whendee@mcw.edu))  
John Damilakis (Education & Training, ETC, [damilaki@med.uoc.gr](mailto:damilaki@med.uoc.gr))  
Raymond Wu (Professional, PRC, [raykwu@gmail.com](mailto:raykwu@gmail.com))  
Tae Suk Suh (Publication, PC, [suhsanta@catholic.ac.kr](mailto:suhsanta@catholic.ac.kr))

### Associate Members from IUPAP Commissions:

Kenichi Yoshikawa (Chair C6, Biological Physics, [yoshikaw@scphys.kyoto-u.ac.jp](mailto:yoshikaw@scphys.kyoto-u.ac.jp))  
Paulo Murilo de Castro Oliveira (C13, Physics for Development, [pmco@if.uff.br](mailto:pmco@if.uff.br))  
Robert Lambourne (C14, Physics Education, [r.j.lambourne@open.ac.uk](mailto:r.j.lambourne@open.ac.uk))  
3 external scientists co-opted by AC-4:  
To be nominated

## IUPAP DELEGATES TO INTER-UNION COMMISSIONS

Much interdisciplinary work is carried out in collaboration by Unions. Some is done by committees set up by the Union's federation: the International Council of Scientific Unions (ICSU). In other work one Union plays the role of lead agency, with others supplying associates. Unions also send delegates to independent international organisations such as BIPM. The IUPAP is currently associated with seventeen such activities, in addition to having associates from other Unions and organisations on its own Commissions.

Physicists interested in the work of these committees are invited to contact the IUPAP representative. These are designated by the Executive Council at its meeting a year after a General Assembly.

### **IU.1 International Council of Scientific Unions (ICSU)**

Reed, Kennedy, Physics & Advanced Technologies Directorate, Lawrence Livermore National Laboratory (LLNL), MS L-41, Livermore CA, USA. Fax: 925-423-0246. Email: [reed5@llnl.gov](mailto:reed5@llnl.gov)

### **IU.2 Committee on Data for Science and Technology (CODATA)**

Mohr, Peter, Fundamental Constants Data Center, Precision Measurement Grants Program, NIST, 100 Bureau Dr., Gaithersburg, MD 20899-8401 USA, Fax (301) 975-4578, Phone (301) 975-3217, Email: [mohr@nist.gov](mailto:mohr@nist.gov)

### **IU.3 Committee on Space Research (COSPAR)**

Wenzel, Peter, ESA Research and Scientific Support Department, ESTEC, Postbus 299, NL-220 AG Noordwijk, Netherlands, Phone: (31-71) 517 4947, Email: [peter.wenzel@planet.nl](mailto:peter.wenzel@planet.nl)

### **IU.4a Consultative Committee on Units (CCU)**

Phillips, William, National Institute of Standards and Technology, Mail Stop 8424, Gaithersburg, Maryland 20899-8424, USA, Phone: +01 301 975 6554, Fax: +01 301 975 8272, Email: [william.phillips@nist.gov](mailto:william.phillips@nist.gov)

Mohr, Peter, Fundamental Constants Data Center, Precision Measurement Grants Program, NIST, 100 Bureau Dr., Gaithersburg, MD 20899-8401 USA, Fax (301) 975-4578, Phone (301) 975-3217, Email: [mohr@nist.gov](mailto:mohr@nist.gov)

### **IU.4b Joint Committee for Guides in Metrology (JCGM)**

Wöger, Wolfgang, Physikalisch-Technische Bundesanstalt, Postfach 3345, D-38023 Braunschweig, Germany, Phone: 49 531 592 8110, Fax: 49 531 592 8106, Email: [wolfgang.woeger@ptb](mailto:wolfgang.woeger@ptb)

### **IU.5 International Council for Scientific & Technical Information (ICSTI)**

Sprouse, Gene, D. Editor in Chief, American Physical Society, 1 Research Road, Ridge NY 11961, Phone is 631 591 4019, Email [sprouse@aps.org](mailto:sprouse@aps.org)

### **IU.8 Scientific Committee on Problems of the Environment (SCOPE)**

Samseth, Jon, SINTEF Materials and Technology, N-7465 Trondheim, Norway, Phone: +47 98 23 04 61, Fax: + 47 73 59 27 86, Email: [jon.samseth@sintef.no](mailto:jon.samseth@sintef.no)

### **IU.10 Scientific Committee on Solar-Terrestrial Physics (SCOSTEP)**

Lester, Mark, Head of Department and Professor of Solar Terrestrial Physics, Radio and Space Plasma Physics Group, Department of Physics and Astronomy, University of Leicester, Leicester, LE1 7RH, United Kingdom

