International Organization for Medical Physics

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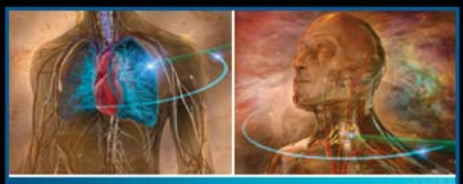

7 November

International Day

of Medical Physics

Medical Physics World

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Medical Physics World

Table of Contents

Message from the Editor

Virginia Tsapaki, Chair, editor eMPW

Dear friends and colleagues

This is the last issue of eMPW for 2012, a very challenging year, indeed. We are very proud since the new release has been already presented in 4 large conferences in less than 6 months, the annual meeting of AAPM in Charlotte, NC, USA, in European Medical Physics Conference in Sofia, the Balkan conference of Radiologists and the Asia-Oceania Congress of Medical Physics in Chiang Mai, Thaland. Challenging enough the new eMPW was not only presented in various parts of the world with the great help of various members of IOMP, but also distributed in most of these conferences. Acknowledging the immense efforts of all people involved, I take this opportunity to sincerely thank all of them for their help in this great challenge.
I have to admit that the very positive feedback that we received encouraged us to work even harder to present to you an even richer issue. There are a lot of news and reports in this issue and I encourage you to go through the eMPW pages to learn about our colleagues from USA but also from Thailand and Bagladesh. I would also encourage national and regional organizations to send to us information or report on any important event. Please do not forget that we value your feedback so please do not hesitate to contact us if you would like to make any suggestions or submit brief papers on your scientific or educational work that would be of interest to our members. Let me remind you our Calendar Editor, Ibrahim Duhaini (duhaini@yahoo.com). Please contact him for scientific or international events so as to be included in eMPW.
Last but not least I would like to draw your attention to the decision of IOMP to celebrate the International Day of Medical Physics (IDMP) on November 7 (please refer to page .. and the announcement of the Task Group for the International Day of Medical Physics by Prof. John Damilakis). 7th November is the day Marie Curie, a pioneer not only for women in science but also in the field of chemistry and physics as a whole was born. Marie Curie worked closely with her scientist husband , Pierre Curie and they discovered two new elements: polonium and radium. Marie Curie was the first person to be awarded two Nobel Prizes (one in physics and later, one in chemistry). Marie Curie's work led to the use of X-rays in medicine and laid the foundation for the new discipline of atomic physics. Marie Curie is best known for her pioneering research, developing a theory of radioactivity, devising isotope isolation/purification methods, and for the discovery of Radium and Polonium. At the time of her research, the dangers of ionising radiation were unknown; Marie did not wear protective clothing or employ any other safety practices in her research, working out of what was essentially a shed and even carrying test tubes of radioactive material in her pockets. A lot of events will be prepared to celebrate this day. As a closing remart I am quoting Marie Curie own words: "You cannot hope to build a better world without improving the individuals. To that end, each of us must work for our own improvement and, at the same time, share a general responsibility for all humanity, our particular duty being to aid those to whom we think we can be most useful"

IOMP ExCom

IOMP OFFICERS

IOMP CHAIRS

MEDICAL PHYSICISTS ARE PLAYING A MORE IMPORTANT ROLE IN PATIENT MANAGEMENT THAN BEFORE.

President's Message

Kin Yin Cheung, October 2012

50 yeas of IOMP

IOMP was inaugurated 50 years ago on January 1, 1963 with four founding member organizations from Canada, Sweden, United Kingdom and United States. The Organization is launching a number of activities to celebrate its 50th anniversary in 2013. The highlight of the celebration will take place during the 20th International Conference of Medical Physics (ICMP2013) which will be held in Brighton, UK during 1-4 September 2013. Medical physicists from all over the world will meet at Brighton to celebrate this important milestone and to review the achievements and contributions of medical physicists to healthcare in the past 50 years and to share visions on strategy for future advancement of the profession. Issues of particular interest shall include education and professional training, manpower and service models and awareness of medical physicists in the community.

Increasing role of medical physicists in healthcare

Medical physicists are playing a more important role in patient management then before. There are risks as well as opportunities associated with this development. The risk is that medical physicists are subject to more challenges and higher level of responsibilities then before and that they are obliged to the professional liability for the service they provide. On the other hand, they have finally found their own professional identity in healthcare and the opportunity to expand the scope of their services and to develop more appropriate service models to better meet clinical needs. To be able to face increasing professional challenges, there is a need for medical physicists to establish and formalize the infrastructure for the education and training of future medical physicists in every country. An appropriate accreditation system should also be established for quality assurance of the education and training programmes. Likewise, a system of professional certification of the medical physicists upon completion of their clinical training should be established. Guidelines and recommendations for education and training of medical physicists and professional certification models are being developed with IOMP involvement by international organizations such as International Atomic Energy Agency and International Medical Physics Certification Board (www.impcb.org). Such guidance and the models as established by other healthcare professionals such as medical doctors and pharmacists could serve as useful references for national member organizations in development of the profession.

International Day of Medical Physics

IOMP is working to establish the International Day of Medical Physics with the objective of increasing the public awareness of medical physics. The idea was first raised to IOMP by Dr. Simone Kodlulovich of ALFIM. Since then, a number of proposals on the day have been received. Among them was November 8, the day when Wilhelm Conrad Roentgen discovered of X-rays. This day has however been named by the radiologists as International Day of Radiology. The Executive Committee has finally selected November 7, birthday of Marie Sklodowska-Curie as the International Day of Medical Physics. A series of educational, professional and scientific activities are being organized to mark this day in 2013. Dr. John Damilakis, chairman of Education & Training Committee is planning the activities which will involve the regional and national member organizations.
Details of the activities will be announced. Please keep an eye on the IOMP website.

IOMP website

Thanks to the hard work of Dr. Virginia Trapaki, chair of IOMP Website Subcommittee and her team, the content of IOMP website has very much been enriched. Amongst the new information posted is a comprehensive historical record of IOMP compiled by the chair of History Subcommittee, Dr. Azam Niroomand-Rad with the help of many people. Virginia will continue to improve the content and design of the website. I challenge everyone to visit to the site and give any feedback you may have.

IOMP journal

As one of the initiatives to promote the advancement of medical physics by providing a platform for sharing of knowledge and vision, IOMP has decided to establish a journal of her own. The tentative title of the journal is "Medical Physics International". The journal will initially focus on educational and professional topics and conference proceedings without competing with existing journals in the field of medical physics. The journal will be published electronically starting in 2013. The journal editor designate, Dr. Slavik Tabakov is leading a task group to prepare the launching of the journal.

Collaboration with IRPA

IOMP and IRPA have in September 2012 jointly signed a statement of collaboration on the use of ionizing radiation in healthcare. The document defines the scope and format of collaboration between the two organizations in promoting and enhancing radiation protection culture in healthcare and in fostering medical physics in developing countries. The collaborative statement is posted on the IOMP website and can also be found in this issue (page 10).

From the desk of Secretary-General, IOMP

Madan M Rehani, PhD, International Atomic Energy Agency (IAEA)

IOMP is going to make quantum jump with a number of new initiatives in 2012 that will yield results in 2013. A new journal Medical Physics International is going to be released in March/April 2013. Education & Training Committee is going to launch e-learning material, provided through IOMP website, list of Continuing Professional Development material worldwide, information on educational projects and grants. Also surveys are planned to access educational needs. The eMPW that you are reading has new look and is providing diverse material of interest to members. Although primarily it is in electronic form, some printed copies are produced for distribution at important conferences. We encourage members to write their experiences and submit to Editor. Young Scientist award has been made annual now and announcement for 2012 and 2013 award is already available on IOMP website. We have decided to celebrate 7th December each year as International day of medical physics. A number of activities are planned.

We are also announcing updates on IOMP website periodically to all national member representatives. In coming months we are going to activate self-registration and subscription to updates on IOMP website. Emails for two updates were sent and third is going out soon.

The information above does not reflect all activities undergoing and readers are encouraged to go through report of individual committees.

Science Committee Report

William Hendee, Chair, IOMP Science Committee

The International Conference on Radiation Protection in Medicine will be held in Bonn, Germany, on December 3-7, with registration for the meeting open on December 2. Detailed information about the Conference is available at http://www-pub.iaea.org/iaeameetings/41578/Radprom2012. The Conference is organized by the International Atomic Energy Agency, cosponsored by the World Health Organization, and hosted by the Federal Republic of Germany. It builds on the earlier conference on the same theme held in Malaga, Spain in 2001, and the conference will examine progress made since that time on an international action plan to guide protection efforts in radiation medicine. Moreover, the conference will examine present activities and future directions for radiation protection in medical imaging and radiation oncology, including related topics such as justification of medical procedures, benefit/risk assessment and communication, the impact of new imaging and treatment technologies on patient and personnel protection, the manufacturer's role in radiation protection, and radiation protection solutions in healthcare settings with limited infrastructure. The theme of the conference is 'setting the scene for the next decade,' and the mission is to establish goals for radiation protection in 2020.

