

# ARCHIVE EDITION OF IRPS BULLETIN

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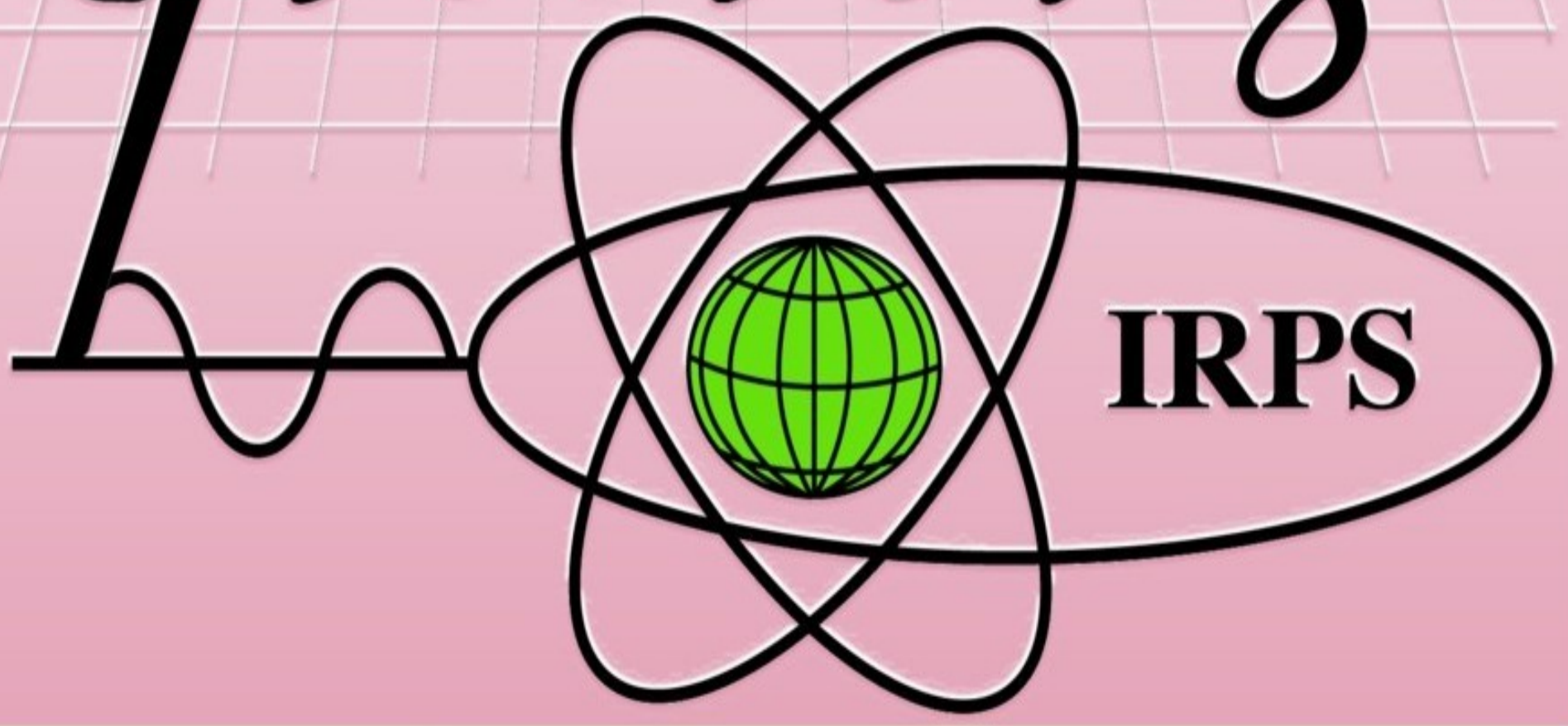
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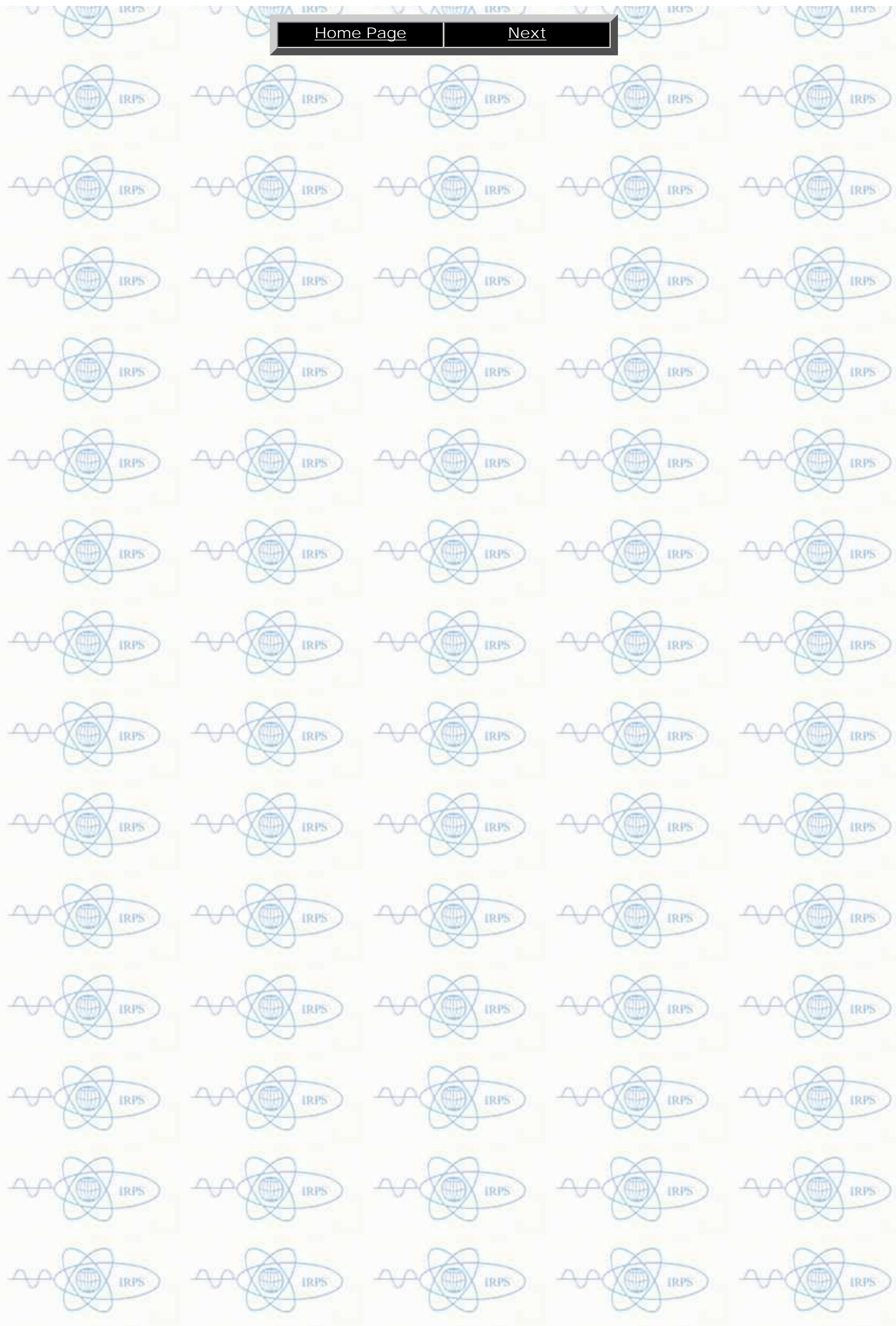
Greetings



IRPS

from your IRPS Executive Council





## FROM THE EDITORS

Season's Greetings from the Editors!