### **IU.14. a. IUPAC Interdivisional Committee on Terminology and Symbols (IDCNS)**

Lea, Stephen, Time & Frequency Group, National Physical Laboratory, Hampton Road,

Teddington, Middlesex TW11 0LW, UK, Phone: +44 020 8943 6102,  
Email: [stephen.lea@npl.co.uk](mailto:stephen.lea@npl.co.uk)

**b. IUPAC Commission of Isotope Abundances and Atomic Weights (CIAWW)**

Sharma, Kurma, Department of Physics, University of Manitoba, 301 Allen Building, Fort Garry Campus, Winnipeg, MB R3T 2N2, Canada, Tel: +1 204 474 6181, Fax: +1 204 474 7622, Email: [sharma@physics.umanitoba.ca](mailto:sharma@physics.umanitoba.ca).

**IU.15 Bureau International des Poids et Mesures (BIPM)**

Milton, Martin, Bureau International des Poids et Mesures, Pavillon de Breteuil, F-92310 Sevres, FRANCE, Fax: (33-1) 45 34 8670, Phone: (33-1) 45 07 7000, Email: [awallard@bipm.org](mailto:awallard@bipm.org)

**IU.16 International Electrotechnical Committee (IEC)**

Karshenboim, Savely, The Central Astronomical Observatory of the Russian Academy of Sciences at Pulkovo, Pulkovskoye chaussee 65/1, 196140 Saint-Petersburg, RUSSIA, Phone: +7 812 363 7400, Fax: +7 812 388 2242, Email : [S.G.Karshenboim@gao.spb.ru](mailto:S.G.Karshenboim@gao.spb.ru)

**IU.18 International Union of Pure and Applied Biophysics (IUPAB)**

Silvia Morante, President of SIPA (Italian Society of Pure and Applied Biophysics), Department of Physics University of Rome "Tor Vergata", Via della Ricerca Scientifica, 1, 00133 Roma – ITALY, Tel: +39 0672594554, Fax: +39 062023507, Email: [Silvia.Morante@roma2.infn.it](mailto:Silvia.Morante@roma2.infn.it)

**IU.19 The Joint IUPAC/IUPAP (JWP2006)**

Barber, Robert, Department of Physics & Astronomy, University of Manitoba, Manitoba, CANADA, Email: [barber@physics.umanitoba.ca](mailto:barber@physics.umanitoba.ca)

# W.G.1

## INTERNATIONAL COMMITTEE ON FUTURE ACCELERATORS (ICFA)

The International Committee for Future Accelerators (ICFA) was created to facilitate international collaboration in the construction and use of accelerators for high energy physics. It was created in 1976 by the International Union of Pure and Applied Physics. Its purposes, as stated in 1985, are as follows:

- To promote international collaboration in all phases of the construction and exploitation of very high energy accelerators.
- To organise regularly world-inclusive meetings for the exchange of information on future plans for regional facilities and for the formulation of advice on joint studies and uses.
- To organise workshops for the study of problems related to super high-energy accelerator complexes and their international exploitation and to foster research and development of necessary technology.

**Website:** <http://www.fnal.gov/directorate/icfa>

### Membership

**Chair,** P. Oddone (2012-2014)

**Secretary,** R. Rubinstein (1993- )

### CERN Member States

R. Heuer (2009-2014)

J. Mnich (2009-2014)

T. Nakada (2009-2012)

M. Krammer (2012-2014)

### USA

P. Oddone (2005-2014)

P. Drell (2009-2014)

R. Brock (2010-2012)

### Russia

S. Ivanov (2012-2014)

A. Bondar (2012-2014)

### China

Wang Yifang (2011-2014)

### Japan

S. Komamiya (2000-2014)

A. Suzuki (2006-2014)

### Canada

W. Trischuk (2008-2013)

### Chairman of the IUPAP Commission on Particles and Fields (ex officio)

H. Aihara (2011-2014)

### Other Countries

G. Alves (2011-2013)

V. Tsakanov (2011-2013)

A. Roy (2012-2014)

## **W.G.2**

### **WORKING GROUP ON COMMUNICATION IN PHYSICS**

This group has been reconstituted to consider the problems that are emerging in electron publishing. It particularly will consider internet availability/ reliability, linking between societies and publishers, availability of electronic communication in isolated areas, archiving, peer review, and intellectual property.