The 20th International Conference on Medical Physics (ICMP-2013) will be held in Brighton, UK, on September 1-4, 2013. Detailed information about the Conference is available at http://www.icmp2013.org/. The ICMP-2013 is hosted by the Institute of Physics and Engineering in Medicine. The Conference will celebrate the 50th anniversary of the International Organization of Medical Physics (IOMP). The IOMP was formed in January 1963 with 4 affiliated national member organizations from the United Kingdom, Canada, Sweden and the United States. The 50 years of the IOMP have been witness to remarkable developments in the application of physics and engineering to health care and to the wellbeing of patients. The pace of these developments has quickened over the past couple of decades and shows no signs of leveling off, at least in the near future. For this reason, the theme for ICMP-2013 is 'New Horizons - Global and Scientific'. Included in the program are sessions on medical imaging, radiation therapy, radiation protection, radiation dose and risk, emerging medical devices, clinical engineering, education and training, professional issues, noninvasive diagnostics, and physiological measurements, and several others. Young investigator awards will be presented, together with founders' awards and IOMP awards for outstanding science and service in medical physics.

In the United States and possibly in some other countries, risks of the use of medical radiation are emphasized with little attention to the benefits accruing to patients through that use. This emphasis is raising doubts in the minds of some patients, parents and families about the desirability of medical radiation use, and they are questioning and even rejecting needed medical procedures out of fear of the risks. This is the consequence of an over-emphasis on risks and an under-emphasis of benefits. This issue is on the agenda of the Science Committee, and any action resulting from the committee's deliberations will be directed to the IOMP Executive Committee.

ICMP 2013
The International Conference on Medical Physics
50 years
1st - 4th September 2013 • Brighton International Centre

The ICMP 2013 organising committee, The International Organization of Medical Physics (IOMP), the European Federation of Organisations for Medical Physics (EFOMP) and the Institute of Physics and Engineering in Medicine (IPEM) are delighted to invite you to attend the International Conference on Medical Physics 2013 (ICMP 2013).

This is going to be an exciting and significant event in the Medical Physics calendar, and will take place in Brighton from the 1st – 4th September 2013 at the Brighton Conference Centre, Brighton.

Education and Training Committee: Key Priorities and Challenges

John Damilakis, Chair, IOMP Education and Training Committee

One of the key priorities of the IOMP education and training committee is to offer courses not only in connection with the conferences organized by IOMP but also in close cooperation with training facilities worldwide. IOMP organizes the World Congress on Medical Physics and Biomedical Engineering once every three years and the International Congress of Medical Physics which is held between world congresses. The next International Congress will be held in Brighton, UK, September 1-4, 2013. The education and training committee has submitted an attractive program to the conference organizing committee to cover topics such as difficulties associated with radiation protection education and training, accreditation of programmes and CPD schemes, education using on-line modules and medical physics as a teaching subject for undergraduate students.

Training in Medical Physics is challenging due to rapid technological advances and the science involved in modern medical imaging and radiotherapy techniques. Among the advantages of on-line learning material are the easy access and the ease of content update. The committee will upload interactive presentations on the IOMP website. Enrichment of the committee's webpage is of importance. This will be done by:

- providing information on educational projects and grants
- providing a list with CPD courses worldwide
- providing a global list with educational resources
- updating the list with graduate educational programs

Cooperation with international organizations such as IAEA and WHO on educational issues is among our priorities. IOMP and the education and training committee contributed to the meeting of the IAEA project entitled 'Strengthening Medical Physics in Radiation Medicine', organized in Vienna, 29 October – 1 November. During the meeting, material was prepared in the form of (a) 2 leaflets, one for the general public and the other for health administrators and (b) a poster on the roles and responsibilities of medical physicists in the health sector. This material will be useful for our initiatives for the International Day of Medical Physics (IDMP). Information about the IDMP can be found below.

International Day of Medical Physics – 7 November 2013

Prof. John Damilakis, On behalf of the Task Group for the International Day of Medical Physics

As health care technologies are evolving rapidly and pioneer radiotherapy techniques have considerably improved the outcome of cancer therapy, medical physicists become more and more important in the clinical environment. Medical physicists also play a key role in medical research and development of new medical technology. Another key activity of medical physicists is education and training of healthcare professionals in medical radiation protection and medical technology. Nevertheless, the general public is not aware of the critical role medical physicists play in providing services in medical, educational and research institutions. It is important to inform the public on the role and responsibilities of medical physicists and draw attention of the media to the important role that medical physics play in the health care system.

To raise awareness of our profession, the International Organization for Medical Physics will celebrate annually the International Day of Medical Physics (IDMP) on November 7, an important date in the history of medical physics. On that day in 1867, Marie Curie, known for her pioneering research on radioactivity, was born in Poland. ALFIM proposed the idea of celebrating the IDMP and IOMP decided to take the initiative to organize this event. We will celebrate the first IDMP on November 7, 2013. All regional and national organizations are invited to participate by organizing activities such as lectures open to the general public and press appearances.

Medical Physics International – a new Professional Journal of IOMP

Slavik Tabakov, Perry Sprawls

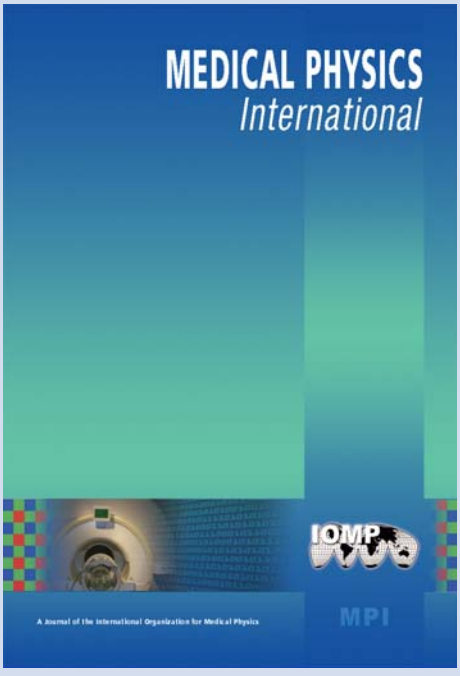
Co-Editors Medical Physics International Journal

The mission of IOMP is to advance medical physics practice worldwide by disseminating scientific and technical information, fostering the educational and professional development of medical physics and promoting the highest quality medical services for patients. In this line IOMP has decided to start a new Journal - Medical Physics International (MPI), which will address specifically professional and education/training issues. MPI will be open access, distributed to all 20,000 IOMP members as a free e-Journal. The Journal will collaborate closely with the IOMP Bulleting, the Medical Physics World. MPI will also have the option for paper-prints of some issues.

An IOMP Work Group was formed during the Summer of 2012 to discuss the establishment of the Journal, including Slavik Tabakov (WG Chair, IOMP V-P), KY Cheung (IOMP President), Madan Rehani (IOMP, S-G), William Hendee (IOMP Scientific Com Chair), Tae Suk Suh (IOMP Publication Com Chair) and Virginia Tsapaki (IOMP MPW Board Chair). The WG agreed on the name of the Journal and its web domain : www.mpijournal.org . As agreed by the IOMP Executive Committee, initially MPI will be a bi-annual Journal and its first two issues are planned for March and August 2013. Journal Editor is Slavik Tabakov, Co-Editor Perry Sprawls, the Editorial Board includes the Work Group members, and Technical Editors are Magdalena Stoeva and Asen Cvetkov. The main topics of the Journal will be organised in the following areas:

- IOMP Publications - this section will include specific publications of the Organisation;
- Professional topics - here we shall welcome papers related to medical physics professional development, information from Societies and Federations, etc;
- Education/Training topics - here we shall welcome papers related to new courses, new materials, e-learning, training schemes, etc;
- Invited lectures - here we shall invite papers from prominent colleagues on the development of a particular method or equipment. This information will be useful to many teaching colleagues;
- Technology Innovation - here we shall include papers from manufacturers about their new equipment and activities (including paid advertisement information). These papers could also be interesting for a broad spectrum of colleagues and will provide good information for teaching materials and CPD courses;
- How to - here we shall welcome papers related to the specific performance of various methods, protocols, measurements, etc – i.e. useful practical information;
- Varia – here we shall include various information related to new books and publications; PhD abstracts; Letters to the Editor; Conference Proceedings, etc.

The MPI Journal is now soliciting papers on topics in the education/training of medical physicists and on topics related to medical physics professionalism and professional activities and concerns. Papers should be up to 10 journal pages (approximately 8000 words reduced by the space occupied by tables and illustrations). Papers should be presented as Word documents and should include an unstructured abstract of no more than 100 words. MPI also invites abstracts of Medical Physics PhD theses (up to 200 words per PhD these). A template for the Journal is available from the MPI web site.



Statement of Collaboration between IOMP and IRPA on the Use of Ionizing Radiation in Health Care

1. INTRODUCTION

In 2010 the International Organization for Medical Physics (IOMP) and the International Radiation Protection Association (IRPA) signed a Memorandum of Understanding as a platform for further joint actions. IOMP and IRPA believe that, whilst each has its specific contributions to the use of radiation in healthcare, collaboration between the two organizations will contribute to the overall joint goal of the safe use of radiation in healthcare without compromising on quality of care.

2. OBJECTIVES

This document refers to the following areas of collaboration:

a) Develop Guidance for Fostering and Enhancing Radiation Protection Culture in Health Care

b) Fostering Medical Physics in Developing Countries

3. GENERAL REMARK: RADIATION PROTECTION IN HEALTH FACILITIES

In September 2011, the IAEA Board of Governors approved a new document, Safety Requirements: "Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards"(widely referred to as the BSS). The new BSS has been published as 'General Safety Requirements Part 3 (Interim)' in the IAEA Safety Standards Series. This Interim Edition has been submitted to the other potential sponsoring organizations for their approval. Following their decisions on its approval, it will be issued as a jointly sponsored standard. It will replace the 1996 version of the *International Basic Safety Standards for the Protection against Ionizing Radiation and for the Safety of Radiation Sources* (BSS) [IAEA Safety series 115].