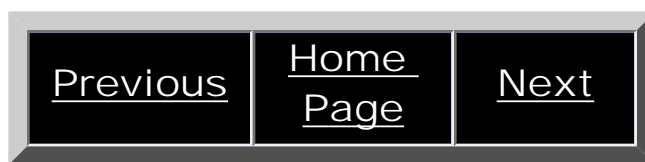
This issue of The Bulletin is devoted largely to the IRPS election of society officers, including regional vice presidents and executive councillors. Within you will find biographical information, photos, and statements from all of the candidates. Besides being an informed voter, this may give a sense of the exciting new directions of the Society going forward. Please note that submission instructions are provided with the ballot, and they indicate a deadline for receipt by September 15, 2009. For the first time, in lieu of using postage, electronic scans of your ballot may be received as an email attachment at [D.A. Bradley@surrey.ac.uk](mailto:D.A.Bradley@surrey.ac.uk).

Also in this edition we are encouraged by the President's end-of-the-year perspectives as well as a Vice President's report from Western Europe submitted by Jorge Fernandez. The latter focuses on wide-ranging measurement needs identified at the Workshop on Fundamental Parameters that was held in Paris, 23 to 24 October 2008.

Finally, as you begin to acquire and mark up your 2009 calendars, please remember to reserve September 20 to 25 for the International Symposium on Radiation Physics (ISR-11), and September 26 and 27 for the associated Workshop on Advances in Analytical Techniques in Geology, Conservation Science, Forensic Science, Border Technology, Biomedical and other Applications. This is our triennial and primary opportunity to meet as a Society and this time we will be hosted in Melbourne by the radiation-physics community of Australia. See within for more details.

Best wishes until we meet in the new year of possibilities,

*Larry Hudson and Ron Tosh*





## PRESIDENT 'S REPORT

Greetings.

It has happened again. The year is coming to an end and I don't quite know where it has gone. Not that 2008 has proven to be a vintage year, as years go, so perhaps the fact that I don't know where it has gone is a good thing.

Every country seems to be in some kind of financial crisis, and those who govern us seem to have only the faintest glimmer of an idea of what to do. In Australia the Government is spending, one would hope wisely, to keep the economy moving. Other countries seem to be doing the same. I can only hope that they will spend the money wisely, creating infrastructure which will assist the economy in the future. Supporting schools, universities, and scientific institutions. Improving health care. Creating the basis for future sustainable growth. I hear many say, "Fat chance". But I, I expect by nature, remain optimistic.

A good dose of optimism by citizens, communities, and governments is possibly the best potion to ameliorate the current ills.

2009 will be better. This may be the optimist in me talking. But we, as a scientific body, have as its feature the 11th Symposium on Radiation Physics and its associated Workshop, which is to be held in Melbourne, Australia, from 21 to 27 September. I hope I shall see you there.

There has never been a better time to visit Australia. The value of the Australian dollar is low compared to most currencies. It is a good time of the year to visit. The science is good. There is a new synchrotron. The museums and galleries are excellent. The wildlife is unique.

Not too hot, not too cold, not too dry, not too wet. Mind you : all these things can come to pass on any one day in Melbourne.

But enough of the commercial. This edition of the Bulletin contains information about those members who are proposed as members of the Council of the International Radiation Physics Society. I urge you all to cast your vote for those seeking to take responsibility in the management of our Society. For the first time you can cast your vote electronically. Elsewhere in this Bulletin you find how this can be done.

I hope that you all can find peace and happiness and joy in your family and friends in the coming year, 2009

With my Best Wishes

***Dudley Creagh***





# Vice President's Report, Western Europe

## Prof. Jorge E Fernandez

Laboratorio di Ingegneria Nucleare di  
Montecuccolino,  
Universita di Bologna, via dei Colli 16  
Bologna I-40136, Italy

Email : [jorge.fernandez@mail.ing.unibo.it](mailto:jorge.fernandez@mail.ing.unibo.it)

The Workshop on Fundamental Parameters was held in Paris, 23-24 October 2008. It was organized by Michael Mantler (Technical University of Vienna), Burkhard Beckhoff (PTB Berlin) and Marie-Christine Lepy (Laboratoire National de Metrologie et d'Essais, Paris). It represented a successful initiative oriented to promote the reasoned revision of the different atomic fundamental parameters which are used in XRF analysis (a preceding attempt in 2001 did not awake enough interest in that occasion). The workshop was attended by about 30 participants, of whom 10 came from XRF companies, which shows clearly the interest of industry in this subject. In particular, the companies expressed interest in obtaining a new revised database and were well disposed to support economically this effort. The companies made express mention about the need of warranting the confidentiality of the new database during a certain time, but discussion about this issue was limited and no decision was taken.

The following parameters were indicated as requiring improvement in accuracy:

- Mass attenuation coefficients
- Compton and Rayleigh scattering cross sections
- Fluorescence yields, Koster-Cronig, Auger and transition probabilities
- Electron scattering coefficients (need for photoelectron influence)
- Effect of harmonics in wavelength dispersive x-ray analysis
- x-ray tube spectrum (balance bremsstrahlung/ionization)
- detector response functions
- the natural line width (Lorentzian shape) was acknowledged as a fundamental parameter

The workshop was successful in setting up different groups of experts for a number of actions which have to follow after this meeting:

- Prioritization of FP requirements (energies, elements, uncertainties)
- Experimental facilities (need for improved instrumentation)
- Theory and codes - challenges: competent use and update of existing software
- Compilations (need for new strategies), data processing
- Definition of technical terms
- Establishment of common database accessible to the public

The accuracy of the calculations depends in great measure on the accuracy with which these fundamental parameters are known, and therefore any effort in obtaining more precise values will produce an immediate improvement in the accuracy of the computations.

The next workshop in Berlin, May 7-9 2009, will be the occasion to report on the first results of these actions.

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## Profile of Member Standing for President

### Odair Dias Gonçalves

CNEN, Rio de Janeiro, Brazil



I was born on 25 June 1952. I am a physicist with a PhD Degree in Nuclear Physics, obtained at the Instituto de Física of the Federal University of Rio

de Janeiro (UFRJ), Brazil, in 1987. Since then I have cooperated with scientists from many parts of the world, like Germany, Portugal, England and the USA. Richard Pratt was the first one to invite me to the USA, back in 1987. Most of my collaborators are now close friends and IRPS members, like Mic Farquahrson, Isabel Lopes, Richard Pratt, David Bradley, Paul Bergstrom, Anselmo Paschoa, and others.

I am author or co-author of about 50 papers and 3 scientific books. I have worked at the Federal University of Rio de Janeiro (UFRJ) since 1975, where I have developed my career as a teacher, researcher, university Professor and academic adviser. I have worked in nuclear physics, nuclear instrumentation, nuclear energy, radiation protection, medical physics and radiation physics. From the late 90s to 2003, I headed the Gamma Rays Laboratory at the Physics Institute, a facility devoted to study the interaction of photons with matter in the keV to MeV range.