#### **Charge to Working Group:**

It is the primary mission of the working group to make a set of recommendations on important issues in the international aspects of physics communication, especially electronic publication, that are appropriate for IUPAP action.

#### **Membership**

Gene Sprouse (**Chair**)

Xavier Bouju

Enrique Canessa (**ICTP**)

Nicola Gulley

Li Lu

Sergio M Rezende

Ken-Iche Ueda (**ILS Tokyo**)

Rudiger Voss (**CERN**)

# W.G.5

## WORKING GROUP ON WOMEN IN PHYSICS

The working group was formed by resolution of the Atlanta General Assembly in 1999.

### The mandate of the group is:

- To survey the situation for women in physics in IUPAP member countries. To analyse and report the data collected along with suggestions on how to improve the situation. To suggest ways that women can become more involved in IUPAP, including the Liaison Committees, the Commissions, the Council, and the General Assemblies. To report all findings at the General Assembly in 2002.
- In carrying out the above charge, it may prove useful to organise and convene an international meeting on women in physics. If such a meeting occurs, it should be planned so that a full account can be provided with the report at the General Assembly in 2002.

### Website

<http://wgwip.df.uba.ar/>

### Membership

**Chair**, Silvina Ponce Dawson, Argentina

**Vice chair**, Igle Gledhill South Africa

### Members

Youngah Park, South Korea

Manling Sui, China (Beijing)

Ndeye Arame Boye Faye, Senegal

Gillian Butcher, UK

Shobhana Narasimhan, India

Renee Horton, USA

Ching Ray Chang, China Taipei

### Associated member:

Jin Hee Yoon , South Korea

### IUPAP Liaison:

Marcia Barbosa

# W.G.7

## INTERNATIONAL COMMITTEE ON ULTRAHIGH INTENSITY LASERS (ICUIL)

This Working Group was proposed and mandated by IUPAP at the Council and Commission Chairs meeting held in Vancouver, Canada, October 10-11, 2003.

### Charge to the Working Group:

1. to provide a venue for discussions among representatives of the Ultrahigh Intensity Lasers facilities and members of the user communities on international collaborative activities such as the development of the next generation ultrahigh intensity lasers, exploration of new areas of fundamental and applied research, and formation of a global research network for access to advanced facilities by users.
2. to promote unity and coherence in the field by convening conferences and workshops dedicated to ultrahigh intensity lasers and their applications.
3. to accelerate progress in the field by exploring opportunities of sharing information, joint procurement, and the exchange of equipment, ideas and personnel among laser laboratories world-wide.
4. to attract students to high-field science by promoting their education and training, interactions with prominent scientists, and access to the latest equipment, results and techniques.
5. to strengthen and exploit synergy with other relevant fields and techniques, notable accelerator-based free electron lasers.

**Website:** <http://www.icuil.org/>

### Membership

#### Officers:

**Chair,** Toshiki Tajima Toshiki

**Co-Chair,** Chris Barty

**Co-Chair,** Wolfgang Sandner

**Secretary,** Terry Kessler

**Treasurer,** Tsuneyuki Ozaki

#### Members:

Gerard Mourou

H. Azechi

John Collier

Thomas Kuehl

G Ravindra Kumar

Christine Labaune

Wim Leemans

Bedrich Rus

Heinrich Schworer

Alexander Sergeev

Zheng Ming Sheng

Ken-ichi Ueda

#### Associate Members

Dino Jaroszynski

Ryosuke Kodama

Jong-Min Lee

Sandro Desilvestri

Nilson Da Vieras Jr.

Claes-Goran Wahlstrom

# W.G.9

## INTERNATIONAL COOPERATION IN NUCLEAR PHYSICS (ICNP)

The working group was formed by resolution of the Cape Town, SA 2005 General Assembly.

### The Mandate of the group is:

- To provide a description of the landscape of key issues in Nuclear Physics research for the next 10 to 20 years
- To produce (maintain) a compendium of facilities existing or under development worldwide
- To establish a mapping of these facilities onto the scientific questions identified above
- To identify missing components that would have to be developed to provide an optimized, comprehensive network of international facilities
- To explore mechanisms and opportunities for enhancing international collaboration in nuclear science
- To identify R/D projects that could benefit from international joint effort
- To serve as a source of expert advice for governmental or inter- governmental organisations in connection with efforts to coordinate and promote nuclear science at the international level
- To serve as a forum for the discussion of future directions of nuclear science in the broadest sense
- To document the cross-disciplinary impact of Nuclear Physics and of nuclear facilities and to identify mechanisms for expanding (fostering) cross-disciplinary research.

