

# IRPS BULLETIN

Newsletter of the International Radiation Physics Society

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Vol 23 Nos 3/4

December 2009



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Printing and postage of the Bulletin, and support for the IRPS web pages, are courtesy of the University of Canberra, Canberra, A.C.T, Australia

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## **IRPS Promotional Material**

The IRPS Poster and an accompanying leaflet (updated), describing the activities of the Society, are included in this Bulletin (pages 15-16), and are also posted on the website <http://www.canberra.edu.au/irps>. The members of IRPS are encouraged to distribute the poster and the leaflet at their home institutions and at meetings; in correspondence with colleagues and whenever possible, for promoting the Society.

The poster, which originally was designed by Dan Jones, is now the responsibility of Leif Gerward. Suggestions for improving the promotional material are most welcome. Please, send your comments to the e-mail address :

[gerward@fysik.dtu.dk](mailto:gerward@fysik.dtu.dk)

## *Season's Greetings From the Editors !*

With this combined issue of the Bulletin we mark the end of a momentous year within the Society, in which new officers were elected and the eleventh International Symposium on Radiation Physics was held in Melbourne, Australia. Of the latter we shall have much more to present in a forthcoming issue, but our coverage begins here with a few choice photos and a short summary of awards made to several student attendees as well as a couple of career scientists whom readers of the Bulletin will likely recognize from their efforts on behalf of IRPS.

We are also pleased to present regional reports outlining radiation physics news from South East Asia, Africa and the Middle East, and the UK and Western Europe, for which we are grateful to regional Vice Presidents Suprakash Roy (India) and Mohamed Gomaa (Egypt), and IRPS Treasurer Malcolm Cooper (UK), respectively. From Vice President Bill Dunn (USA), we have a brief history of the evolution of the conference on Industrial Radiation and Radioisotopes Measurement Applications (IRRMA), which is to meet for the 8<sup>th</sup> time in Kansas City, Missouri (USA) in June of 2011. An official announcement of this and the IRPA-Egypt Radiation Protection Workshop (Cairo, Egypt, January 2010) are enclosed, as well as other information of upcoming radiation physics conferences.

The triennial election of officers marks a transition for our leadership in which several new officers take to their various posts within the Executive Council and others step down after years, in some cases many years, of distinguished service to the Society.

Congratulations go to Odair Goncalves (Brazil), the new IRPS President, and all new and returning officers and members of Council. We especially want to note that our new president will be hosting ISRP-12, in Salvador, Brazil. Election results are summarized in a short report on page 15.

This issue kicks off with a Past President's Report from Dudley Creagh, who steps over from the office of President to take the chair of the Advisory Board, held these past three years by Richard Pratt. Among the many personal acknowledgments made in Dudley's report are special thanks to Shirley McKeown for her tireless efforts on the web page and in assembling and transmitting the Bulletin. Her official title within the Editorial Board may be Associate Editor, but we regard her as *Sine Qua Non*.

Finally, we bid a hearty welcome to those of you who may be new to our Society. We hope you'll find much of interest in the present pages as well as forthcoming issues of the Bulletin, and we look forward to your contributions to this Bulletin and the Society.

To our new officers and members of the Executive Council, we offer our support and to all, best wishes for a happy and prosperous new year.

*Ron Tosh and Larry Hudson*



## Past President's Report

### Dudley Creagh

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The ISRP-11 meeting, its workshop, and the associated Council meeting are now in the past: and I am no longer President of our Society. ISRP-11 and the workshop were a success with 200 delegates coming to Melbourne from 38 countries, despite the adverse financial climate which we are experiencing. More will be said about this later in this Bulletin. I shall not say more about it save to thank Chris Chantler and his Organizing Committee for a job well done, the Scientific Advisory Committee for its support and advice, and the Scientific Program Committee for arranging such a varied, interesting and stimulating program.

I would like to express my thanks to members who made the long trip to Melbourne to attend the meeting. To the new members who joined at the meeting: welcome---I hope that you found much of interest. We look forward to hearing from you, and receiving such articles and information about your countries as you see fit to send to the Editors of this Bulletin. Please become involved. Your involvement can only make our society stronger.

I am personally grateful to all the Members of Council for their support, especially our Secretary (David Bradley) and Treasurer (Malcolm Cooper). Richard Pratt has been of

assistance to me in many ways. His knowledge of our society is encyclopaedic. He was a founding member of the IRPS, and to my memory, has not missed a meeting since the beginning. All members of Council have contributed to the growth of our society during the past three years.

I thank the editors of the Bulletin, Larry Hudson and Ron Tosh, for their enthusiasm and dedication. Shirley Mckeown has been of great assistance to them, and to former Editors. I, personally, am grateful to her for her friendship and active help for more years than we would both care to remember. Is my memory good enough to remember back that far? I wonder.....

It is my pleasure to hand over the Presidency to Professor Odair Gonçalves, CNEN, Brazil. I know that the future of our society rests in good hands. Mic Farquharson (Mc Master University, Canada) is our new Secretary whilst Malcolm Cooper (Warwick University, UK) remains our Treasurer.

With my very best wishes to you all

*Dudley Creagh*

Chair, IRPS Advisory Board

## **Vice President's Report, South East Asia**

**Suprakash.C. Roy**

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India has a long, sustained and important contribution to Radiation Physics with its rich tradition of Radiation Physics research for years not only in research institutes but in universities as well. As in our own life we cannot ignore the contribution and benefit derived from small scale industries compared to large scale industries, the contributions from universities are no less important than those derived from bigger Institutes. Knowledge gained from academics forms the basis of bigger projects. Universities also develop facilities although they may not be on a scale of the projects mentioned below. Some such examples are the first Indian 20Ci  $^{137}\text{Cs}$  and lowest intensity 100 mCi  $^{241}\text{Am}$  Compton spectrometer developed at MLS University at Udaipur and X-ray fluorescence facilities developed at Punjabi University, Patiala. Given below are some of the major programmes with India as a global partner. However, this report does not reflect all the radiation physics research being carried out in India.