In 2003 I was appointed President of the *Brazilian Nuclear Energy Commission* (Comissão Nacional de Energia Nuclear - CNEN) the Brazilian nuclear regulatory and research body, with around 3000 employees and which comprises seven research institutes, and offices all over the country.

I have always been interested in the social aspects and consequences of science, including financing and policies, which led me to take part in many activities, as:

- Member of the "Experts Group" designated to evaluate the National Nuclear Energy Commission (CNEN) Activities: 2002;
- Member of the Sponsorship Commission of the Deutscher Akademischer Austauschdienst (DAAD): 1986 - present;
- Consultant of the *National Council for Scientific and Technological Development* (CNPq): 1986-present;
- Member of the experts group of *The Brazilian Physics Society* (SBF) designated to evaluate the National Nuclear Brazilian Policy: 1989 - 1991;
- Regional Secretary of *The Brazilian Physical Society* (SBF): 1988 - 1989.

As head of The Brazilian Nuclear Energy Commission I got new administrative tasks and obligations, which brought new valuable experience to my life. Among my duties are included:

- Head of the Administrative Council of two companies, Indústrias Nucleares Brasileiras and Nuclebrás Equipamentos Pesados;
- Advisor of and second to the Brazilian representative at the Governors Board of the International Atomic Energy Agency (IAEA) in Vienna, Austria;
- Brazilian second representative at the Nuclear Suppliers Group (NSG);
- Brazilian representative at the ABACC, Agência Brasil Argentina de Contabilidade e Controle (the Brazilian-Argentine Agency for the Accounting and Control of Nuclear Materials).

**Statement:** I have been a member of the International Radiation Physics Society since its first conference, held in São Paulo, in 1988. Since its founding in 1985 with the objective

.../Statement continued :

## Profile of Member Standing for President (Continued)

to promote the global exchange and integration of scientific information pertaining to the interdisciplinary subject of radiation physics, particular attention has been given to extend this branch of science to developing and underdeveloped countries and to take the conference, together with prominent scientists like Hubbell, Pratt, Isabelle, Ghose, and Cooper, to countries interested in increasing their activities and to attract young scientists to the subject.

I am a living testimony that the contact with IRPS and the International Symposia in Radiation Physics (ISRPs) were significant and relevant to my career. But in these 33 years, the world has changed. Globalization and the Web have increased pressure on scientists, pushing them to publish larger numbers of cited papers and creating a necessity among young scientists to select those societies and conferences that could best fulfill their needs. IRPS, with so many distinguished scientists

among its ranks, has had this capacity since its birth, but the necessity to attract a larger number of younger scientists carries with it the risk of impairing quality standards. I think that the 2006 Symposium, at Coimbra, with its focus on the quality of accepted papers, without concessions, is the way to be followed.

My intention as President, with the collaboration of the next Directorate and Council, is to strengthen this option, trying to focus more and more on quality parameters, using the prestige of our most senior members in order to project the IRPS as a visit card to attract young scientists, giving them an option to present creative and accurate research results in our meetings and letters; and to us, with a few more years on the shoulders, the opportunity to learn new ideas with the young and wisdom from the seniors.

I count on you to join me on this task. It will be an honor to be President of the International Radiation Physics Society.



## Profile of Member Standing for Secretary

### Michael J. Farquharson

*Professor, Physics Department, City University, U.K.*



I became aware of the IRPS through attending ISRP 7 In Jaipur (1997). I met David Bradley who encouraged me to become involved in the society and to attend the society council meetings. I have attended many council meetings since as well as all the subsequent symposia. I

was attracted to the mission of the society i.e. that one of its aims was to promote scientific work in areas of the world that did not have the economic advantages shared by the richer countries.

A further aim was to help young scientists reach their potential, and the society provided assistance with conference attendance and awards etc.

I took the role of membership secretary in 2003 and this has given me an insight into aspects of the make up of the membership of the society and the way it has changed over time. My view is that the society is for its membership, and as council members we should decide how the membership can best be served, but also that the membership should have the opportunity to become involved more in their society. I believe we should promote the society, expand its membership and build on communication within the membership and provide resources to enable this to be achieved. If I am elected as secretary to the society I will do my best in council to promote and apply these changes.





## Profile of Member Standing for Treasurer

### Malcolm J. Cooper

*Physics Department, University of Warwick, U.K.*



Professor Malcolm Cooper has been Head of the Department of Physics at Warwick University in the UK since 2001. His research career has been associated with the development of gamma-ray and x-ray techniques to exploit Compton scattering for

the study of electron density distributions.

His group pioneered the use of polarised synchrotron radiation to study electron spin density distributions.

He is also the co-director and originator of the materials science X-ray diffraction beamline, XMaS, at the European synchrotron research facility (ESRF), which specialises in the study of magnetic materials. For this project he and collaborators have won research funding in excess of ten million pounds over the last 15 years. He has published extensively on x-ray scattering.

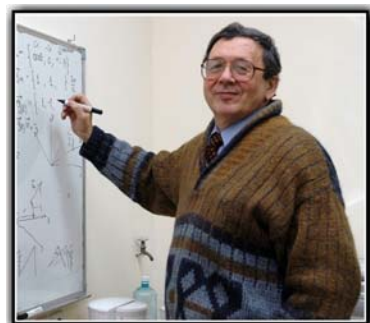
Malcolm Cooper has been a member of IRPS for over 30 years, assuming the role of VP for Western Europe, IRPS President (2000-2003) then Treasurer (2006-). His other activities in international science include acting as Convenor of the Finance Committee of the International Union of Crystallography



## Profile of Member Standing for Vice President – F.S.U.

### Alexander P. Potylitsyn

*Applied Physics Department, Applied Physics and Engineering Faculty, Tomsk Polytechnic University, Russia*



Professor Alexander P. Potylitsyn (born 30 November 1945) graduated from Tomsk Polytechnic Institute (since 1991 Tomsk Polytechnic University) in 1970, specializing in experimental nuclear

physics.

He obtained the degree of Candidate of Science in 1979 and degree of Doctor of Science in 1986. In 1991 he became the Head of Department at the Research Institute for Nuclear Physics in Tomsk Polytechnic University. During 1994-95 he was Visiting Professor at the Institute for Nuclear Studies, Tokyo University, Japan and during 1996-1997 at Tohoku University, Japan. Also, he was Visiting Scientist at Mainz University, Germany in 2002. Since 1995, he has been the Head of Applied Physics Department at Applied Physics and Engineering Faculty of Tomsk Polytechnic University.

Professor Potylitsyn is a member of Academic Council of Tomsk Polytechnic University. He has also been a co-chair of the bi-annual Symposium "Radiation from Relativistic Electrons in Periodic Structures" since 1993 and co-chair of the bi-annual International Conference on Charged and Neutral Particles Channeling Phenomena "Channeling" since 2006.

Professor Potylitsyn is author of more than 150 papers, 2 books and 2 textbooks. His scientific and research activities have included:

- The development of new radiation sources for scientific and medical purposes
- The radiation of relativistic electrons in periodic structures
- The use of polarization radiation for beam diagnostic purposes

He has been a scientific advisor of 11 Candidates of Science and of 4 Doctors of Science.

Throughout his career, Prof. A.P. Potylitsyn has carried out many joint investigations, projects and grants with scientists from F.S.U.: Ukraine, Belarus, Armenia, and Uzbekistan.