### Organisation

The Executive of the Working Group consists of a Chairperson and a Secretary. Among its members will be the Chairs of various long range planning committees, i.e., the Chair of the US Nuclear Science Advisory Committee (NSAC) or his/her designate, the Chair of the Nuclear Physics European Collaboration Committee (NuPECC) or his/her designate, the Chair of the Japanese Nuclear Physics Committee, and further representatives of nuclear physics research establishments worldwide. The Chair and Vice-Chair of C12, the IUPAP Commission on Nuclear Physics, will be ex-officio members of the Working Group.

### Membership

Anthony W. Thomas, **Chair**

Willem T.H. van Oers, **Secretary**

### Members

Samuel H. Aronson

Umberto Dosselli

Brian R. Fulton

Sidney Gales

C. Konrad Gelbke

Alinka Lepine-Szily

Nigel Lockyer

Victor A. Matveev

Dong-Pil Min

Hugh Montgomery

Hideto En'yo

Shoji Nagamiya



Dan-Olof Riska  
Guenther Rosner  
Amit Roy  
Hideyuki Sakai  
Susan Seestrom  
Horst Stoecker  
Robert Tribble  
Zeblon Vilakazi  
Wenlong Zhan

# **W.G.10**

## **ASTROPARTICLE PHYSICS INTERNATIONAL COMMITTEE (APPIC)**

The Astroparticle Physics International Committee (APPIC) was established by the 2011 General Assembly. In October 2012 the Executive Council authorised that members be appointed, and that the mandate be drawn up in consultation with the first members of the Committee.

This is now in progress and this page will be updated when APPIC is in operation.

# W.G.11

## GRAVITATIONAL WAVE INTERNATIONAL COMMITTEE (GWIC)

GWIC, the Gravitational Wave International Committee, was formed in 1997 to facilitate international collaboration and cooperation in the construction, operation and use of the major gravitational wave detection facilities world-wide. It is associated with the [International Union of Pure and Applied Physics](#) as its Working Group WG.11. Through this association, GWIC is connected with the [International Society on General Relativity and Gravitation](#) (IUPAP's Affiliated Commission AC.2), its [Commission C19 \(Astrophysics\)](#), and another Working Group, the AstroParticle Physics International Committee (APPIC).

GWIC's Goals:

- Promote international cooperation in all phases of construction and scientific exploitation of gravitational-wave detectors;
- Coordinate and support long-range planning for new instrument proposals, or proposals for instrument upgrades;
- Promote the development of gravitational-wave detection as an astronomical tool, exploiting especially the potential for multi-messenger astrophysics;
- Organize regular, world-inclusive meetings and workshops for the study of problems related to the development and exploitation of new or enhanced gravitational-wave detectors, and foster research and development of new technology;
- Represent the gravitational-wave detection community internationally, acting as its advocate;
- Provide a forum for project leaders to regularly meet, discuss, and jointly plan the operations and direction of their detectors and experimental gravitational-wave physics generally

Website: <https://gwic.ligo.org/members/>

### Members:

Eugenio Coccia (**Chair**)  
Stan Whitcomb (**Executive Secretary**)  
Peter Veitch  
Massimo Cerdonio  
Michele Punturo  
Michael Kramer  
Karsten Danzmann  
Sheila Rowan  
Bala Iyer  
Seiji Kawamura  
Takaaki Kajita  
Dave Reitze  
Gabriela Gonzalez  
Neil Cornish  
Bernard Schutz  
Robin Stebbins  
Stefano Vitale  
Frederick Jenet  
George Hobbs  
Odylio D. Aguiar  
Francesco Fidecaro  
Jean-Yves Vinet  
Clifford Will  
Beverly Berger

# W.G.12

## ENERGY

The IUPAP working group on energy was initiated at the 27<sup>th</sup> General Assembly in London 2011 and formally established at the Executive Committee meeting in Rio de Janeiro in October 2012. The group will review current energy issues and make briefs available for the global physics community and policy makers as well as the public at large.

The group meets once or twice a year to review selected topics taking advantage of local experts where the meeting is held. The topics considered include both renewable and conventional energies as well as energy carriers. Both advanced and low tech systems will be looked into.

### Members

Jon Samseth (**Chair**)

Kristina M Johnson

Kimitoshi Kono

Mats Leijon

Hardo Bruhns

Glauca Mendes Souza

Wikus van Niekerk

Christopher Llewellyn Smith

George Crabtree

Hushan Xu

Kohei M. Itoh

David Faiman

Lincoln Paterson

Eduard Son