### **India Joins World's Superconducting Cyclotron Club**

The first superconducting cyclotron of India was born on May 11, 2009 at the Variable Energy Cyclotron Centre (VECC), Kolkata, whereby the signature of birth, an accelerated neon beam, was greeted with joy by the scientists. Neon beam from an

Electron Cyclotron Resonance (ECR) ion source was guided by about 20 meter downstream and injected inside the cyclotron, which after being accelerated a few turns was detected. The machine is capable of delivering low mass ion beams up to 80 MeV/nucleon and heavy ion beams with energy about 5-10 MeV/nucleon. A high magnetic field of maximum 5.5 T produced in the main magnet coil is made of superconducting NbTi maintained at liquid helium temperature and is used to confine the charged particle beam while an RF field provides the necessary acceleration. Extraction related work and beamline assembly work are in progress so that the beam can be delivered to the users by the end of 2009.

### **Indian participation in the LHC Program at CERN**

In the much hyped Large Hadron Collider (LHC) program at CERN, VECC has taken the responsibility of coordinating the execution of the luminosity project in the ALICE experiment at the LHC. Some say 13<sup>th</sup> is an unlucky date, but not to Indian scientists, as Indian scientists rejoiced at the installation of photon multiplicity detector (PMD), conceived, designed and built by Indian scientists, in the ALICE experiment on 13<sup>th</sup> July 2009. PMD which essentially is a pre-shower detector was installed at the forward region where particle density is so

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high that the usual calorimetric technique is not appropriate. The LHC experiment is expected to produce  $10^{15}$  bytes of data per year and therefore, requires an enormous amount of computing power to analyse the data. LHC is developing Worldwide LHC Computing Grid (LHCG) for this purpose and VECC is one of the Tier-2 centres.

### **High Current Proton Cyclotron Facility Under Construction**

A 30 MeV proton cyclotron facility is under construction which will be used to produce PET and SPECT isotopes for medical diagnostics. There will be five beam lines of which two beam lines are being dedicated for SPECT and one for PET isotope production, one dedicated beam line for material science and chemistry research and the fifth beam line will be used for dedicated experiments for R&D works on material science. The facility will be operational around the middle of 2010.

### **Indian Participation in Global WIMP Dark Matter Search Program**

The Centre for AstroParticle Physics (CAPP), in the Saha Institute of Nuclear Physics (SINP), Kolkata, has recently joined the international PICASSO experimental collaboration for the search of WIMP dark matter particles using superheated drop detectors (SDDs). CAPP, SINP is engaged in R&D work related to the fabrication and simulations of large-mass low-background SDDs for the PICASSO experiment, which is situated 2 km underground at SNOLab, Ontario, Canada. Present PICASSO results have already set an upper limit of 0.16pb (90% CL) on the spin-dependent WIMP-

proton cross section for a WIMP mass of around  $24 \text{ GeV}/c^2$ . The next generation PICASSO detector consisting of SDDs of the kind originally developed by Robert Apfel and S.C. Roy at Yale University in the 1980s, with larger exposure and lower background, is expected to provide significantly improved limits on the spin-dependent WIMP-nucleon cross section.

### **Nuclear Reactor Programme Progressing Well in India**

To fulfill the objective of providing sustainable clean energy, a three stage programme was envisaged by Homi Bhabha. Under this, the potential of water reactors (about 10 GWe capacity) in the first stage, fast reactors (about 42,200 GWe-yr) in the second phase and use of thorium (155,000 GWe-yr) in the third stage would be exploited. Today the water reactor programme has reached its maturity and there are seventeen water reactors operating with very high capacity factors. The fast reactor programme, started under the second stage, has been progressing steadily in the country for the last forty years in the mission mode. Strong science based R&D executed in multidisciplinary domains and extensive collaborations with academic and R&D institutions and public support have helped realizing successful operation of Fast Breeder Test Reactor for twenty three years. Construction of 500 MWe Prototype Fast Breeder Reactor is progressing well and is targeting for commission in 2011.

*Suprakash Roy*

**Vice President, South East Asia**

# Vice President's Report, North America

**William L. Dunn**

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## A Brief History of IRRMA

The idea for a series of topical meetings on Industrial Radiation and Radioisotope Measurement Applications (IRRMA) began with Dr. Robin P. Gardner when he was at Oak Ridge, TN, in the early 1960s. Some years later, while he was at North Carolina State University (NCSU), he organized, as General Chair, the first Conference on IRRMA, which was held from 7-9 September, 1988, in Pinehurst, NC. That meeting was sponsored by the Isotopes and Radiation Division (IRD) of the American Nuclear Society (ANS) and the extended summaries were published in Supplement No. 3 to Vol. 56 of the ANS Transactions (1988). Both John Hubbell and I served on the organizing committee, John in charge of International Programs and I in charge of Publications; both of us also were on the Technical Program Committee. The Proceedings were published in two journals, *Applied Radiation and Isotopes* (Vol. 41, Issues 10 and 11, 1990) and *Nuclear Geophysics* (Vol. 3, Issue 4, 1990). The stated objective of the meeting was "to bring together scientists and engineers from around the world who share a common interest in the use of nuclear radiation for industrial and geophysical measurements."