## Profile of Member Standing for Vice President – Africa and Middle East

### Mohamed Gomaa

*Atomic Energy Authority, Nasr City, Cairo, Egypt*



Professor Mohamed Gomaa was born in Alexandria, Egypt, and graduated with distinction from the Faculty of Science, Alexandria University, in 1962, with a specialty in physics. He then worked as demonstrator at the Physics Department, Faculty of Science,

at Alexandria University (1962-63), and, in 1963, joined the Radiation Protection Department of the Atomic Energy Commission (AEC) for one year (1963-64). There, he published his first radiation physics paper in the field of gamma-ray shielding.

He completed his PhD studies at Middlesex Hospital Medical School in the field of neutron shielding, and was granted a PhD in Radiation Physics on 4<sup>th</sup> of January, 1968. After receiving his degree, he served as a lecturer in radiation physics at Alexandria University (1968-69), AEC (1969) and at El Azhar University (1970-72). He then became head of the Radiation Control Unit within the Radiation Protection Department at AEC and, subsequently, was head of the External Dosimetry Unit at the Egyptian Atomic Energy Authority (EAEA). In 1973, he participated as a scientific visitor to Denmark, England and Germany under the auspices of the International Atomic Energy Agency (IAEA), and, following the publication of several papers in the field of radiation physics, was promoted to Assistant Professor of Radiation Physics at AEC (June, 1974). His academic career then took him to Basra University (1975-78), Baghdad University (1978-79) and, following the publication of several more papers, back to the EAEA, where he was promoted to Professor of Radiation Physics in 1979.

From 1981-83, he was vice chairman of the Neutron and Reactor Physics Department at EAEA, and Head of its Radiation Protection Department. Simultaneously, he was a member of its Nuclear

Safety Committee. After working part time at the King Abdulaziz City for Science and Technology 1983-84, in 1984 he moved to King Saud University, Abha Branch, where he served as Head of Department from 1986-88, after which he returned to the Radiation Protection Department (EAEA) where, again, he served as Department Head until 1993.

From 1993 through 2000, Professor Gomaa held a succession of leadership posts at EAEA. Following his appointment as Acting Chairman of the Nuclear Research Center from 1993-95, he was Head of the Reactor Division (1995-97), Chairman of the Nuclear Research Center (1997-99), and Vice President for Internal Cooperation and Training (Nov 1999-2000). Currently, he is Emeritus Professor of Radiation Physics at EAEA.

Since 2000, Professor Gomaa has served actively in international organizations dedicated to health and safety concerns of radiation. He is one of the Egyptian delegates to the United Nations Scientific Committee on the Effects of Atomic Radiation (UNSCEAR). In addition, he is Principal Investigator of the IAEA Technical Cooperation (TC) Project on Occupational Exposure and, also within IAEA, a member of the African Radiation Oncology Group connected with the African Regional Cooperative Agreement for Research, Development and Training (AFRA). He also serves on the World Health Organization committee for Global Initiatives for Radiation Safety in Healthcare Settings and is currently President of IRPA-Egypt ([www.irpa-egypt.com](http://www.irpa-egypt.com)), an associate society of the International Radiation Protection Association.

Professor Gomaa also has participated extensively in professional organizations serving the international radiation physics community. He has been the Scientific Secretary of all nine Radiation Physics Conferences, held in Egypt from 1992-2008 ([www.rphysp.com](http://www.rphysp.com)), and he is currently Editor of the Egyptian Journal of Nuclear and Radiation Physics.

His connection to IRPS goes back a few decades, having attended ISRP-II and ISRP-VI, held in Malaysia (1981) and Morocco (1994), respectively, and he was the first IRPS Vice President for Africa and the Middle East, the office for which he is now running.



## Profile of Member Standing for Vice President - Australasia

### Christopher T. Chantler

School of Physics, University of Melbourne, Melbourne, Australia



Assoc. Professor  
Chris Chantler graduated from the University of Western Australia with a B.Sc. (Hons 1) in Chemical Physics in 1984, followed by a D. Phil. from Oxford in Atomic Physics in 1990. In

2003 he became an Associate Professor and Reader of the School of Physics, University of Melbourne.

He has made seminal developments in X-ray atomic form factor theory. His theory is the current NIST and US reference database on the subject. This database is accessed 10000 to 20000 times per month (since its inception) by X-ray scientists, academics, commercial groups and others [NIST statistical record, excluding internal hits]. It has addressed serious flaws of earlier computations used for several decades. It impacts upon EXAFS (Extended X-ray Absorption Fine Structure), crystallography, X-ray optics, DAFS (Diffraction Anomalous Fine Structure) and Cherenkov radiation studies. The X-ray data are relevant for fundamental theory, materials analysis, X-ray and synchrotron biological efforts and many other fields. The tabulation has been confirmed by several of the best data sets, compared to other models. Numerous reviews have been made of this work.

Chantler has over 94 refereed publications across a range of journals or books including regular *Phys. Rev. A* and *Phys. Rev. Letts* (the highest impact factors for non-review core physics: IF=3, 7.5), with citation rates of 12 and 8 per annum for single papers, over 850 citations to date and some 170 citations on a single publication. Additionally, he has some 177 conference presentations, including 29 invited orals and plenaries at international and national fora.

Chantler has developed new high-accuracy experimental techniques (XERT) in the X-ray regime, for the determination of attenuation and absorption coefficients and the imaginary component of the atomic form factor. These experimental results lie at the core of a new understanding of the interaction of light with matter, especially in the practical sense of developing new analytic tools for XAFS. Recent work by his group

has led to improvements in the understanding of theory (as measured by the reduced  $\chi^2$  fitting of experimental data) by a factor of 100.

Chantler has formulated the first dynamical theory of curved non-ideally imperfect crystal X-ray diffraction. He has completed numerous invited reviews, post-graduate textbook chapters and major tabulations. He has conducted large-scale collaborations with key international theoretical groups in Israel, Oxford, Washington State, Russia and France, following major developments of XAFS and XANES theory using the Finite Difference Method.

Chantler has built and directed the X-ray facility at the University of Melbourne over the last 12 years. Major experimental modifications for international experiments can be tested *in situ* before translating to a major facility, and local experiments with different groups are currently operational. Chantler has performed precise measurements of the resonance lines of a helium-like ion in the Z=19-31 range. These are on the verge of being sensitive to two-electron QED effects (0.14 eV accuracy for a 0.16 eV effect). Chantler's experiments present new types of tests of medium-Z QED.

Chantler has received several prestigious awards including recently the David Syme award, the JARI international award and FAIP; and awards for his students of University of Melbourne Chancellor's Prize and a National 'best Australian thesis relating to synchrotrons'. He has also been appointed as a member of the IUCr International Commission on XAFS over the last few months. His research interests include fundamental measurements of quantum electrodynamics and atomic physics, the interaction of x-rays with matter and hence condensed matter experiments and theory, especially using x-rays, synchrotrons and EBITs; and applications of these to chemistry, XAFS, XANES, powder diffraction and related areas.

**Statement:** The International Radiation Physics Society is an important communication and outreach opportunity and sponsors a broad-based and major conference series (of which I am Chair in 2009 at Melbourne!) and specific workshops and other meetings (including the recent Forum in September). I have attended the International Symposia regularly and consider them amongst the most useful and collegial conferences on the calendar. I look forward to continuing to serve the growing IRPS community in the future.