The objectives of the collaboration between IOMP and IRPA are based on the terminology and the responsibilities of health professionals as described in the new BSS. With regard to the above objectives the BSS defines the following persons having functions or responsibilities in radiation protection in a clinical environment:

Medical Physicist (MP):

'A health professional, with education and specialist training in the concepts and techniques of applying physics in medicine, competent to practice independently in one or more of the subfields (specialties) of medical physics'

This definition is the equivalent to the IOMP definition of a medical physicist working in a clinical environment (IOMP Policy Statement (1)

Radiation Protection Officer (RPO):

'A person technically competent in radiation protection matters relevant for a given type of practice who is designated by the registrant, licensee or employer to oversee the application of relevant requirements'.

The range and complexity of tasks requiring the involvement of an RPO varies and so a wide range of persons come under the generic classification 'RPO'. Where the duty involved is limited in scope then professionals other than medical physicists (2) or health physicists may undertake the duties of the RPO (the term Radiation Protection Supervisor is sometimes used for this category).

Qualified Expert (QE):

'An individual who, by virtue of certification by appropriate boards or societies, professional licences or academic qualifications and experience, is duly recognized as having expertise in a relevant field of specialization, e.g. ***medical physics, radiation protection****, occupational health, fire safety, quality management or any relevant engineering or safety specialty.'*

a) The **Qualified Expert in Medical Physics** corresponds to the Certified Medical Physicist (CMP) as described in the Policy Statement 2 of the IOMP (3). This document addresses the education and professional training requirements, and the professional certification. In particular, the need for appropriate education and training for every subfield of medical physics, including Medical Health Physics (Radiation Protection in Medicine), is emphasized.

Another term equivalent to the Qualified Expert in Medical Physics, is the Medical Physics Expert (MPE) as it is used in the draft EU-BSS (4).

b) For the **Qualified Expert in Radiation Protection** the term "Radiation Protection Expert (RPE)" is widely used (5) (another term used is Radiation Protection Adviser). Compared to the RPO the RPE covers a much broader range of responsibilities, including giving advice. The IRPA has defined an RPE as:

'1. An RPE is a person having education and/or experience equivalent to a graduate or masters degree from an accredited college or university in radiation protection, radiation safety, biology, chemistry, engineering, physics or a closely related physical or biological science; and

2. who has acquired competence in radiation protection, by virtue of special studies, training and practical experience. Such special studies and training must have been sufficient in the above sciences to provide the understanding, ability and competency to

– anticipate and recognize the interactions of radiation with matter and to understand the effects of radiation on people, animals and the environment;

– evaluate, on the basis of training and experience and with the aid of quantitative measurement techniques, the magnitude of radiological factors in terms of their ability to impair human health and well-being and damage to the environment;

– develop and implement, on the basis of training and experience, methods to prevent, eliminate, control, or reduce radiation exposure to workers, patients,

the public and the environment.

3. In most countries the competence of radiation protection experts needs to be recognized by the competent authority in order for these professionals to be eligible to undertake certain defined radiation protection responsibilities. The process of recognition may involve formal certification, accreditation, registration, etc.'

All MPs working in radiation medicine have training in radiation protection and many act as RPOs in health facilities as part of their duties as MPs. One of the subfields of MPs is 'Medical Health Physics (Radiation Protection in Medicine)' and MPs trained in this specialty are RPEs and undertake the responsibilities of the Qualified Expert in Radiation Protection and those RPO duties requiring a higher level of training and greater experience in radiation protection.

Practices differ within and between countries, however in most health facilities all radiation protection services and advice are provided by MPs, whilst in some situations both RPEs, who are health physicists but not MPs, and MPs are involved. The competence required to carry out a particular RPO or QE role in health care facilities is exactly the same whether undertaken by a MP or a health physicist.

4. FOSTERING AND ENHANCING RADIATION PROTECTION CULTURE IN HEALTH CARE

4.1 Background

IRPA is currently engaged in an initiative to develop guidance for radiation protection professionals to foster and enhance a culture of radiation protection in their workplace among their management and co-workers. This initiative has particular importance in health care for the protection of patients as well as staff in health care facilities. It is crucial to the success of this effort to engage the participation of MPs in developing guidance specifically applicable to health care (2).

Technology development in diagnostic radiology, interventional fluoroscopy, nuclear medicine and radiation therapy has introduced new challenges for radiation protection of patients and staff. The need for radiation protection services is especially critical in developing countries. A particular issue is the scarcity of MPs, RPOs and RPEs in the health care field. There is a need for health care management to recognize and understand the need for radiation protection for patients, staff and the public in connection with the use of radiation devices and radioactive materials in the context of excellent health care. Health care providers, physicians, nurses, medical physicists and radiological technologists must all be appropriately educated and informed in the principles of radiation protection.

This requires a commitment for funding and support for adequate Medical Physics and Radiation Protection staff. This commitment and support can be enhanced by fostering a Radiation Protection Culture in the health care institution. The health care practitioners themselves, doctors, nurses and other medical staff must realize the importance of good radiation protection practice in their daily work activities. Thus, it is important to foster and enhance a culture of radiation protection among all those involved in providing medical radiological services.

4.2 Proposed Collaboration to foster and enhance radiation protection in healthcare

IRPA and IOMP, working with other relevant organizations, should take the following actions directed at producing guidance for radiation protection and medical physics professionals:

4.2.1 **Workshops:** Conduct workshops as needed involving IRPA and IOMP members and appropriate stakeholders to determine the elements for a definition of RP culture, elements or traits of such a culture, the criteria for assessing the success of the effort, the assessment tools to be used, methods for engaging stakeholders, and the role of radiation protection and medical physics professionals.

4.2.2 **Develop and conduct a plan of work:** Engage a working group of radiation protection and medical physics practitioners in drafting a discussion document covering the topic as detailed in 4.2.1 above and the implementation of the new BSS in health care facilities. Make the document available to the IRPA and IOMP membership for comment and discussion and feed back the results of the discussions to the working group.

4.2.3 **Immediate Goals:** Produce a draft document for discussion at the IRPA13 Congress in Glasgow, May 2012. Follow this with another workshop on Radiation Protection Culture before the end of 2012, the objective of which will be to present and discuss the first draft of the IRPA Guiding Principles on Radiation Protection Culture.

4.2.4 **Outcome:** Refine the document to produce guidance for radiation protection and medical physics professionals in fostering and enhancing a culture of radiation protection in the health care setting in which they work.

5. FOSTERING MEDICAL PHYSICS IN DEVELOPING COUNTRIES

5.1 Background

In low and medium income countries there is a general lack of medical physics and radiation protection services in support of health care services. There should be increased awareness of medical physics by governments and health authorities due to the increasing significance of cancer in developing countries and the development of imaging.

MPs by virtue of their education and professional training are key players in radiation medicine, particularly in radiation treatment of cancer patients (e.g. imaging, dosimetry, treatment equipment, QA, treatment planning, treatment delivery methods, uncertainty analysis, radiation protection, and related activities).

The highest relevance of radiation protection in developing countries relates to the medical application of ionizing radiation in cancer management (7). All health facilities using ionizing radiation require the services of MPs and these MPs can, with appropriate training and experience, undertake all the required RPO's roles. Hence, all organizations involved in the radiation protection in developing countries should form an alliance to promote the profession of medical physics.

5.2 Proposed Collaboration to Foster Medical Physics in Developing Countries

IRPA and IOMP, working with other relevant organizations, should take the following actions:

5.2.1 Guidance. Issue joint guidance and recommendations, on the implementation of the revised BSS with respect to health care and health facilities, including the respective roles, as defined in the revised BSS, of the MP and RPO in health facilities.

5.2.2 Professional Standards. Pursue with all relevant authorities the implementation of schemes for the education, professional training, certification and State approved registration of medical physicists to undertake the roles of MP and RPO in healthcare as required in the BSS.

5.2.3 Training. Develop a plan to co-ordinate and undertake joint training courses and programmes in radiation protection in healthcare which ensure that all MPs when being involved in radiation protection against public or occupational exposures have appropriate radiation protection training and expertise

5.2.4. Role of Medical Physicists and Radiation Protection Officers. In agreement with the international standards promote the role of the MPs and RPOs in radiation protection to governments, health authorities and hospitals. Ensure that all relevant health care facilities have proper access to competent MPs and RPOs.

5.2.5 Co-operative International Network. IRPA to support the IOMP in the creation and development of a cooperative network (Hospital, University, Manufacturers, international organizations such as IAEA, WHO,…) at major radiotherapy reference sites in each developing country:

- To establish training programs for professional training of MPs.
- To establish a system of professional certification of MPs. IOMP is taking a leading role in establishing an international medical physics certification board to develop a certification system that can be implemented globally. IRPA will collaborate in relation to competence in radiation protection.

IOMP: Kin Yin Cheung, President & Fridtjof Nüsslin, Past President

IRPA: Renate Czarwinski, President & Kenneth R Kase, Past President

München, November 2012

(1) IOMP Policy Statement 1 "The Medical Physicist: Role and Responsibilities"

(2) Health physicist by definition is a professional in charge of the radiation protection aspects of an activity that involves the use of radiation sources of any kind. Medical Health Physicists (MHP) are health physicists working in a medical institution. MP and MHP have overlapping responsibilities except patient care which is the sole responsibility of MP. Medical health physics is a subfield of medical physics.