The first IRRMA was sufficiently successful that the organizers decided to host another Topical Meeting on Industrial Radiation and meeting four years later. Thus, the 2<sup>nd</sup>

Radioisotope Measurement Applications (IRRMA-2) was held from 9-11 September 1992 at the Radisson Plaza Hotel in downtown Raleigh, NC. The meeting also was sponsored as a Topical Meeting of the IRD of ANS. Dr. Gardner asked Mr. William F. Troxler, President of Troxler Electronic Laboratories, to be General Chair, and Dr. Gardner served as Chair of the Technical Program Committee, on which again John Hubbell and I served. The extended summaries were published in ANS Transactions, Supplement No. 1 to Vol. 65 (1992) and the accepted papers appeared in the Proceedings published in both *Applied Radiation and Isotopes* (Vol. 44, Issues 10 and 11, 1993) and *Nuclear Geophysics* (Vol. 7, Issue 2, 1993). One hundred and fifteen participants attended from 16 different countries.

The 3<sup>rd</sup> Topical Meeting on IRRMA was held from 6-9 October 1996 at the Brownstone Hotel, again in Raleigh, NC. The region had been hit by a large hurricane just weeks before the meeting, and the Brownstone did an impressive job of making repairs to the hotel in time for the meeting. Mr. Bill Troxler was again General Chair and he hosted a North Carolina Barbecue at his house for the 141 people attending from 41 countries. The ANS published a Conference Program and Abstracts book and Vol. 48,

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Numbers 10-12, of *Applied Radiation and Isotopes* (1997) contained the accepted papers. It is interesting to note that the Consulting Editors of the Proceedings were John Hubbell and David Bradley, both then affiliated with the International Radiation Physics Society (IRPS), and that Dr. Gardner and I, both affiliated with IRRMA, served as Guest Editors. Thus, a loose connection between IRPS and IRRMA began.

The IRRMA organizers—then a small group consisting primarily of a few faculty members from NCSU, a few people from Carolina Power & Light Co., myself, John Hubbell and David Bradley from IRPS, a few Troxler employees, and Bob Gherke of Idaho National Engineering Laboratory (an officer of IRD of ANS)—realized that a four-year interval made meeting continuity difficult. Therefore, it was announced at IRRMA-3 that a three-year interval between meetings would be implemented.

The 4<sup>th</sup> Topical Meeting on IRRMA was held, again in Raleigh, NC, but this time at the Velvet Cloak Inn from 3-7 October 1999. Robin Gardner returned as General Chair and I chaired the Technical Program Committee, whose membership included John Hubbell, David Bradley, and Jorge Fernández. The attendance was a modest 125, but the technical quality of the meeting was improved over that of previous IRRMA meetings. David Bradley authored the Preface to the Proceedings, which appeared in *Applied Radiation and Isotopes* (Vol. 53, Numbers 4-5, 2000).

The first four IRRMAs had all been held in North Carolina, with Dr. Gardner as the moving force behind all the meetings. It was decided that a change of venue would be useful and it might be a good idea to alternate sites for future IRRMAs between

North America and Europe (or perhaps some other continent). Thus, Professor Jorge E. Fernández became General Chair of IRRMA-5, which was held in Bologna, Italy, from 9-14 June 2002. The sponsorship from ANS continued, but at a reduced level. Prof. Fernandez and his colleagues put on a spectacular event. Over 350 people attended from 45 countries. This IRRMA was the most successful to-date. Elsevier agreed to publish the Proceedings, which appeared in *Nuclear Instruments and Methods B* (Vol. 213, 2004).

McMaster University in Hamilton, Ontario, was the site for IRRMA-6, which was held from 20-24 June 2005. Dr. Fiona McNeill served as General Chair and several IRPS members served on the Technical Program Committee, including David Bradley, Jorge Fernández, John Hubbell, Ladislav Musilek, and me. The Proceedings appeared in NIMB (Vol. 263, 2007), whose publication was delayed for a variety of reasons.

The International Radiation Physics Society had approached me in 2003 about organizing a workshop to be held in concert with ISRP-10, which was due to be held in Coimbra, Portugal, in September 2006. A planning meeting over dinner was held in Cape Town, South Africa, during ISRP-9. In attendance were Drs. Isabel Lopes and Margarida Costa (both of the Physics Department at the University of Coimbra), Dr. David Bradley (then at University of Exeter), Dr. Jorge Fernández (of the University of Bologna), and myself (by now at Kansas State University). It was there that the idea was born to have a Workshop on Use of Monte Carlo Techniques for Design and Analysis of Radiation Detectors, which would be held just prior to ISRP-10 in Coimbra. Both the Workshop and the Symposium were quite

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successful. The Proceedings of the Symposium were published as Vol. 580, Issue 1 of NIMA in 2007 and a Special Issue of *Radiation Physics and Chemistry* was devoted to the papers submitted from the Workshop. The idea of some sort of more formal alignment between IRPS and IRRMA began to be discussed.

Dr. Ladislav Musilek served as *General Chair* for IRRMA-7, which was held in Prague, the Czech Republic, in September, 2008. This was again a very successful meeting and the Proceedings will soon appear in *Applied Radiation and Isotopes*. There are plans for

IRRMA-8 to be held in Kansas City, MO, from 26 June - 1 July 2011. (I am very hopeful that many of you will attend. We promise to put on an interesting program, both technically and socially.) At the recent IRPS Council meeting in Melbourne, Australia, IRPS agreed to be a sponsor of IRRMA-8. I am very hopeful that IRPS and IRRMA will continue to move closer together in order to better serve the common community of scientists and engineers who are interested in both the fundamental and applied aspects of radiation physics.