## Profile of Member Standing for Vice President – Central and Eastern Europe

### Ladislav Musilek

*Faculty of Nuclear Sciences and Physical Engineering,  
Czech Technical University in Prague, Czech Republic*



Professor Ladislav Musilek graduated from the Czech Technical University in Prague, Faculty of Technical and Nuclear Physics (renamed later to Nuclear Sciences and Physical Engineering), Prague, Czech Republic (specialisation: Dosimetry and Application of

Ionising Radiation), gaining his PhD from CTU Prague in 1977.

In 1983 he became Associate Professor of nuclear and subnuclear physics (CTU Prague) and Professor of experimental physics (CTU Prague) in 1996. Appointments have included Vice-Dean, Dean, and currently Vice-Rector for Science and Research of the CTU in Prague.

Teaching activities have included lectures in MSc and PhD courses and supervising of MSc and PhD theses. He is a member of the commission for the defence of PhD theses in Nuclear Engineering, and has significant participation in preparing a BSc programme in Radiation Protection and the Environment and a MSc programme in Medical Radiation Physics in the framework of Nuclear Engineering Courses at the Faculty.

In addition, he has participated in Life Long learning programmes at FNSPE CTU Prague and (in 1980s) at the Faculty of Mathematics and Physics of Comenius University, Bratislava.

His scientific and research activities have included:

- Technical applications of radionuclides, especially transmission and scattering of gamma-ray beams
- Integrating dosimetric methods
- Radioanalytical methods in the environment (in Collaboration with IRI TU Delft) and cultural heritage

- Constructing an instrument for thermoluminescence dating of historic architecture
- Building a laboratory for applying methods of the exact sciences in historic monument research (funded by a grant of the Ministry of Education, Youth and Sports of the Czech Republic, in collaboration with the Faculty of Architecture and the Faculty of Civil Engineering of CTU).

Professor Musilek has authored/co-authored 2 books, 5 chapters in books written by teams, over 150 scientific papers in journals and conferences, 7 textbooks for students, and 2 patents; and has participated in preparing technical standards in the field of ionising radiation.

He is a member of 4 Scientific Boards, he was a member of the External Advisory Group "Fission" in the EURATOM section of the EU 5th Framework Programme 2000-2002, he is a representative of the Czech Republic in the Consultative Committee EURATOM-Fission of the EU 7th Framework Programme, he is a member of the Union of Czech Mathematicians and Physicists, and the Czech Society of Radiation Physicists in Medicine.

Professor Musilek has been Vice President of the International Radiation Physics Society for Central and Eastern Europe since 1997.

**Statement** : My reasons for membership of Council are :

- a) The whole professional record.
- b) Some parts of the world have become anti-nuclear and anti-radiation. It is necessary to promote these sciences.
- c) Belief that the radiation physics community should be organized and should sometime meet and that I can help with this goal.
- d) IRPS and ISRPs are good platforms for international links, collaboration and exchange of knowledge.

Radiation physics is not only my job, but also my hobby.



## Profile of Member Standing for Vice President – Western Europe

### Jorge E. Fernandez

*Energetics, Nuclear Engineering and Environmental Control  
Department, University of Bologna, Italy*



After obtaining his M.Sc. in Physics (1977) and his Ph.D. in Physics from the University of Cordoba in Argentina (1985), Professor Fernandez was a Researcher in atomic and nuclear spectroscopy at institutes in Buenos Aires and Cordoba.

- Problems of multiple scattering.
- Applications in X-ray and gamma spectroscopy (EDXRS, XANES, electron microprobe, computed tomography), medical physics, environmental physics, industrial diagnostics, and cultural heritage (non-destructive methods).

He is the author of over 100 articles, 2 books, 1 patent and several computer codes (SHAPE, MSXRF, MCSHAPE) related to XRS.

He organised the European EDXRS Conference in 1998 and 5th International Topical Meeting on Industrial Radiation and Radioisotope Measurement Applications (IRRMA-5) in 2002. Presently, he continues as a Member of the International Advisory Committee for the European Conferences on X-Ray Spectrometry and as a Member of the Organizing Committee of the IRRMA Conference.

He acted as Advisory Board Member for X-Ray Spectrometry from 2000-2003.

He recently acted as co-chair of both the Scientific Committee of the 10th International Symposium on Radiation Physics (ISRP-10) and the satellite Workshop on the Use of Monte Carlo Techniques for Design and Analysis of Radiation Detectors.

At present, he serves the International Radiation Physics Society as Vice President for Western Europe (elected in 2006).

From 1994 on, he has been affiliated with the Alma Mater Studiorum University of Bologna, Italy. He is Associate Professor at the Energy, Nuclear and Environmental Control Engineering Department of this University, an Associated Researcher of the Italian Institute of Nuclear Physics (INFN), and a consultant to several companies and institutes in Italy and abroad. In the past he was affiliated with the former Italian National Institute for Physics of Matter (INFM).

His interest is mainly in the fundamental physics of the interaction of x-rays with matter including polarisation effects and its implications for applications. In particular:

- Transport models (deterministic and Monte Carlo) for polarised and unpolarised photons, and for charged and neutral particles.
- Coupled transport problems involving photons and charged particles.



## Profile of Member Standing for Vice President - South East Asia

### Suprakash C. Roy

Calcutta University and  
Indian Institute of Port Management, Kolkata, India



Professor Roy was a Professor of Physics at Bose Institute, Calcutta, India, from 1986 to 2006, after receiving his PhD degree from Calcutta University and gaining post-doctoral experience at the University of Pittsburgh and Yale

University, U.S.A. Currently he is a Visiting Professor at Calcutta University and at the Indian Institute of Port Management, Kolkata. He is Editor-in-Chief of one of the venerable and prestigious journals of India, *Science and Culture*, and is also one of the Editors of the journal *Radiation Physics and Chemistry*.

His major research interests are in photon-atom scattering, radiation damage in solids and liquids, radiation detectors and medical physics. He has more than 100 publications to his credit and is a regular visitor to the University of Pittsburgh, USA in connection with the co-operative research on photon-atom scattering with Professor Richard H. Pratt.

Professor Roy was awarded the JSPS Invitation Fellowship for the year 2000 by the Japan Society for Promotion of Science. He was appointed Visiting Associate at the Fa.M.A.F, National University of Cordoba, Argentina under the TWAS-UNESCO Associateship Scheme at the Centres of Excellence in the South by the Third World Academy of Sciences in 2001 for three years.

He has been associated with the International Radiation Physics Society (IRPS) from the time when it was not formally established, and was Membership Secretary of the IRPS and Associate Editor of the IRPS News for about 15 years after its foundation.

He is currently the Vice-President (South-East Asia) of the International Radiation Physics Society.

**Statement:** I would like to be Vice President for South East Asia in order to foster and nurture the growth of radiation physics in the South-East Asian Region and in India in particular, which I have been doing for years.

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## Profile of Member Standing for Vice President – North East Asia

### Ziyu Wu

Beijing Synchrotron Facility, Institute of High Energy Physics,  
Chinese Academy of Sciences, Beijing, P.R. China



Professor Ziyu Wu received his PhD in Physics at the University of Science and Technology of China (USTC) in 1988.