(3) IOMP Policy Statement 2 "Basic Requirements for Education and Training of Medical Physicists"

(4) Draft Euratom Basic Safety Standards Directive, 2010

(5) See ILO's International Standard Classification of Occupations (ISCO) which includes a Unit Group in which the RPE is given as an example of registered occupations http://www.ilo.org/public/english/bureau/stat/isco/isco08/index.htm

(6) As part of the management system in a health care organization the BSS demands a safety culture which may be considered equivalent to the term radiation protection culture. The definition reads: 'The assembly of characteristics and attitudes in organizations and individuals which establishes that, as an overriding priority, protection and safety issues receive the attention warranted by their significance.'

(7) Even in the developing regions of the world combating cancer is gaining increasing attention and challenges the health care systems:

- More than 10 million new cancer patients annually are observed

- More than 50% of cancer patients benefit from radiotherapy (Cure&Palliation)

- In 50% of cured cancer patients radiotherapy is involved.

-70% of all cancer deaths are from LMI countries.

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Source: www.IOMP.org

From the Awards and Honours Committee

Tomas Kron, Peter MacCallum Cancer Centre, Melbourne Australia

IOMP is now calling for nominations for the IUPAP Young Scientist Award in Medical Physics. This award is established and funded by the International Union of Pure and Applied Physics (IUPAP), is given annually and consists of EUR 1000.- We are now calling for nominations for two awards: 2012 (deadline end of December) and 2013 (deadline March 1, 2013). The awards will be given at the International Conference for Medical Physics in Brighton, September 1 to 4, 2013. Nominations to the chair of the AHC, Tomas Kron (Tomas.Kron@petermac.org). More details on the IOMP webpage: www.iomp.org

The committee also is currently developing a proposal to create a new award to honour persons who have contributed to Medical Physics and IOMP over many years. We are discussing to recognise these colleagues as "Fellow of IOMP".

As always, the committee is interested to hear from colleagues. Please write to Tomas.Kron@petermac.org or contact any member of the committee.

Publication Committee Report, PC

Tae Suk Suh. Ph.D, PC Chair

I am writing a brief report about the activities done by Publication committee in the past five months.

First, the members of PC were determined. The members of PC were chosen after having a discussion with IOMP ExCom, especially Prof. Hendee, the former PC chair.

The new PC members have been remarkable in their role in publication work.

Also, I am glad to be a member of IOMP web committee (Chair, Virginia Tsapaki) and Journal work group (Chair, Slavik Tabakov). The close collaboration with web committee and Journal work group will be helpful in carrying out some of PC tasks.

PC have discussed about possible future collaboration with Taylor and Francis (T&F) in IOMP series publication. Although there was no particular content to report at this moment, one of the problems that I want to make note of is that medical physicists in developing nations have difficulty with getting access to IOMP series. The PC is currently seeking for a solution to this problem with PRC. PC members have been still working on publishing regional and national history of medical physics. PC members also consider holding a scientific writing workshop in PC.

Recently, by the suggestion from IOMP ExCom and Sub committees, the new PC members are trying to carry on some works initiated by the past PC members (e.g. the collaboration between IOMP and WHO or IAEA). The members of PC will review the past PC works, discuss about the future direction of PC, and sort out priorities in its action plan regarding urgent issues such as IOMP series publication, new International Journal, easy access to the journal or information for the medical physicists in developing countries.

The first PC meeting was held on Oct. 28 via e-mail. The first discussion topic was how to collaborate with T&F Group under the agreement between IOMP and T&F. After the evaluation of all opinions from PC members, a specific action will be initiated. Some other current issues such as Library program and web collaboration will be the next discussion topic.

Professional Relations Committee Report, PRC

Raymond Wu, PhD, PRC Chair, and Allan Wilkinson, PhD, Chair of the Library Program Subcommittee

The International Library Subcommittee reported the ongoing work of contacting the 77 libraries to verify the status if they are active. The previous issue of the eMPW has the list of all libraries. This report lists all the non-responding custodians grouped by geographic regions for easier reference.

During the past years we made the transition to supplying current issues of Medical Physics and the SRP Journal in electronic format. This necessitated polling the libraries on the active list to ensure that they were still active and able to receive e-journals. Emails were sent twice if necessary; twenty one of the custodians on the list responded. Lists of the non-responders are shown below. We suspect the email addresses on file are outdated. If you know the correct email address for any person on the list, please contact the staff person for the Library Program Subcommittee Jennifer Hudson. Her email is Jennifer@aapm.org. Alternatively, you may contact the chair of the Library Program Subcommittee ("Allan Wilkinson, Ph.D." <wilkina@ccf.org>) or the chair of the Professional Relations Committee ("Raymond K Wu, PhD" <raykwu@gmail.com>). The non-responder can contact directly Jennifer or the committee chairs before the end of the year to avoid being removed from the Library Program. Several libraries and hardcopy books are still outstanding awaiting library choices.

NAME	INSTITUTE	LOCATION	Outdated email
African Region			
Joseph Gonsu, MD	Radiology & Radiation Therapy	Yaounde,Cameroon	gonsufj@yahoo.fr
Nimrod M. Tole, PhD	University of Nairobi	Nairobi, Kenya	none
Mohammed Khalil Saeed	Radiation & Isotopes Center Khartoum	Khartoum, Sudan	mohamedrick@yahoo.com
Mubabga Jere	MPOROKOSO DISTRICT HOSPITAL	Mporokoso, Zambia	ddvandel@zamnet.zm
Asian Region			
Dr. Pei Hong Lei	First Hospital of Chang Zhou	Chang Zhou, China	jtw316@sina.com
Zhou Guohua	University of Science & Technology of China Library	Hefei, China	zgh@ustc.edu.cn
Prof. He Shao-Qin	Cancer Hospital of Fu Dan University	Shanghai, China	hedro@online.sh.cn
Idam Arif, PhD	Institut Teknologi Bandung	Bandung, Indonesia	idam@fi.itb.ac.id
Mr. Natarajan Balaji	Padhar Hospital	Betul, India	padhos@sancharnet.in
Sanjeev K Vashisht	Jawaharlal Nehru Cancer Hospital & Research Centre	Bhopal, India	jncancer@sancharnet.in
Dr. R. Ravichandran	Kidwai Memorial Institute of Oncology	Bangalore, India	kidwai@karonic.in
R. Ananda Raju	St John's National Academy of Health Science	Bangalore, India	zlclibrary@rediffmail.com
Dr. Chander Mohan Pathak	Post Graduate Inst of Medical Education & Research	Chandigarh, India	Chander_Pathak@sify.com
Dra. Nurlely K Hardiwijaya	University of Indonesia	Jakarta, Indonesia	djarwani@indo.net.id or nurlely@fisika.ui.ac.id
Ms. Kamlesh Passi	MD Oswal Cancer Treatment & Research Fndn	Ludhiana, India	passi_kamlesh@yahoo.com
Dr. Patrik Kumar	All India Institute of Medical Sciences	New Delhi, India	drpratikkumar@hotmail.com
Dr. Surinder Koul	Sher-I-Kashmir Institute of Medical Sciences	Srinagar, India	root@skims.ren.nic.in