*William Dunn*

Vice President, North America  
and IRRMA-8 General Chair

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## ***Vice President's Report, Africa and Middle East***

**Mohamed Gomaa**

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### **Africa and Middle East Regional Radiation Physics Activities 2009 - 2010**

Some appreciation of the extent of physics activity occurring throughout Africa begins with the realization that each of the 52 countries comprising Africa has at least one university where physics is studied - not only in faculties of sciences but also in faculties of education, engineering, agriculture, and medicine, among others - and many possess institutes and other technical centers in which one or another physics subspecialty is pursued. The same is true of West Asian countries.

Traditionally, physics graduates from universities have tended to pursue post graduate studies in solid state or nuclear physics, although more recently, interest has developed in radiation physics, medical physics, biophysics, electronics and other areas. Within the area of radiation physics, much attention in Africa and the Middle East has been given to environmental radiation, radioactivity in building materials, radioactivity in drinking water, and in indoor

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and outdoor radon. Radiation safety and proper use of man-made sources is also of much interest. Within the area of medical physics, proper use of diagnostic machines, radiotherapy machines and nuclear medicine sources and attendant safety concerns are of paramount importance.

The growth of radiation physics in Africa has been greatly enhanced by the influence

of professional organizations like the International Radiation Physics Society and by related events like the triennial International Radiation Physics Symposium (in particular, those which were held in Morocco and South Africa) as well as the Egyptian Radiation Physics Conference, which has been held every two years since 1992 (most recently, the IX conference was held in Cairo in 2008).

**Among the many activities done by radiation physicists in Africa and Middle East during the period from January 2009 till End of October 2009 are the following:**

1. **Qatar**, IAEA and Qatar Authority, conducted 3-day workshop on the revision of BSS, January 2009, [www-ns.iaea.org/standards/Qatar-workshop-revision-BSS](http://www-ns.iaea.org/standards/Qatar-workshop-revision-BSS) Revision of International Basic Safety Standards.
2. Middle Eastern Regional Radioisotope Center for Arab countries (MERRCAC) Radiation Protection training course, Cairo, Feb - March 2009, [www.merrcac.com](http://www.merrcac.com) Basic Course of Radiation Protection.
3. **Egypt**, 2009 annual conference for nuclear medicine specialists was conducted, El Sokhna , March 2009, [www.esnms.com](http://www.esnms.com)
4. **Saudi Arabia**, first radiation protection workshop for Arab gulf states was conducted in Riyadh, Saudi Arabia, May 2009.
5. WHO children health and environment, CEH2009, Busan, Korea June 2009.
6. Participations at ISRP-11, Scientists from Africa and middle east attended ISRP-11, Melbourne, Australia , 20-25 September 2009.
7. **Egypt**, 3<sup>rd</sup> Physics and material sciences conference was held at Alexandria, 20-23 Oct 2009,

**Radiation physics works are published as proceedings of conferences (and /or) in scientific journals such as:**

8. Egyptian Journal of Nuclear and Radiation Physics, ENPA(2009), [www.physicsegypt.org/ENPA](http://www.physicsegypt.org/ENPA)
9. Arab J. of Nuclear Sciences & Applications , ENSNA Society (2009), [www.ENSNA.com](http://www.ENSNA.com)
10. Bulletin of Isotope and Radiation Research, MERRCA(2009), [www.merrcac.com](http://www.merrcac.com)

**Among the activities for the period from Nov 2009 till end of 2010 the following:**

1. **Egypt**, 7<sup>th</sup> Nuclear and Particle Physics Conference, ENPA, Sharm El Sheikh, 11-15 November 2009, [www.physicsegypt.org/nuppac09](http://www.physicsegypt.org/nuppac09)

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2. Radiation detection instruments and its calibration training course , Atomic Energy Authority, December 14-23 [www.eaea.org.eg/training](http://www.eaea.org.eg/training)
3. **Egypt**, Radiation Protection Workshop, IRPA Egypt, Cairo, 10-12 Jan 2010, [www.rphysp.com](http://www.rphysp.com)
4. **Morocco**, NORM6 conference Marrakesh, 22-26 March 2010, [www.norm6.ma](http://www.norm6.ma)
5. **Egypt**, 4<sup>th</sup> Environmental Physics Conference, Hurgada , 10-14 March 2010, [www.physicegypt.org](http://www.physicegypt.org)
6. **Egypt** , 3<sup>rd</sup> Radiation Sciences conference, 29 March-1April 2010, Marsi Alam,
7. UNSCEAR, 57 session , April 2010, [www.unscear.org](http://www.unscear.org)
8. **Kenya**, 3<sup>rd</sup> African regional radiation protection congress, September 11-15 Nairobi, Sept 2010
9. **Egypt**, X radiation physics and protection,26-30 November 2010, [www.rphysp.com](http://www.rphysp.com)

## REPORT on NUPPAC-09

The 7<sup>th</sup> Nuclear and Particle Physics Conference was held at the City of Peace, Sharm El Sheikh, Egypt, November 11-15, 2009. The official opening of the conference took place in Cairo at the Egyptian Atomic Energy Authority Headquarters on Nov 11<sup>th</sup>. Conference attendees then traveled by bus through Sinai to the conference venue in Sharm El Sheikh.

The conference was held in the Dream Vacations Hotel at Dream Beach in Sharm El Sheikh, thus offering excellent opportunities for scientific presentations and scuba/snorkeling. Invited talks by leading nuclear and particle physics scientists were complemented by

presentations from conference participants representing 20 countries and members of Egyptian universities and research institutes. Attached, the conference photo.