He worked about 12 years at the Laboratori Nazionali di Frascati of the Istituto Nazionale di Fisica Nucleare (INFN). He is currently full professor and scientific director of the Beijing Synchrotron Radiation

Facility, Director of the National Synchrotron Radiation Laboratory, and Chairman of the Synchrotron Radiation Committee of China.

He is a member of the scientific committee of the International Conference on X-ray and Inner-shell Processes, a member of the Executive Committee (EC) of the International XAFS Society (IXS) and Executive Councillor of the International Radiation Physics Society.

He is a specialist in theory and experiment of X-ray absorption fine structure spectroscopy (XAFS), photoelectron spectroscopy (PES) and phase contrast imaging. He has organized several international workshops dedicated to SR applications and focused on the developments of x-ray absorption spectroscopy and bio imaging.

He has been the supervisor of more than 25 PhD students and he has published more than 200 papers in important international journals.

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## Profile of Member Standing for Vice President - North America

### William L. Dunn

Department of Mechanical and Nuclear Engineering,  
Kansas State University, Manhattan, USA



Bill Dunn has been a long-standing member of the radiation physics community and was an early member of IRPS, attending the third Symposium at Ferrara in 1985.

He received his B.S. degree from

the University of Notre Dame (South Bend, IN) and then attended graduate school at North Carolina State University (Raleigh, NC), where he received M.S. and Ph.D. degrees in Nuclear Engineering. Dr. Dunn then worked at Carolina Power and Light Company, where he served as an in-house Nuclear Engineering consultant. While there, he conducted radio-tracer studies at the H.B. Robinson Nuclear Power plant. He next was employed by North Carolina State University, where he oversaw applications of the PULSTAR research reactor.

Dr. Dunn moved full-time into the research community in 1982, taking a position at Research Triangle Institute. In 1988 Dr. Dunn co-founded, with his colleague Dr. Fearghus O'Foghluha, Quantum Research Services, Inc., a research and services firm, where he spent fourteen years as President. In 2002, Dr. Dunn returned to academia, assuming the position of Associate Professor in the Mechanical and Nuclear Engineering Department at Kansas State University.

Dr. Dunn's research interests are concerned primarily with radiation measurement applications,

including quantitative analysis, imaging, radio-gauging, and radio-tracing. He also has an active interest in particle transport analysis, particularly using Monte Carlo methods. Bill and his colleague, Ken Shultis, are writing a book entitled *Exploring Monte Carlo Methods*, which is expected to be published in 2009. Bill is a member of the American Nuclear Society and has been involved in the series of Industrial Radiation and Radioisotope Measurement Applications (IRRMA) meetings, the eighth of which he will chair in 2011.

**Statement:** I support the International Radiation Physics Society as a home where those of us who value developments in radiation physics can share our ideas and interact with others of like minds. Our society is unique in many ways. It encourages involvement of members from around the world, including those from developing countries. It chooses to host its meetings at locations that span the globe, allowing attendance, at least occasionally, by those who live in what some may consider remote locations. It has avoided the common practice of charging high membership fees, preferring instead to make do on a modest budget.

My vision of the Society is that it is evolving into the pre-eminent international organization through which radiation physics is discussed, developed, and appreciated. I am an engineer by training but a physicist at heart. I embrace the mission of the Society and pledge, if elected, to do my best to help the Society grow and prosper. Toward this end, I will, if I am elected Vice President of North America, attempt to more than double the Society membership from North America over my term in office.

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## Profile of Member Standing for Vice President - South and Central America

### Marcelo Rubio

*Aluariz de Arenales 230, B Juniors, Cordoba, Argentina*



Marcelo Rubio is a physicist at the Centro de Excelencia en Productos y Procesos de Cordoba (CEPROCOR) in the Province of Cordoba, Argentina.

President of the Argentinean Society of Medical Physics in 1991/93. His research progressed from traditional fundamental parameters applied to XRF to diagnostic radiology to characterization of biopolymers by SRXRF and x-ray microtomography, the focus of his present activities. Dr. Rubio is author or co-author of more than 40 scientific publications in international journals, and 56 scientific papers as proceedings of international conferences, Latin-American prospective studies or virtual articles. He is author or co-author of 6 book chapters on XRF and scientific-opinion documents.

He has worked in the Radiation Laboratory of CEPROCOR since 1995. He also has been a Professor at the Facultad de Matematica, Astronomia y Fisica (FAMAF) of the University of Cordoba since 1978. During the period 1988-1992 he was Vice-Dean of the Faculty.

In the field of scientific policy activities, Dr. Rubio was State Secretary of Science and Technology of the Province of Cordoba (1995-1999) and chief of the Scientific Advisory Councillor of the National Government (2000/2001). During 2008 he occupied the national-government position of President of the Argentinean Funding Agency, and now, in 2009, Dr. Rubio returns to his research and academic activities.

After obtaining his M.Sc. in Physics (1978) and his Ph.D. in Physics from the University of Cordoba in Argentina (1985), Professor Rubio became a researcher in atomic and nuclear spectroscopy, with international appointments in Brazil and Italy, and is responsible for bringing a number of research projects from Argentina to the Frascati and Campinas LNLS Synchrotron.

Dr. Rubio was one of the founders of CEPROCOR and manager of the  $\mu$ Sat VICTOR project that launched successfully in 1996 the first microsatellite of Argentina.

He held postdoctoral positions at the University of Rome "La Sapienza" in Medical Physics, serving as

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***../ Members Standing for Executive Councillor***



## Profiles of Members Standing for Executive Councilor – Full 6 year Term

### Isabel Lopes

*Universidade de Coimbra, Portugal*



Associate Professor Isabel Lopes has worked in the field of radiation physics for more than twenty years. She was an invited scientist of the Hahn-Meitner Institut, Berlin, visiting researcher of Waseda University, Tokyo, and she was awarded a grant from the Japan Society for Promotion of

Science (JSPS).

Since receiving her Ph.D. in Radiation Physics from the University of Coimbra in 1990, she has worked in several national and international research projects on the use of liquefied rare gases for radiation detectors.

Her main research interests lie in the development of liquid-rare-gas radiation detectors from the point of view of both the physics processes involved in the radiation detection and their applications to the search for rare events, to medical imaging with radionuclides, and to nuclear and high energy physics

experiments. She is also interested in the charge transport and discharge processes in dielectric liquids. Her current main research program is centred on the development of liquid and two-phase detectors for the search of non-baryonic dark matter in the framework of the ZEPLIN-III experiment. Her list of publications is available at

<http://www-lip.fis.uc.pt/~isabel/publications.htm>.

She is currently Associate Professor of the Physics Department of Coimbra University and senior researcher of the Laboratory of Instrumentation and Experimental Particle Physics (LIP).

**Statement:** There are two main features of IRPS that strongly motivate me to serve the Society. First, it provides an international forum of researchers engaged in a large variety of different topics, both fundamental and applied, under the broad umbrella of Radiation Physics. Personally, I find this diverse and interdisciplinary character very stimulating. Second, it truly promotes international links, collaborations and exchange of knowledge. I am very keen to contribute to maintain and reinforce these roles of IRPS. In addition, I would like to work towards enhancing the Society's appeal to young researchers

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### Francesc Salvat

*Professor, Universidade de Barcelona, (E.C.M.), Barcelona, Spain*



Francesc Salvat gained his M.S. degree in Physics from the University of Barcelona, Spain, in 1977; subsequently, he obtained his PhD in Atomic Physics in 1983. Most of his teaching and research career has been with the University of Barcelona, where he is a Professor of

Atomic Physics. He has been Visiting Professor at the University of Toledo, Ohio (USA), and at the Universidad Nacional de Cordoba, Argentina, and Visiting Scientist at the University of Stockholm, Sweden, and at KEK, Japan.