V. Newton,Head Library Ser/Dr. Paul Raveendran	Christian Medical College Hospital	Vellore, India	dodd@cmcvellore.ac.in
U Aung Thaung	Yangon General Hospital	Yangon, Union of Myanmar	none
P. P. Chaurasia	B. P. Koirala Memorial Cancer Hospital	Bharatpur, Nepal	ppchaurasia@yahoo.com
Saeed-Ur-Rahman	Nuclear Medicine,Oncolocy&Radiotherapy Institute	Islamabad, Pakistan	nori@isb.paknet.com.pk
Mr. Muhammad Iqbal Akhtar	Institute of Nuclear Medicine & Oncology	Lahore, Pakistan	inmol@1hr.paknet.com.pk
Dr. Matiullah	Pakistan Institute of Engineering&Applied Sciences	Islamabad, Pakistan	matiullah@yahoo.com
Mr. Saqib Rafique Khan	Khan Teaching Center	Mardan, Pakistan	the_national_library@yahoo.com
Divina C. Tenorio	Physics, University of San Carlos	Cebu, Philippines	sciencelib@usc.edu.ph
Pius Rodney Fernando	Faculty of Health Care Science, Eastern University	Batticaloa, Sri Lanka	mleusl@yahoo.com
Asst. Prof. C. Tannanonta	Ramathibodi Hospital	Bangkok, Thailand	raptb@mahidol.ac.th
Mr. Siri Srimanoroth	Division of Radiation and Medical Devices	Bangkok, Thailand	siri@dmsc.moph.go.th
NGUYEN XUAN KU	NATIONAL CANCER INSTITUTE (K Hospital)	Hanoi, Vietnam	xuancu@hn.vnn.vn
European Region			
Maia Avtandilashvili	Tallinn Technical University	Tallinn, Estonia	martma@lib.ttu.ee
Prof. Pal Zarand	I. Javokhishvili Tbilisi State University	Tbilisi, Georgia	spagava@access.sanet.ge
Prof. Pal Zarand	Uzsoki Hospital	Budapest, Hungary	Uzsoki Hospital
Dr. Leszek Kubisz	Karol Marcikowski Univ of Med Sci in Poznan	Poznan, Poland	kubisz@maiu.amu.edu.pl
Prof. Barbara Gwiazdowska	Cancer Center & Institute of Oncology	Warsaw, Poland	BAG@RTH.COI.WAW.PL
Nina Lioutova	AMPR	Moscow, Russia	ampr@ampr.com
Ksenia V. Zaytseva	Institute of Roentgen Optics	Moscow, Russia	kst@iroptic.ru
Dusanka Prijic	Faculty of Sciences, University of Novi Sad	Novi Sad, Serbia	duca@im.ns.ac.yu
Latin American Region			
Dr. Veronica Grunfeld	Centro Atomico Bariloche - Instituto Balseiro	Bariloche,Argentina	grunfeld@cab.cnea.edu.ar
Carlos E. de Almeida, PhD	Laboratorio de Ciencias Radiologicas	Rio de Janeiro, Brazil	cea71@yahoo.com.br
Suily Francisco	Fundacao Antonio Prudente	Sao Paolo, Brazil	biblioteca@lcancer.org.br
Anderson Dussan	Fisica, Universidad Nacional de Colombia	Bogota, Columbia	bibtec_bog@unal.edu.co
Patricia Mora, MSc	UNIVERSITY OF COSTA RICA	San Jose, Costa Rica	pmora@cariari.ucr.ac.cr
Dr. Ernesto Cadena Ruiz	Pontifica Universidad Catolica del Ecuador	Quito, Ecuador	ecadena@puce.edu.ec
Ricardo Contreras	Universidad de San Carlos de Guatemala	Guatemala City, Guatemala	recontrerargt@yahoo.com
Kevin Johnson	Cornwall Regional Hospital	Montego Bay, Jamaica	kraj@cwjamaica.com
Fabio Morales, Ph.D.	UNAN-MANAGUA	Managua, Nicaragua	no email
Dr. Juan Pablo Bares W.	Instituto Oncologico Nacional	Panama City, Panama	jpbares@ion.gob.pa
DR. Eduardo Galliano	INSTITUTO NACIONAL DEL CANCER	Asuncion, Paraguay	atomico@rieder.net.py
Dr Mayer Zaharia	Instituto de Enfermedades Neoplasicas	Lima, Peru	mzahariab@hotmail.com
Middle East Region			
S. REKAB	Centro de Recherche Nucleaire D'Alger	Algiers, Algeria	bibl-crna@comena-dz.org
Dr. M. Farid Noaman	Alexandria University	Alexandria, Egypt	newkhalto@yahoo.com
kullike Martmaa	no institution	Cairo, Egypt	ehab_marouf@yahoo.com
Dr. M.T.Bahreyni Toossi	MASHAD University of Medical Sciences	Mashad, Iran	m-t-bahreyni@mums.ac.ir
Dr. AZIM Arbabi	Imam Hossein Hospital,Shaheed Behesti Med Sci Univ	Tehran, Iran	aarbabi7@hotmail.com
Mr. Hedi Damak	Institut Salah Azaiz	Tunis, Tunisia	damak@planet.tn
Salih Gurdalli, PhD	Hacettepe University Medical Facility	Ankara, Turkey	sgurdal@hacettepe.edu.tr.
Gonul Kemikler, PhD	Istanbul University, Oncology Institute	Istanbul, Turkey	gkemikler@superonline.com

A Joint Symposium with AAPM in Charlotte, North Carolina, USA

Raymond Wu, PhD, Chairman, Professional Relations Committee

This year the AAPM Program Committee involved the IOMP in the planning of the International Medical Physics Symposium. Dr. Paul Gueye was designated the Chair of the Organizing Committee. The Symposium was jointly sponsored by IOMP and IAEA and delivered in two 90-minute sessions on Wednesday, August 1, 2012. The first session was moderated by Dr. Fridtjof Nuesslin. The Titles and speakers are Medical Physics in Latin America - How Can the AAPM Help? by Dr. Yakov Pipman; Establishing a Modern Radiation Oncology Infrastructure in West Africa - Through the Systematic Resolution of the Fundamental Problems Associated with Medicine in the Region, by A. Shulman; Guidance On Education and Training Requirements for Medical Physicists, by Dr. Maria do Carmo Lopes; and AAPM International Outreach Programs - Collaboration with IOMP, by Dr Raymond Wu. The second 90-minute session was moderated by Dr. Paul Gueye. The subjects and speakers are International Radiation Safety Standards and Systems, by Dr Madan Rehani; IOMP Role On the International Stage, by Dr Fridtjof Nuesslin; and The Legal Framework for the Control of Radiation Protection and Nuclear Safety in Senegal, by Dr. A. Boye Faye. The presentations drew a good number of interested participants, and were followed by extensive interactions with the audience. Those who were not able to attend due to time conflicts may download the Powerpoint handouts by following the hyperlinks embedded in this article.

In addition to the Joint Symposium, many among the IOMP leadership attended the weeklong AAPM Annual Meeting. On Wednesday, AAPM invited the IOMP contingent to a luncheon which provided another opportunity for the leaders to convene and exchange opinions on various issues of importance to the profession. The meeting was short due to other commitments of many in attendance.

The AAPM Annual meeting was well attended as usual. The photograph above shows the packed conference hall in one of the main sessions.

IOMP engages every opportunity to connect up with individual members of its national member organizations. Here is a picture of the IOMP booth provided by AAPM without charge together with registration fees waived for two IOMP representatives. Dr Virginia Tsapaki, MPW Board Chairperson, prepared hardcopies of the most recent issue of eMPW for distribution at the booth. The picture below shows Dr Azam Niroomand-Rad, Past IOMP President, who designed and set up the booth for this year in the Charlotte Convention Center, North Carolina, as in the past few years.

Report on Endorsed International Workshop (IOMP, TMPS, TSTRO, AAPM)

Cheng B Saw, PhD (International Organizer)

Chirapha Tannanonta, MS (National Organizer)

New Technologies in Modern Radiotherapy
Convention Center, Chulabhorn Research Institute
Bangkok, Thailand
August 22nd – 25th, 2012

A four-day international workshop with the theme, "New Technologies in Modern Radiotherapy" was held at the conventional center of Chulabhorn Research Institute, Bangkok, Thailand from August 22nd - 25th, 2012 (http://www.cccthai.org/l-eng/). This international workshop was organized by the Chulabhorn Hospital in collaboration with Dr. Cheng B Saw, President, CBSaw Publishing, LLC, USA. A grant was awarded by the Silicon Valley Community Foundation through the Varian Medical System Community Support program. The program for this international workshop was submitted for review and thereafter endorsed by the International Organization for Medical Physics (IOMP), Thai Medical Physics Society, Thai Society of Therapeutic Oncology, and American Association of Physicists in Medicine (AAPM). Furthermore the program was awarded continuing education credits by the Commission of Accreditation of Medical Physics Educational Programs (CAMPEP) and Medical Dosimetrist Certification Board (MDCB).

The principal objectives of this workshop were (a) to provide collaborative exchange in stereotactic body radiation therapy (SBRT), (b) to update technological advances in radiotherapy, (c) to examine the state of electronic medical records, and (d) to reiterate the concern for patient safety. Additional objectives of the international workshop were to foster a platform for learning and collaboration with international experts in the implementation of radiotherapy technologies in particular SBRT.

The organizers for this international workshop were Cheng B Saw, PhD representing the international committee and Chirapha Tannanonta, MS representing the host or national committee. The program were co-ordinated through the national committee members consisting of Chirapha Tannanonta, MS (Chair), Pittayapoon Patarantaporn, MD, Kanyanee Laebua, MD, Kanjana Shotlersuk, MD, Sivalee Suriyapee, MD, Chumpoj Kakanaporn, MS, and Puangpen Tangboonduangjit, PhD.

The faculty members for this international workshop were

1. Cheng B Saw, PhD, Northeast Radiation Oncology Centers, Scranton, PA
2. Wen-Cheng (Daniel) Chen, MD, Chang Gung Memorial Hosp, Chia-Yi, Taiwan
3. Todd Pawlicki, PhD, University of California – San Diego, San Diego, CA
4. Ching-Ching (Jack) Yang, PhD, Monmouth Medical Center, Long Branch, NJ
5. Dato Ibrahim Wahid, Beacon International Specialist Center, Kuala Lumpur, Malaysia
6. Andrew Wu, PhD, Thomas Jefferson University, Philadelphia, PA

The open ceremony of this international workshop commenced on August 23, 2012 with the welcoming address given by Professor Emeritus Charas Suwanwela, MD, (Vice-President of Chulabhorn Hospital) and Cheng B Saw, PhD. Professor Suwanwela highlighted the importance of this international workshop as a platform for rapid technology transfer and also the collaborative sharing of the technical know-how and clinical experiences to ensure the safe care of patients with cancers in Thailand and neighboring countries. This platform is especially important in light of the rapid pace of technological development and implementation. Dr. Saw expressed the gratitude of the organizers to the faculty for their long journey to Thailand and volunteering their time and efforts to participate in the workshop. Dr. Saw also thanked the members of national committee for their efforts and time in conducting the workshop. The first presentation was given by Dr. Saw on the scope of new technologies in modern radiotherapy. The introduction of three-dimensional treatment planning systems (3DTPS) served as the starting point of modern radiotherapy, said Dr. Saw.