Prior to the return trip to Cairo on Sunday, Nov 15<sup>th</sup>, a meeting was convened to request recommendations for future conferences. Among recommendations received was a suggestion for greater emphasis on applications; hence, the new title of the conference shall be the Egyptian Nuclear and Particle Physics and Applications Conference.

*Mohamed Gomaa*

Vice President, Africa and Middle East

## **Report from Member**

**Malcolm J. Cooper**

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### **RADIATION PHYSICS IN THE UK AND WESTERN EUROPE 2006-2009**

There was optimism in the early part of the triennium with the anticipated operation of the Large Hadron Collider and generally science funding increasing in real terms. Then we had the cryogenic catastrophe at CERN which has set that project back significantly and at some considerable cost. No one knows whether they will find the Higgs and nothing else or something that really justifies the massive investment. History teaches us that more doors will be opened than will be closed, but the particle physics community waits with some trepidation. At about the same time, the financial world collapsed. Most continental European countries seem to have suffered less than the UK and the USA, and those two countries have reacted very differently. Obama, produced a massive stimulus package for science, but the UK government took its foot off the accelerator and applied the brakes. Budgets are trimmed and are expected to be cut further when there is a comprehensive spending review following the elections for a new government probable in May 2010.

In an effort to save money, cuts have been

announced to the operating schedule of both the DIAMOND synchrotron and the ISIS neutron spallation source, which had just opened its second target station: upgrade programmes are under threat. Contrast this with the situation in continental Europe and especially Scandinavia where the Swedes have announced the go ahead for the Max IV, 3-GeV, low emittance synchrotron ring. Following hard on the heels of this announcement a memorandum of understanding has been signed to provide Norwegian support for the European Spallation Source (ESS), also to be built in Lund. Although the ESS still has to raise a lot of money, it looks like Lund is rapidly going to rival Grenoble as the European Centre for neutron and synchrotron science. The British have traditionally been strong in these areas but whether they can maintain their involvement is in doubt.

Those of us approaching retirement look back on a decade of funding which is unlikely to be matched in the next decade and worry for the prospects of radiation physics and the next generation of UK radiation physicists.



## From the ISRP-11 Conference (more items in our next issue)

### 1. **The JARI Medal and JARI Enterprise Awards**

*Information from Applied Radiation and Isotopes Journal*

#### **The JARI Medal :**

On September 23rd, 2009, the Editorial Board of Applied Radiation and Isotopes (ARI) awarded, at the 11th International Symposium on Radiation Physics in Melbourne, the 2009 JARI Medal to Dr. David Bradley. The award recognizes outstanding, original contributions to applications-oriented methodology.

Dr. Bradley's contributions to coherent imaging, small-angle scattering and x-ray fluorescence spectroscopy for in-vivo toxicology and other medical applications, were cited specifically, along with his teaching, supervision of research and work as editor of scientific literature. Also noted was the fact that much of this work was done in the developing world.



#### **The JARI Enterprise Award :**

At the same ISRP Conference, the JARI Enterprise Award was presented to Dr. Lawrence Hudson for "outstanding work in the radiation sciences, the nature of the research being recognized to be of a leading and challenging nature."

A lead researcher in the development of X-ray standards at the National Institute of Standards and Technology (NIST) in the US, Dr. Hudson has responsibility over one of the world's three defining practical realizations of the Angstrom. He is also project leader for national standards development related to detection of bulk explosives and security screening.



**Well done, David and Larry ... our congratulations !!!**

2.

## **Student Prizewinners**



### **Didier Isabelle Award**

**Entesar Dalah**  
University of Surrey  
won the Didier Isabelle Award for  
Best Student Oral Presentation of ISRP-11



### **Best Student Poster**

**Cláudio Silva** (left)  
University of Coimbra and LIP-Coimbra  
**Noramaliza Mohamed Nor** (centre)  
University of Surrey  
receiving their winning prize awards for the Best Student Posters of IRP-11  
presented by Prof. Chris Chantler (right)

3.

## **Report of Election Results**

### **Ron Tosh**

During the meeting of the membership of the Society at ISRP-11, the officers of the Society for the next three years were announced.

The Society will be led by **Odair D. Gonçalves** of Brazil, who replaces **Dudley C. Creagh** of Australia as President.

**Dudley C Creagh** will continue to contribute to the Society as Chair of the Advisory Board.

**Mic Farquharson**, from Canada, will take the Secretarial pen.

**Malcolm J. Cooper**, from the UK, remains as Treasurer of the Society.

**Elaine Ryan**, of Australia, will take the office of Membership Registrar of the Society.

The Vice Presidential ranks saw some turnover, with **Marcelo Rubio**, of Argentina, taking over the South and Central America posting from **Anselmo Paschoa**, of Brazil. We also have **Mohamed Goma**, of Egypt, taking over the Africa and Middle East posting from **Dan Jones**, of South Africa; and **A.P. Potylitsyn** taking over in FSU from **Andrei Korol**.

The other VP postings were filled by the incumbents:

**Jorge Fernandez** (Italy) for Western Europe,  
**Ladislav Musilek** (Czech Republic) for Central & Eastern Europe,  
**Wu Ziyu** (China) for North East Asia,  
**Suprakash Roy** (India) for South East Asia,  
**Chris Chantler** (Australia) for Australasia,  
**Bill Dunn** (USA) for North America

Within the ranks of the Executive Council, we have

**Isabel Lopes** of Portugal, **Francesc Salvat** of Spain, **Larry Hudson** of the USA and **P.K. Sarkar** of India elected to six-year terms.