He has served as corporate board member of the European Microbeam Analysis Society, and in multiple scientific and organizing committees of international

conferences. He keeps consulting contracts with several renowned companies.

Dr. Salvat's research interests include collision theory, Monte Carlo simulation of radiation transport and its applications to radiotherapy, detector characterization, electron probe microanalysis, and x-ray generators. He is the leader of the group that develops and maintains the general-purpose Monte Carlo code system PENELOPE for the simulation of electron-photon transport.

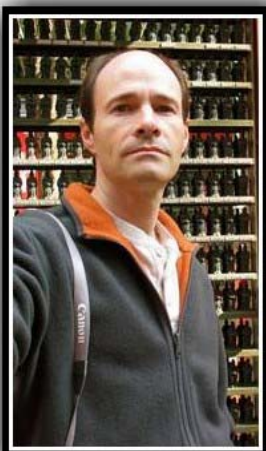
Recently, his work has been oriented to the development of numerical algorithms for the calculation of cross sections for electron interactions in gases and solids, and the production of reference databases.

He has published more than 90 scientific papers, and contributed about 100 communications to international conferences. He has been supervisor of 10 PhD students.

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## Larry Hudson

NIST, Gaithersburg, U.S.A.



Since 1990, Larry Hudson has worked as a physicist at the National Institute of Standards and Technology (NIST), USA. Dr. Hudson's science career began as a flight controller for the US Space Shuttle Orbital Flight Test Program before attending graduate school at Vanderbilt University (1983 - 1989) with NASA support to work on radiation interactions with surfaces. Later at NIST, this theme

continued with work on the pre- or post-flight calibrations of five x-ray astronomy platforms for NASA.

At NIST Dr. Hudson leads a program that produces custom-designed calibrated curved-crystal spectrometers that are fielded to help characterize the performance and spectra from international x-ray sources including the electron beam ion trap, the electron cyclotron resonance ion source, advanced medical radiography sources, laser-produced plasmas,

terawatt pulsed accelerators, ultrafast Petawatt lasers, and inverse-Compton backscatter sources. This work is rooted in a culture of instrument making and an infrastructure of fundamental precision metrology efforts, including absolute x-ray wavelength determination (at the femtometer level) in support of high-accuracy transfer standards needed in fundamental and applied experiments around the world.

In other recent work, Dr. Hudson has assisted in the design and coordination of experiments for the White House Task Force on Mail Irradiation and, in coordination with the US Department of Homeland Security, provided leadership in the development of national image-quality standards for x-ray security screening systems.

**Statement:** As co-editor of the Bulletin of IRPS and co-technical chair of ISRP-11, I have been able to observe the high spirit and quality of both the leadership and the mission of the society. I am particularly drawn to the breadth of the radiation physics and geography represented at the Symposia. It is my intent that the society continues to make the fruitful interconnections across both subject matter and geography that will advance our common causes.

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## Pradip K. Sarkar

Bhabha Atomic Research Centre, India



Pradip K. Sarkar is a physicist at the Bhabha Atomic Research Centre (BARC), India and a Professor at the Homi Bhabha National Institute (HBNI), India. He is currently Head, Accelerator

Radiation Safety Section, BARC and is posted at the Variable Energy Cyclotron Centre, Kolkata, India.

After obtaining his M.Sc. degree (1974) in Physics from Bombay University, he obtained his Ph.D. (1979) from Gujarat University in Physics (Thesis title: "Study of Monte Carlo Radiation Transport Problems"). He held a visiting scientist position at the Joint Research Centre, Ispra, Italy to work on Monte Carlo simulations of neutron fluence distributions in

an accelerator-driven, subcritical multiplying assembly. He was awarded the Monbusho senior scientist fellowship by the Japanese Ministry of Education, Science and Culture to work in the High Energy Accelerator Research Centre (KEK), Japan.

His major research interests are Monte Carlo simulations, experimental and computational neutron dosimetry, measurement and analysis of thick target neutron yield distributions from light and heavy ion induced reactions. He has about 75 publications in books and journals. He has been associated with the Indian Society for Radiation Physics (ISRP) for more than 30 years since its inception. Currently, he is the president of ISRP (Calcutta Chapter).

**Statement:** I would like to continue my long time association with radiation physics. Being a member of the council I can modestly, but certainly, help the growth of radiation physics discipline worldwide, with particular emphasis on the Indian subcontinent.

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## Profiles of Members Standing for Executive Councillor – 3 year Term

### Raul Mainardi

Faculty of Physics-FaMAF, University of Cordoba, Argentina



I obtained my undergraduate degree (equivalent to an M. Sc.) from the University of Cordoba, Argentina in 1966 and my Ph.D. in Physics from the University of Maryland (USA) in 1975. I have been with the Department of Physics

of the University of Cordoba ever since. After my return, I started to do research in x-ray physics as well as undergraduate and graduate teaching, and have been the advisor of more than twenty undergraduate and seven doctoral students.

Throughout the years, I have devoted much time to administrative duties, having achieved, as Dean of the Faculty, the recognition of our Department as an Excellence Center of the Third World Academy of Sciences (TWAS). I have received more than twenty visitors from overseas to my research group, many of them through grants from the TWAS.

I have been a member of the IRPS since 1985, was Vice President for Central and South America for the years 1997 - 2000, and attended three of its symposia. I have more than 80 scientific publications in national and international journals. The applications of the Compton Effect have been my main research interest, from Compton profile properties and applications on x-ray spectrometry to determination of k edges by attenuation of the Compton peak. I am currently studying the production of x-ray beams by inverse Compton scattering and applications to radiation therapy. My other concern is the teaching of physics at the elementary level.

I plan to work as a councillor, if elected, on strengthening the scope and objectives of the IRPS as they are stated in its bylaws, and encouraging members of the Society to present proposals, questions or suggestions to the Executive Council. I would like to see the Society more involved in improving the quality of the papers being published in the general area of Radiation Physics.



### Peter K.N. Yu

Dept Physics and Material Science, City University of Hong Kong, Hong Kong, P.R. China



Peter K. N. Yu is a Professor at the Department of Physics and Materials Science of City University of Hong Kong, and is the director of the Nuclear Radiation Unit in the department.

Prior to this, he received a Ph.D. in Physics from

the University of Hong Kong in 1988. His research has been in ion track physics, radon dosimetry and medical physics. In recent years, he has started research in radiation biophysics, including radiation induced bystander effect and adaptive response in cells, both *in vitro* and *in vivo*.

Professor Yu is author or coauthor of approximately 290 papers in SCI journals. He was a Guest Associate

Editor of Medical Physics (published by American Institute of Physics) from 1999 to 2003, and became an Associate Editor of Medical Physics from 2004 to 2006. He has also been an Editorial Board Member of the Journal of Environmental Radioactivity (published by Elsevier) since May 2005 and was also appointed as an Associate Guest Editor of Radiation Measurements (published by Elsevier) in 2008 for the Proceedings of the 24th International Conference on Nuclear Tracks in Solids, held in Bologna, Italy, 2008.