Continues at p. 20

Visit of Prof. F. Nüsslin to Hamad Medical Corporation in Qatar

Ibrahim Duhaini, Calender Editor, Director Radiation Safety, OHS Department- HMC, Doha - Qatar

It was an honor to receive Prof. Fridtjof Nüsslin as an invited visitor to **Hamad Medical Corporation** in Doha, Qatar. The visit included a tour through the Radiotherapy, the Radiology & Nuclear Medicine Departments, and to the new PET-CT Cyclotron Center. Along with this tour, Prof. Nüsslin presented a lecture entitled : ***"Technological Advancement of PET-CT in Diagnostic Radiology, Radiation Therapy, and Cancer Research"***

Upon reporting his visit, Prof. Nüsslin observed that all departments are equipped with the most recent facilities very well comparable to the corresponding departments to **Technische Universität München** (TUM) Clinics in Munich Germany in particular the Radiotherapy Department with 2 Varian Linacs including OBI, Dynamic Arc and Gating, MRI-Simulator and CT-Simulator for treatment planning (ECLIPSE), and a Brachytherapy unit (Nucletron HDR) provides optimum diagnostics and treatment for cancer patients. On the other hand, the route towards excellence in research is open and challenges for initiating a high level science program comprising fundamental research, technical advancement and clinical translation. The current focus on investigating the role and benefit of multimodal imaging in cancer treatment is only one of the core elements of a research program which excellently matches the available facilities at the **National Center for Cancer Care and Research** (NCCCR) . No doubt all departments he had seen were compared very well to the standards of top ranked hospitals of similar size found in Europe and the US. An absolute highlight of visit was the assessment of the brand new **PET-CT** center which houses a modern cyclotron for radioisotope production, attached laboratories for the generation of PET-tracers and radiopharmaceuticals, and the most advanced 16-slice PET-CT-scanner is installed in a marvelous building just recently inaugurated, and all that within a surprisingly short time of just one year. Beyond the core facilities of the PET-CT-center itself the building provides offices, teaching and conference rooms, patient reception and waiting zones, creating a friendly and attractive atmosphere for patients, staff and scientists. Furthermore, the center provides capabilities for future expansion with another PET-CT or what is even more exciting with a novel hybrid imaging device just appearing at the horizon, i.e. a PET-MR unit which combines morphological, functional and molecular imaging in a single system and which together with the PET-CT scanner can be considered a unique set of multi-modality imaging systems.

Perspectives, Visions and Future:

As emphasized above, the new PET-CT center and the vision of its future role as an internationally recognized lead institution in clinical and biomedical research is predominantly dependent on structures and appropriate measures which strengthen its attractiveness for scientists and researchers. It is evident that beyond the clinical service – the current and midterm patient load is moderate - there are sufficient capacities in space and time for research. Therefore, these favorable conditions challenge to concentrate efforts on how to consolidate and expand the research activities at the PET-CT center. The manifold opportunities during this visit was to brainstorm, explore ideas and practical aspects and to talk about future concepts of collaboration, in particular the meetings Prof. Nüsslin conducted with **Dr. Huda Al- Naemi** *the Executive Director of Occupational Health and Safety,* ***Dr. Noora Al Hammadi****, Chairman of the PET-CT Steering Committee and Director of the Radiation Oncology program at the*

NCCCR, **Ibrahim Duhaini** *the Director of Radiation Safety* and **Rabih Hammoud**, *the Chief Medical Physicist*, are very much appreciated. Some of the thoughts are briefly summarized below:

1. **Human Capacity Building:** to ensure a sustainable long term growth of the science environment centered on the PET-CT center the development of a master plan may be considered which aims at strengthening the scientific workforce. To cope with the widely known problem of understaffing particularly in smaller countries and mostly in the physical and engineering disciplines, the HMC NCCCR is recommended to explore cooperation opportunities with the Qatar University, especially with the College of Arts and Sciences (CAS) with its departments for Physics, Biomedical&Biological Sciences.
2. **Partnering with Foreign Center for Biomedical Imaging:** Opportunities to initiate a collaboration with the TUM has been discussed. Partnership with the NCCCR and TUM could focus on the development of joint research projects, scientists & students exchange programs including MSc-courses and PhD-projects.
3. **PhD Projects in Medical Physics:** A brief memorandum of understanding setting the frame for the PhD projects should be elaborated. Due to the superb experimental conditions a significant part of the experiments may be performed most likely at the NCCCR PET-CT center
4. **Further Research at the PET-CT Center:** Reviewing the current literature there are a number of open questions which may be investigated at the PET-CT center, such as radiotracer specificity, cross validation of PET with other methods (e.g. MR / MRS), metabolism, time dependent activity patterns, distribution modeling, small animal studies and clinical translation, early cancer detection, detector technologies, 4D-image guidance in radiotherapy.

Conclusion:

Prof Nüsslin has expressed sincere gratitude for acknowledging the invitation to visit the HMC in Qatar, and the many stimulating discussions he really enjoyed. He is delighted to work on fostering for future partnership. For any inquiries please Contact Mr. Ibrahim Duhaini at: iduhaini@hmc.org.qa

Hamad Medical Corporation, Doha, Qatar

Hamad Medical Corporation (HMC) is the premier non-profit healthcare provider in Qatar. It was established in 1979. Since its establishment, HMC has rapidly developed medical facilities capable of providing state-of-the-art diagnosis and treatment of diseases that previously could only be managed in overseas medical institutions.

HMC currently manages eight specialized hospitals: Hamad General Hospital, Rumailah Hospital, Women's Hospital, National Center for Cancer Care & Research, Al Khor Hospital, Heart Hospital, Al Wakra Hospital, Cuban Hospital as well as the National Ambulance Service, Home Health Care Services and the Developing Residential Services. Through the years, HMC has fulfilled its mandate of providing the best quality care for all patients irrespective of nationality, and played its role in providing "Health For All" as pledged by the State of Qatar. HMC's ethos is based on three key pillars: Health, Education and Research, which signify the organization's commitment to providing high quality healthcare, the training and education of healthcare professionals, and research that develops evidence-based medicine.

The new HMC PET-CT Cyclotron Center for Diagnosis & Research, One of the first dedicated molecular imaging facility of its kind in the region, utilizing the latest globally available PET-CT technology. Continuing the Architecture Booming in architecture, infrastructure, and technology projects. New PET-CT Cyclotron Center in Qatar sets a new benchmark for healthcare – through a comprehensive concept that ranges from the latest diagnostic capabilities of PET/CT to one of the first Cyclotron in Qatar and considered as the newest member in Hamad Medical Buildings family. This revolutionary diagnostic technology enabling physicians to achieve a new level of sensitivity in imaging with regard to assessing patient risk.

DONATION OF USED EQUIPMENT PRC REPORT FOR July-December 2012

Mohammed K. Zaidi, Program Manager, IOMP PRC

During this year we had two donations:

A set of X-ray QA equipment, very kindly donated by a retired physicist Virgil E. Yoder, of Irwin PA in the USA was delivered to the INSTITUTO MEXICANO DEL SEGURO SOCIAL, UNIDAD MÉDICA DE ALTA ESPECIALIDAD HOSPITAL DE ESPECIALIDADES No.71 DIVISIÓN DE ONCOLOGÍA y HEMATOLOGÍA, FÍSICA MÉDICA Y PROTECCIÓN RADIOLÓGICA, in Torreón, Coahila. México.

Gabriel Rodriguez-Hernandez, M.S., RSO, MP, sent this acknowledgement note on behalf of the recipients, on August 20, 2012:

Dear friends of IOMP,

Please receive our deepest gratitude for the medical x-rays QA radiation equipment donated. On behalf of medical physics, radiation protection and the radiology department of this IMSS hospital, we would like to specially thank Dr. Virgil Yoder for his generosity and kindness, Dr. Mohammed Zaidi for his enthusiasm, and Dr. Yakov Pipman for his diligent efforts and support in bringing our professional groups closer together, beyond the borders. In the best interest of our patients care and pursuant to the rules and conventions for better quality service the equipment became part of our essential tools. It will also allow for growth and development of our medical physics skills. Our hospital, as well as a few others from the IMSS system in México is due for certification this 2012, this equipment will be used to re-design our QA program in radiology and fulfill the need and requirements. This will also help to regain the trust and confidence of our radiology physicians. Donation could not have come in a better time!!

A used Nucletron PLATO planning system and a MHDR Classic afterloader were very kindly donated by JFK Medical Center, Edison, NJ USA, mediated by Robert Bozicev. It is being donated to the Institut Joliot-Curie de L'Hospital Aristide Le Dantec (Pr. Mamadou Diop), Dakar-Fann, Senegal. The arrangements are being made to ship it with assistance of Dr. Adam Shulman who coordinated this donation and shipment. After the UE is cleared from the local customs and delivered to the Institute, an expert will visit Senegal to install the equipment and train the local staff.

Used equipment needed includes nuclear medicine imaging camera, treatment planning systems, linear accelerators, block cutters, patient dose monitor and ultrasound machine.

The equipment donated to IOMP Used Equipment Donation Program is generally in good working condition but we don't guarantee its usefulness.

The donations of used equipment to IOMP are sometime tax deductible.

IOMP will not be responsible for any warehousing expenses or loss if the used equipment donated to IOMP couldn't be shipped.

If you want to donate, or want specific used equipment donated to your organization, please contact the IOMP PRC UEDP Manager. For more information, please visit www.iomp.org or email zaidimk@gmail.com.