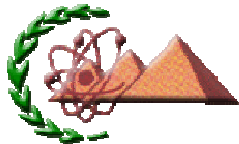
**Raul Mainardi** of Argentina and **Peter K.N. Yu** of Hong Kong were elected to fill three year vacancies.

**Fiona McNeill** of Canada remains on the Council until 2012.

Leaving the Council and returning to the general membership are  
**Dan Jones**, **Andrei Korol**, **Anselmo Paschoa**, **David Bradley**, **Paul Bergstrom**,  
and **K. Singh Thind**.

We salute them for their long service to the Society

# Conference Information



Atomic Energy Authority



National Network of Radiation Physics



**Atomic Energy Authority  
National Network of Radiation Physics**

**In Co-operation with  
Radiation Protection Group of Egyptian Society of Nuclear Sciences & Applications  
IRPA- Associate Society**

## IRPA-Egypt Radiation Protection Workshop

10-12 January 2010

**E-mail: [radmedphys@yahoo.com](mailto:radmedphys@yahoo.com)**

National Network of Radiation Physics is pleased to invite you to participate in the IRPA-Egypt Radiation Protection workshop organized by

- 1 - National Network of Radiation Physics of Egyptian Atomic Energy Authority
- 2 - Radiation Protection Group of Egyptian Society for Nuclear Sciences and Application -IRPA Associate Society

The workshop is aimed to introduce the latest recommendations of International Commission of Radiological Protection ICRP 103, adopted in March 2007 and Published in 2008 and ICRP-105.

Furthermore, to introduce the updated version of the Basic Safety Standards of the International Organizations which was issued as IAEA -Safety Series No.115, 1996.

Hence, to update the National Laws and Regulations in the Arabic Countries following the latest ICRP recommendations.

The workshop will introduce the Arabic Societies dealing with Radiation Protection and to invite them to join the International Association of Radiation Protection (IRPA).

The workshop is aimed to underline the role of Arabic Countries and Regional and international organizations in the field of Radiation Protection

### **Workshop site: Atomic Energy Authority, Nasr City, Cairo, Egypt**

Registration fees : USD500 for Non Egyptian  
Registration fees : EGP1000 for Egyptians

Fees to be paid in cash or by cheque to the Radiation Physics and Seminars Fund, Atomic Energy Authority, Cairo , Egypt .

**Workshop date: 10-12 January 2010**

**Correspondence to :** Prof Mohamed Ahmed Mahmoud Gomaa  
Atomic Energy Authority  
3 Ahmed El Zommer Street, Nasr city  
T or F/ 002-02-22728813  
M / 002-0101457161

**Website :** [www.rphysp.com](http://www.rphysp.com) [www.irpa-egypt.com](http://www.irpa-egypt.com) :



# Announcing the Eighth International Topical Meeting on Industrial Radiation and Radioisotope Measurement Applications - IRRMA-8

26 June - 1 July, 2011, Kansas City, Missouri

IRRMA-8 will be held at the recently converted Kansas City Marriot Country Club Plaza Hotel (right) which is located near the Nelson-Atkins Museum of Art. Kansas City is a vibrant city that has many cultural and culinary delights.

Enjoy visits to :

- sites on the Missouri River
- a variety of museums
- the Kansas City symphony
- the Starlight Theatre and jazz rooms
- Kansas City steak and barbecue houses
- professional baseball (KC Royals)

The environs offer :

- The "Wizard of Oz" museum
- Custer's museum
- The Eisenhower museum in Abilene (Pres. Dwight Eisenhower, who grew up in Abilene, in Abilene, gave the famous "Atoms for Peace" speech to the United Nations on 8th December, 1953.

An excursion is planned to Manhattan, KS (the "Little Apple"), to visit

- Kansas State University (KSU) ([www.ksu.edu](http://www.ksu.edu))
- The KSU TRIGA Mark II reactor
- The Kansas Light Source
- Little Apple Brewing Company

Meeting highlights : Former General Chairs will be invited to speak and a formal IRRMA structure will be launched. Plan to join us in Kansas City in June 2011.

- Honorary Chair, Robin P. Gardner
- General Chair, William L. Dunn
- Technical Program Chair, David A. Bradley
- Special Local Affairs Advisor, J. Kenneth Shultis

For more information, contact William L. Dunn at [dunn@mne.ksu.edu](mailto:dunn@mne.ksu.edu) or 785-532-7057 (Fax). A conference web site will be set up in late 2009.



Left : The Marriot Hotel (<http://www.marriot.com/hotels/travel/mcipl.kansas-city-country-club-plaza/>) is just two blocks from the popular country Club Plaza, an enjoyable collection of stores, restaurants, museums, outdoor sculptures, and galleries  
Below : Enjoy the Bloch Building of the Nelson-Atkins Museum ([www.nelson-atkins.org](http://www.nelson-atkins.org))



Above : A scene in the nearby Country Club Plaza (<http://www.countryclubplaza.com/>) where daytime shopping and evening dining and entertainment opportunities abound.



## *Calendar*

**2010**

**January, 2010**    10th - 12th

### **National Network of Radiation Physics**

**Workshop site: Atomic Energy Authority, Nasr City, Cairo, Egypt**

National Network of Radiation Physics is pleased to invite you to participate in the IRPA-Egypt Radiation Protection workshop organized by

- \* National Network of Radiation Physics of Egyptian Atomic Energy Authority
- \* Radiation Protection Group of Egyptian Society for Nuclear Sciences and Application – IRPA Associate Society.