Recently he served on the Organizing Committee of 7th International Topical Meeting on Industrial Radiation and Radioisotope Measurement Application, Prague, Czech Republic, 2008.

**Statement:** I aspire to work towards enhancing the visibility and influence of the International Radiation Physics Society.





# ISRP - 11



## FIRST ANNOUNCEMENT



Australian Synchrotron



Victoria  
The Place To Be



IRPS

**11th International Symposium on Radiation and Physics**  
**20-25 September, 2009, Melbourne**  
**Workshop on Advances in Analytical Techniques**  
**in Geology, Conservation Science, Forensic Science, Border Technology, Biomedical & other**  
**Applications**  
**26-27 September, 2009, Melbourne**

We have great pleasure in inviting you to attend the upcoming International Symposium on Radiation and Physics (ISRP-11) and the associated Workshop on Advances in Analytical Techniques in Geology, Conservation Science, Forensic Science, Border Technology, Biomedical and other Applications.

**PROCEEDINGS:** The proceedings of the ISRP-11 will be published in the fully-refereed journal NIMA.

**MORE INFORMATION:** For registration and other details please visit the ISRP-11 web site at

[www.ph.unimelb.edu.au/xenq/ISRP11/ISRP11.php](http://www.ph.unimelb.edu.au/xenq/ISRP11/ISRP11.php) or <http://mcmconferences.com/isrp11>

The 2009 conference is to be held at the University of Melbourne, Victoria, Australia. This event is organized by the International Radiation Physics Society (IRPS) and is supported by The Australian Government's Department of Education Science and Technology, the Australian Synchrotron and the Victorian Government. It generates interest and international linkages between researchers and practitioners. The meeting is devoted to current trends in the broad area of radiation physics research. It is endorsed by the IUCr Commission on XAFS. This conference presents a valuable opportunity for the exchange of knowledge, including discussion of development of Australian Synchrotron programs and beamlines, contacts with leaders in the fields and potential research using Australian and overseas synchrotron facilities, accelerator facilities including ANSTO, ANU and CSIRO and the OPAL neutron facility. We expect 200-350 attendees from all over the world. The previous member of this series, held in Portugal, had 360 attendees for the Symposium and 150 for the Workshop, from some 52 countries.

Conference topics will be presented in oral and poster format. Oral sessions will include invited and contributed papers. A prize for the best young researcher paper presented orally will be given. Some support will be available for early career researchers. Conference topics include:

- a) Fundamental Processes in radiation physics
- b) Quantitative X-ray and particle analytical techniques
- c) Absorption and fluorescence spectroscopy (XAFS, XANES, XRF Spectroscopy, Raman, Infrared)
- d) Sources and detectors and simulation of radiation transport
- e) Materials Science and applications to minerals, mining and processing
- f) Medical applications and biology

- g) Applications to space, earth and environmental sciences
- h) Cultural heritage and art
- i) New technologies and industrial applications

On the 26-27 September we will be hosting a two-day Workshop to showcase the Synchrotron and recent innovations in techniques and research across the range of fields. The Symposium and Workshop are coordinated by an International Advisory Board, a Symposium Organising Committee, and a Scientific Program Committee.

The International Advisory Board includes :

Dan Jones [South Africa]	Ladislav Musilek [Czech Rep.]
Masami Ando [TSU, Japan]	Odair Goncalves [Brazil]
William Dunn [Kansas State, USA]	Marcelo Rubio [Argentina]
Ziyu Wu [Beijing, China]	Francesc Salvat [Spain]
Ronald Frahm [Germany]	Robin Gardner [NCSU, USA]

Members of the Scientific Program Committee include:

Chris Chantler [University of Melbourne, Australia], Chair	
Larry Hudson [National Institute of Standards and Technology, USA], Co-Chair	
Dudley Creagh [University of Canberra, Australia]	Isabel Lopes [University of Coimbra, Portugal]
Chris Ryan [CSIRO, Victoria, Australia]	Stephen Best [Chemistry, Melbourne University]
Richard Pratt [University of Pittsburgh, USA]	Malcolm Cooper [University of Warwick, UK]
David Bradley [University of Surrey, UK]	Jorge Fernández [University of Bologna, Italy]

The Symposium Organising Committee includes

Chris Chantler [University of Melbourne, Australia], Chair	
Dudley Creagh [University of Canberra, Australia]	
Justin Kimpton [Australian Synchrotron, Victoria, Australia], Secretary	
Stephen Best [Chemistry, Melbourne University, Australia], Treasurer	
Ian Madsen [CSIRO, Victoria]	Ned Blagojevic [ANSTO, NSW]
Chris Ryan [CSIRO, Victoria]	Chanh Tran [La Trobe University]
Weihua Liu [CSIRO, Victoria]	Stacey Borg [CSIRO, Victoria]
Barbara Etschmann [Adelaide Museum, SA]	

Yours Sincerely,

Christopher Chantler, Associate Professor and Reader  
Symposium Chair  
School of Physics, University of Melbourne  
Email: chantler@unimelb.edu.au  
Telephone: (061) 3 8344 5437

Dudley Creagh, President, IRPS

Larry Hudson, Co-chair, Scientific Program Committee



# Election Ballot Form

For all posts, except those of executive councillors, vote for one by marking the appropriate box. For executive councillors, you may vote for up to four candidates who are running for the full six-year term and up to two candidates for three-year slots that have arisen due to vacancies. For all positions you may write in names of other members of the Society and cast your ballot for them.

## President (vote for one)

Odair D. Gonçalves (Brazil)

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## Secretary (vote for one)

Michael J. Farquharson (UK)

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## Treasurer (vote for one)

Malcolm J. Cooper (UK)

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## Vice Presidents:

### Western Europe (vote for one)

Jorge E. Fernandez (Italy)

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### Central & Eastern Europe (vote for one)

Ladislav Musílek (Czech Rep.)

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### F.S.U. (vote for one)

Alexander P. Potylitsyn (Russia)

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### North America (vote for one)

William L. Dunn (USA)

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### South & Central America (vote for one)

Marcelo Rubio (Argentina)

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### South East Asia (vote for one)

Suprakash C. Roy (India)

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## North East Asia (vote for one)

Wu Ziyu (P.R. China)

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## Africa & Middle East (vote for one)

Mohamed Gomaa (Egypt)

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## Australasia (vote for one)

Chris Chantler (Australia)

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## Executive Councillors:

### Six years term (vote for four)

Isabel Lopes (Portugal)

Francesc Salvat (Spain)

Larry Hudson (USA)

P.K. Sarkar (India)

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### Three years term (vote for two)

Raul Mainardi (Argentina)

Peter K.N. Yu (Hong Kong)

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## Please use this ballot to vote. Instructions for return:

- 1) regular mail: use the double-envelope system (place ballot in a small, unsigned envelope, and enclose the latter in a larger envelope, signing and printing your name and return address on the latter to authenticate your anonymous ballot), and send to:

David Bradley, IRPS Secretary  
Centre for Nuclear and Radiation Physics, Department of Physics, University of Surrey  
Guildford, Surrey GU2 7XH, UK

- 2) electronic submission: scan your completed ballot and email the image to: D.A.Bradley@surrey.ac.uk

**Ballots must be received by the Secretary by 15 September, 2009.**

The results will be announced at ISRP-11 in Melbourne, Australia, 20 - 25 September, 2009