Continues from p. 17

The use of CT images provides exquisite patient anatomical information for target volumes and organs-at-risk delineation. In addition, imaged-based technology preserved the spatial relationship between the target volumes and organs-at-risk for precise targeting in order to minimize radiation toxicities. This has allowed the implementation of conformal radiation therapy (CRT) and intensity-modulated radiation therapy (IMRT) dose delivery techniques. The targeting tools were further improved with the implementation of image-guided radiation therapy (IGRT). The accessibility of these tools on standard medical linear accelerators allow for the implementation of stereotactic body radiation therapy (SBRT). However, the concept of SBRT may not been clear leading to the manifestation of radiation toxicities as presented in the AAPM review courses by Timmerman and Kanvangh. These radiation toxicities highlighted the importance of this international workshop to ensure the safe implementation of SBRT in Thailand. The flattening filter free (FFF) beam designed for stereotactic radiation surgery (SRS) and SBRT was discussed by Dr. Pawlicki. Dr. Pawlicki also presented the treatment planning systems and quality assurance for SBRT. Dato Ibrahim Wahid, MD presented his clinical experience in the use of Cyberknife for SBRT in Malaysia. Besides SBRT, the international workshop also presented technological advancements in quality assurance for CT-simulation, medical linear accelerators, treatment planning techniques, and specialized dose delivery ystems.

A review of CT-simulation processes and quality assurance was given by Dr. Wu followed by Dr. Yang on quality assurance of medical linear accelerators. The treatment planning process which is an integral component of modern radiotherapy was emphasized with the need for better immobilization and also patient data acquisition techniques by Dr. Pawlicki. Dr.Yang reviewed the definition of the various type of planning volumes including GTV, CTV, PTV, and also OAR.

The strategies of dose planning techniques were discussed by Dr. Wu on CRT and IMRT. Because of the complexity of treatment planning of IMRT, patient-specific quality assurance is generally performed. Dr. Saw reviewed the general types of quality assurance measurements including film dosimetry, point dose measurements and the use of 2D-array detector systems. The gamma analysis index technique was discussed in details to emphasize its dependence on the quality of input beam data, the treatment planning system, the instrumentation used for measurements, and the complexity of the treatment plans. Hence relying on a numerical passing rate is considered inappropriate. The patient-specific QA was expanded by the presentation given Mr. Thomas Matzen of ScandiDos on the use of their Delta phantom for VMAT dose delivery techniques. Updates on specialized dose delivery systems were presented by Dr. Yang on Gamma Knife, Tomotherapy, and Cyberknife.

The clinical experiences on patient treatment were delivered by Dr. Wahid and Dr. Chen. As highlighted above, Dr. Wahid presented his experience in the use of Cyberknife to perform SBRT. In addition, Dr. Wahid also discussed the management of breast cancers in Asian countries. Dr. Chen presented the management of prostate cancers which is one of the rapid rising diseases in Asia. In addition, Dr. Chen also discussed the management of head & neck cancers which is also a primary disease among the Chinese population.

While SBRT is the focus of this international workshop, advances in motion-gated, IGRT, electronic medical record (EMR), brachytherapy, and patient safety were also discussed. Advances in motion-gated technology and upates in IGRT were reviewed by Dr. Wu. Dr. Saw presented the implementation of EMR. The challenge in EMR has been the ability of the individual institution to create their own nomenclature for file and folder naming in either ARIA or MOSAIQ databases. Uploading documents blinding would lead to the storage of documents that would be difficult to identify and to retrieve. The series of articles published in the New York Times highlighted not only the concern of quality assurance but also the human environment such as the training, the workflow, and the inter-disciplinary nature of radiation medicine. Dr. Pawlicki highlighted the relationship between quality and patient safety in radiation medicine. His presentation highlighted the need to establish control charts, the quality fitted for use, and the appreciation of a system. The quality improvement program examined the difference in the processes versus the procedures. Every process displayed some variations classified as systematic signals and random noises. Quality indicators and quality measures must be implemented under a quality management program to identify strengths and weaknesses for improvement.

Since radiation medicine is a technological driven discipline it is prudent to have vendors participated in the presentations. This process allows the attendees to have up-to-date product information directly from the vendors. The committees wish to thank the following vendors: Elekta Medical System, Varian Medical System, IBA, ScandiDos, and Transmedic/Accuray for their graciousness in arranging speakers to make presentation on their emerging products at the international workshop.

The platform for this workshop also supported practical sessions where the applications specialist can demonstrate the use of their treatment planning systems or care of the instruments. The brachy division of Elekta Medical System (Nucletron) and Varian Medical System (BrachyTherapy) took this opportunity to demonstrate their brachytherapy technologies moving into image-based or 3D treatment planning systems. Both Mr. Ulrich Krumme of Nucletron of Elekta Medical Systems and Mr. Tim Clark of BrachyTherapy of Varian Medical Systems echoed that these advances allow brachytherapy dose distribution to be uploaded electronically and be merged with patients treated with external beam therapy. Elekta Medical System also took advantage of the practical session to demonstrate the capabilities of their MONACO treatment planning system which is based on monte-carlo data for VMAT dose calculations. Likewise Transmedic/Accuray demonstrated the use of treatment planning system for both Cyberknife and Tomotherapy dose delivery systems.

This international workshop was very well attended with over 200 registrations. About 10% of the registrants are from overseas including Mexico, Sri Lanka, Malaysia, Singapore, Vietnam, Philippines, Pakistan, and Iran. The attendees were very engaged raising questions on (a) the operation of VMAT, (b) patient safety, (c) the setting up of EMR system, and (d) the clinical management of cancers. Some have commented on the program itself as excellent and logical. The review of this international workshop has been very favorable in reference to the transfer of advanced technology, know-how, and patient safety concerns to the Asian countries.

On behalf of the faculty, the international organizer (Cheng B Saw, PhD) wishes to thank the national organizer, Ms. Chirapha Tannanonta, MS and her committee for providing such an extraordinary hospitality. The willingness of the international faculty to travel to Thailand to participate in the educational workshop are well-appreciated by the organizers and the local committee members. Lastly, the organizers wish to express our sincere thanks to the vendors and local distributors for setting up excellent show rooms.

AAPM Working Group on Standardization of CT Nomenclature and Protocols Releases CT Dose Education Slides

Members of the American Association of Physicists in Medicine (AAPM) Working Group on Standardization of CT Nomenclature and Protocols recently completed work on a set of Power Point slides on the topic of CT Radiation Dose. The slides offer guidance on how changing scan acquisition parameters and the use of Automatic Exposure Control (AEC), amongst other features, may affect the radiation dose of a CT scan. The slides are available for download by any individual (AAPM membership not required) for personal use or for instructional purposes. The slides are available under the Education Slides tab under the CT Protocols section of the AAPM website (http://www.aapm.org/pubs/CTProtocols/#).

In addition to the general dose education slides, the members of the working group are collaborating with CT vendors to generate specific sets of slides with screen captures of how various acquisition scan parameters are set. The working group expects that versions of the slides from vendors and for common software versions will be available soon at the same location as the general slides.

R&D at the Department of Biomedical Physics & Technology, University of Dhaka, Bangladesh

K Siddique-e Rabbani, Professor and Chairperson, Department of Biomedical Phyisics & Technology, University of Dhaka

The main motivation of this department, established in 2008 with the leadership of Professor K Siddique-e Rabbani as its first Chairperson, is to make available the benefits of modern science and technology in healthcare to the deprived people globally, particularly in the Third World, through indigenous research and development efforts. The research of this department stands on the work carried out by Late Professor M Shamsul Islam and Professor Rabbani and their students in the department of Physics over the previous thirty years. The department currently has 10 PhD/M.Phil students and several Research Fellows working in a team. The emphasis is on application and this is being done in collaboration with other institutions and hospitals. Four items of research, based on innovations of this group and which got international acclaim, are gaining momentum and are being pursued with vigour. These are described briefly below.

1. Focused Impedance Method (FIM) for probing the human body

FIM is a low cost and easily manageable electrical method for probing the human body, conceived and developed by this group. FIM has great potential in the diagnosis and detection of different diseases and disorders of the human body, particularly in rural areas of low resource countries. Some of the research items being pursued by this group are:

- Using multi-frequency FIM to detect pneumonia.
- Detection of blood vessel stiffness through analysis of FIM values measured on the skin, as a response to thermal and mechanical manipulation. This may help predict Pre-eclampsia of pregnant mothers, heart problems and stroke.
- Localised measurement of lung ventilation.
- Non-invasive measurement of gastric acid secretion. This has implications in sensitivity to diarrhea and in anaemia.
- Development of a special electrode set for FIM, to be worn on the hand by a mother, to measure respiration rate of babies without making the baby cry, which otherwise changes the rate. The need was put forward by an Australian scientist to diagnose pneumonia in conjunction with other physiological information.
- Development of a FIM system for detecting cancer of the cervix. A scientist in UK has already succeeded in this objective through a similar measurement at several frequencies. FIM is expected to localise the measuring area to a smaller region.
- Measurement of abdominal subcutaneous fat layer thickness. Some initial success has been achieved using two electrode separations in FIM. Abdominal fat layer is a risk indicator of several diseases like diabetes, heart attack, etc.
- Characterisation of breast tumour; whether it is malignant or benign. This was suggested by a group in the USA. A feasibility study

is being performed using non-invasive and semi-invasive techniques.

- Theoretical analyses to obtain 3D sensitivity distribution for different electrode configurations. One aim is to find out if deeper organs inside the body can be focused using different arrangement of the electrodes.
- As an extension of FIM, a Pigeon Hole Imaging (PHI) method is also being developed to give a low resolution image using multi-focal impedance measurement (MFIM), suitable to locate the position of an organ, or to follow organs moving inside the body, particularly in the thorax region.

The potentials of FIM have attracted scientists from other countries too. Research on FIM has been initiated or is being planned in universities in UK, Korea and Norway.