Further information on page 16 of this Bulletin



**November, 2010**    26th - 30th

### **10th Radiation and Physics Protection Conference**

**Al-Menia University, Al-Menia, Egypt**

#### **Early Announcement**

*For further information*

**Prof. Mohamed Ahmed Gomaa  
Conference Scientific Secretary  
3 Ahmed El Zommer Street, Nasr City, Cairo, Egypt**

**Phone : 00202-22728813    Fax : 22202-22876031    Email : [radmedphys@yahoo.com](mailto:radmedphys@yahoo.com)**

**Website : <http://rphysp.com>**

**.../ 2011**

**2011**

**February, 2011**      6th - 11th

**AXAA**  
**Australian X-ray Analytical Association**  
**Schools, Advanced Workshops, Conference and Exhibition**

**Star City, Sydney, N.S.W., Australia**

To register your interest, submit an abstract, and for further information,  
please visit

**Website :** <http://www.axaaconference.info>



**June - July, 2011**      26th June - 1st July

**IRRMA - 8**  
**8th International Topical Meeting on**  
**Industrial Raidation and Radioisotope Measurement**  
**Applications**

**Kansas City, Missouri, U.S.A.**

Further information on page 17 of this Bulletin, and also visit the website

<http://www.dcek-state.edu/conf/irrma/>

## Membership Payments by Credit Card

### PayPal is now fully connected !!

Internet payments by credit card (Visa, Mastercard, AMEX, Discover) can be made via the IRPS website

<http://www.canberra.edu.au/irps>

**You do not need a PayPal account to use this method of payment**

Go to the Home Page on our website (as above)  
click on Membership, scroll down to the selection of buttons and click on the one that suits your membership.

If you have any queries or problems contact :

**Professor Malcolm Cooper**  
Department of Physics, University of Warwick  
Coventry CV4 7AL, U.K

*email* : [m.j.cooper@warwick.ac.uk](mailto:m.j.cooper@warwick.ac.uk)

## New Memberships, Membership Renewals

Membership form for new members, and details for payments by cheque for new and renewing members are on the back page of this journal and information for payment by credit card is given above.

If you are unsure when your renewal is due, contact  
**Elaine Ryan**

*email*: [e.ryan@usyd.edu.au](mailto:e.ryan@usyd.edu.au)



# INTERNATIONAL RADIATION PHYSICS SOCIETY

Grid temperature - / album

Time

Pre-heat Heat Anneal

200 °C

VELOCITY (km s<sup>-1</sup>)

Pulsar Size

25 microns

CO Co

0.334 2.819

1.48 2.903

1.173

1.332

1.330

CO Ni

ENERGY (keV)

1.2 1.8 2.4 3.0 3.6 4.2

7 MeV Carbon on Gold

Si <111>

Normalized Yield

TLT ANGLE (SPH)

TLT ANGLE (SPH)

Credit ESRF

Atmosphere

Atomic nucleus

Ground

IONIZATION CONTINUUM

ENERGY

ALUER ELECTRON

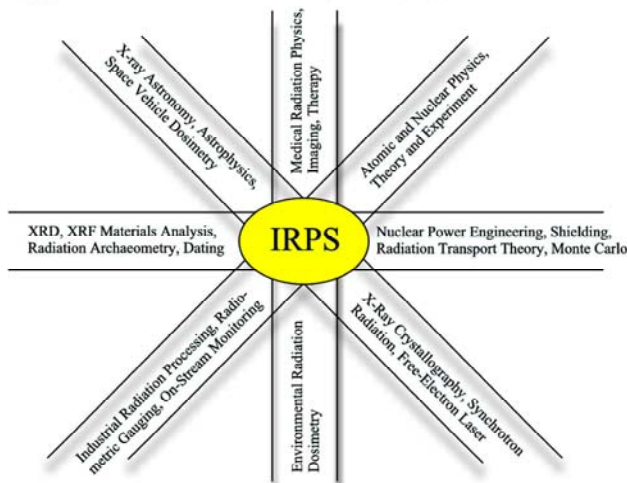
K SHELL

Join the IRPS – A Dynamic Professional Society – and become a member of the Global Radiation Physics Family  
 For information, please go to [www.canberra.edu.au/irps](http://www.canberra.edu.au/irps)



## INTERNATIONAL SYMPOSIA ON RADIATION PHYSICS

ISRP-1	Calcutta, India (1974)
ISRP-2	Penang, Malaysia (1982)
ISRP-3	Ferrara, Italy (1985)
ISRP-4	São Paulo, Brazil (1988)
ISRP-5	Dubrovnik, Yugoslavia (1991)
ISRP-6	Rabat, Morocco (1994)
ISRP-7	Jaipur, India (1997)
ISRP-8	Prague, Czech Republic (2000)
ISRP-9	Cape Town, South Africa (2003)
ISRP-10	Coimbra, Portugal (2006)
ISRP-11	Melbourne, Australia (2009)
<b>ISRP-12</b>	<b>Salvador Bahia, Brazil (2012)</b>



**The crossroads.** A number of otherwise compartmentalized scientific, medical, engineering and other disciplines, represented as roads which intersect in their common interest, both in contributions and applications, in radiation physics (e.g. radiation sources, detectors and transport), the basis of IRPS.  
(Adapted, by kind permission, from J. H. Hubbell, *Radiat. Phys. Chem.* 59 (2000) 113).

### AIMS AND OBJECTIVES

Promoting the global exchange of scientific information pertaining to radiation physics, including the fostering of

- Theoretical and experimental research
- Investigations of the physical aspects of the interactions of radiations with matter, including biological systems
- Education and training
- Utilization of radiations for peaceful purposes

Arranging and supporting national, regional and international conferences and workshops

Encouraging international scientific research programs

Disseminating relevant information about radiation physics to both the scientific community and the general public

The official journal of the IRPS is *Radiation Physics and Chemistry*

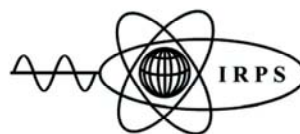
### ADMINISTRATION

The IRPS is administrated by an Executive Council consisting of the President, the immediate Past-President, the Secretary, the Treasurer, nine regional Vice Presidents and eight Councillors. The Executive Council is elected every three years.

There is also an Advisory Board, which is chaired by the immediate Past-President. The Advisory Board is promoting the activities of the Society.

### INFORMATION

More information about the Society can be obtained on the IRPS Home Page: [www.canberra.edu.au/irps](http://www.canberra.edu.au/irps)



# INTERNATIONAL RADIATION PHYSICS SOCIETY

Radiation Physics is the branch of science that deals with the production and nature of ionizing and non-ionizing radiations, and with their interactions with matter.

Radiation Physics is an interdisciplinary subject covering many applications and areas of scientific endeavour.

The International Radiation Physics Society (IRPS) is a professional scientific organisation, which was founded in 1985, following a series of International Symposia on Radiation Physics.

## Join the IRPS

– A Dynamic Professional Society –

and become a member of the Global Radiation Physics Family

For information, please go to [www.canberra.edu.au/irps](http://www.canberra.edu.au/irps)

### ADVANTAGES OF MEMBERSHIP

Regular Symposia are held in interesting locations.

Proceedings of these Symposia are published in refereed journals, including in *Radiation Physics and Chemistry* and in *Nuclear Instruments and Methods*.

The *IRPS Newsletter*, published quarterly, includes:

- Membership information
- Details of forthcoming events
- Interesting news items
- Reports on conferences
- Research articles

The membership fees are modest (see below)

There are excellent opportunities for interaction with a wide spectrum of scientists from both developed and developing countries

### MEMBERSHIP INFORMATION

Full membership is open to all scientists involved in teaching, research or applications of radiation physics

Student membership is open to students who are studying towards a degree in radiation physics

Corporate membership is open to companies and organisations

### MEMBERSHIP FEES (effective 1 January 2007)

The three-year membership dues are \$75 and \$25 for full voting members and students, respectively, from developed countries. For those from developing countries the corresponding fees are \$30 and \$10 for full voting members and students, respectively. For more information, please refer to the IRPS Home Page ([www.canberra.edu.au/irps](http://www.canberra.edu.au/irps)).





7. The IRPS has no entrance fee requirement, only triennial (3-year) membership dues. In view of the IRPS unusually low-cost dues, the one-year dues option has been eliminated (by Council action October 1996), commencing January 1, 1997. Also, dues periods will henceforth be by calendar years, to allow annual dues notices. For new members joining prior to July 1 in a given year, their memberships will be considered to be effective January 1 of that year, otherwise January 1 of the following year. For current members, their dues anniversary dates have been similarly shifted to January 1.

Membership dues (stated in US dollars - circle equivalent-amount sent):

Full Voting Member: 3 years	Student Member: 3 years
Developed country \$75.00	Developed country \$25.00
Developing country \$30.00	Developing country \$10.00

Acceptable modes of IRPS membership dues payment, to start or to continue IRPS membership, are listed below. Please check payment-mode used, enter amount (in currency-type used), and follow instructions in item 8 below. (For currency conversion, please consult newspaper financial pages, at the time of payment). All cheques should be made payable to :

**International Radiation Physics Society.**

( For payments via credit card - <http://www.irps.net/registration.html>)

[ ] *(in U.S. dollars, drawn on a U.S. bank):* Send to Prof. Richard H. Pratt, Dept. of Physics and Astronomy, University of Pittsburgh, Pittsburgh, PA 15260 USA.

Amount paid (in U.S. dollars) \_\_\_\_\_

[ ] *(in U.K. pounds):* Send to Prof. Malcolm J. Cooper, (IRPS Treasurer), Physics Dept., University of Warwick, Coventry, CV4 7AL, U.K.. Bank transfer details: Account number: 30330701. Bank and Branch code: Barclays, code 20-23-55. Eurochecks in U.K. pounds, sent to Prof. Cooper, also acceptable.

Amount paid (in U.K. pounds) \_\_\_\_\_

[ ] *(in Indian rupees):* Send to Prof. S.C. Roy, Department of Physics, Bose Institute, 93/1 Acharya Prafulla Chandra Road, Calcutta 700 009, India. Bank transfer details: Account number: SB A/C No. 9922, Canara Bank, Gariahat Branch, Calcutta.

Amount paid (in Indian rupees) \_\_\_\_\_

[ ] *(in Hungarian forints):* Send to Prof. Denes Berenyi, Dir., Institute of Nuclear Research of the Hungarian Academy of Sciences, Bem ter 18/C, PF. 51, H-4001 Debrecen, Hungary.

Amount paid (in Hungarian forints) \_\_\_\_\_

8. Send this Membership Registration Form **AND** a copy of your bank transfer receipt (or copy of your cheque) to the Membership Coordinator:

Dr Elaine Ryan  
 Department of Radiation Sciences  
 University of Sydney  
 75 East Street, (P.O. Box 170)  
 Lidcombe, N.S.W. 1825, Australia  
 email: [e.ryan@usyd.edu.au](mailto:e.ryan@usyd.edu.au)

9. \_\_\_\_\_  
 (Signature)

\_\_\_\_\_  
 (Date)