2. Distribution of F-Latency (DFL) as a new method in nerve conduction.

A peripheral nerve trunk consists of thousands of nerve fibres with different velocities, and for a proper diagnosis of nerve disorders researchers throughout the world have been looking for ways to experimentally determine a distribution of conduction velocity (DCV) of the fibres. The only experimental method available earlier involved complex collision measurements and lacked accuracy, and was not suitable for a clinical setting. The new method of DFL, conceived and developed by the research group of this department, has made it possible to determine the DCV of motor nerve fibres directly as its approximate mirror image. This was established through hypothesis and experiments on human subjects, drawing concepts from physiology, physics and statistics. F-latency relates to a well known F-response occurring due to random backfiring of peripheral motor neurons at cell bodies located within the spinal cord after a peripheral nerve is artificially stimulated. DFL is a simple experimental method that can be implemented using existing equipment for electro-neurophysiological measurements and this innovation has opened up a new horizon in the study of nerve conduction.

Researchers of this department have already been able to identify patterns in DFL that relate to neuropathy due to cervical and lumbo-sacral spondylosis which include both entrapment of nerve roots due to bony growths and compression of spinal cord due to vertebral disc bulging. A group in Singapore also collaborated in this study. Similar changes have also been noticed for other lesions that affect a segment of a peripheral nerve trunk. Therefore, DFL has the potential to become an early screening tool for peripheral neuropathy. This group is currently carrying out a double blind study on 50 subjects to determine the prediction ability of DFL in comparison to that through MRI. Nottingham University, UK is imaging nerves using MRI where DFL will be used as one of the investigation methods to correlate with.

3. Water Pasteurisation using Solar Energy and rainwater collection, domestic scale methods:

Teachers of this department innovated simple and low cost solar pasteurization techniques (heating and maintaining water at 600C for half an hour) for destroying diarrhoeal germs in water more than two decades ago. The device uses hay, bamboo tray and transparent polythene sheets, widely available in the rural Bangladesh. Due to the added effect of UV rays in the sun, pathogen destruction occurs at lower temperatures like 450C, maintained for enough length of time. Because of the recent widespread arsenic contamination of ground water lifted using tube wells, this method has regained importance. Since surface water is naturally free of arsenic, this can be rendered drinkable by simply destroying the diarroheal germs. A simple and low cost rainwater collection device using a polythene sheet was also innovated to provide drinking water when sunshine is absent. All the methods are suitable for domestic scale, which is culturally more sustainable in countries like Bangladesh, and may be used during emergencies and disaster. Extensive microbiological studies have been carried out to support the techniques. Two illustrated booklets, one in Bangla and the other in English, have been published for dissemination of the techniques (available at: <http://bmpt.du.ac.bd/wp-content/uploads/2012/04/bookletonsafedrinkingwaterusingsimpletechniques.pdf>).

4. Telemedicine:

More than 80% of the global population lives in villages in third world countries like Bangladesh, where presence of expert medical professionals is not expected within a foreseeable future. Telemedicine using modern computers, internet and mobile phones is coming up as a solution, and many groups are working in different parts of the world. In Bangladesh the Ministry of Health has

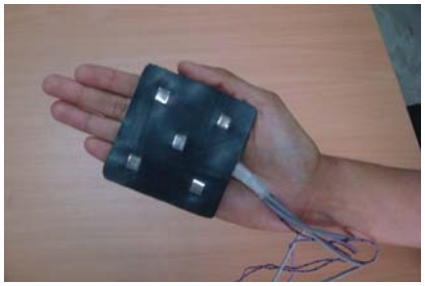

Fig.1: Palm worn electrodes to measure respiration rate of a baby without making it cry, for use with FIM system.

Fig.2: Very low cost solar water pasteurisation device for rural homes. It uses easily available materials.

Fig.3: 12 lead digital ECG for use with telemedicine, or as a stand-alone equipment.

established computer video links through internet to 800 rural health centres, and this group has developed a few computer connected diagnostic instruments for use in this network, together with necessary software, through consultation with stakeholders.

Procuring such technology from abroad is prohibitively expensive, in addition to the potential problem of maintenance and repair. As a start a digital ECG (12 lead, diagnostic quality) was designed and developed from scratch which can be used as a stand-alone equipment as well. Four digital instruments were improvised based on commercially available devices, i) Stethoscope, ii) Microscope, iii) X-ray view box, iv) Colposcope (for detecting cervical cancer). Expert physicians examined the devices and have been satisfied with the performances. Some units have already been delivered to the Government ministry and to some NGOs for field application.

Research and Development (R&D) is also going on in the following areas, some of which are undergraduate projects:

a) Computerized dynamic Pedograph system for early monitoring of high pressure regions under the feet of diabetic patients. Costing much less than a similar foreign equipment, one such unit is working for two years in a hospital in Pakistan.

b) Muscle & nerve stimulator for physiotherapy. Many of these units are being used by physiotherapists over the last 15 years.

c) Iontophoresis technique for treating excessive sweating of palms and soles. Hundreds of these units are being used by patients at home over the last 15 years.

d) Mobility aid for the blind through providing varying patterns of nerve stimulation based on ultrasound echo location.

e) Low cost bone densitometer for detecting osteoporosis (bone degeneration) by measuring and calibrating the localised optical density of X-ray films obtained using traditional X-ray machines.

f) Finger tip SPO2 meter for measuring Oxygen content in blood.

Some funding has been received from the Bangladesh Government, from a private corporate body, UNESCO and from the International Science Programme of Uppsala University, Sweden for different segments of R&D. In 1980s, this group got funding support from WHO for a specific project, and a ten year academic link with UK through the sponsorship of British Overseas Development Agency. The latter helped the group in developing necessary expertise immensely. This group has been able to reverse the direction of flow of technology to some extent as a few laboratories in the advanced countries have already started using scientific and technological innovations of this group. The group has resolved that it will not take out patents on its inventions, rather it will make technologies open after maturation through its own field trials, and take proactive role in giving out the technologies to scientists and engineers from other Third World countries. This group feels that this is the only way that majority of the global population living in the rural Third World can get any benefit of modern healthcare technologies within a foreseeable future.

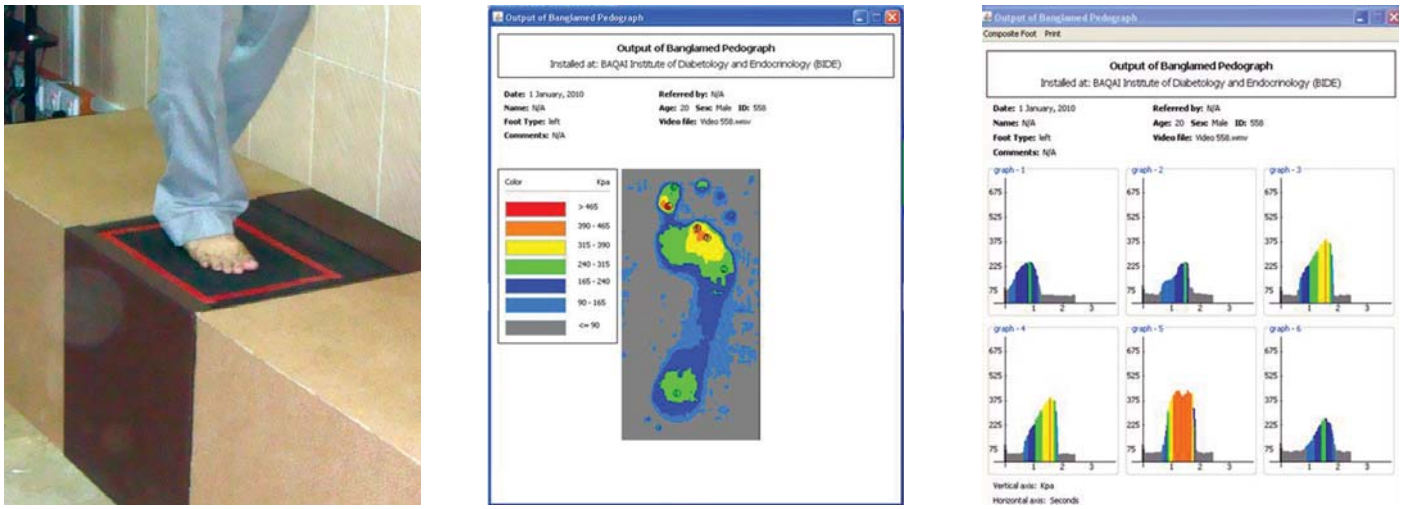

Fig. 4: A typical output of the Dynamic Pedograph showing a composite image of the foot pressure distribution together with time graph of pressure at six selected sites.

CALENDAR OF EVENTS

11-14 December 2012
The 9th SEACOMP and 12th AOCMP , Chiang Mai , Thailand

13- 16 December 2012
Regional Workshop on the implementation of the International Code of Practice for external radiotherapy dosimetry, IAEA TRS-398, Doha, Qatar

27-30 January 2013
HPS Mid-Year Topical Meeting on Medical Health Physics and Accelerator Dosimetry ; Scottsdale, AZ USA www.hps.org/meetings/meeting33.html

19–21 February 2013
1st International Iranian Conference on Advanced MR Neuroimaging Techniques and procedure, at.

22–23 February 2013
The First Conference on Radiation Safety in Interventional Cardiology, Doha, Qatar

7-11 March 2013
European Congress of Radiology (ECR), Vienna, Austria, www.myESR.org

15-16 March 2013
2nd Annual Conference of Bangladesh Medical Physics Society (BMPS), Dhaka, Bangladesh.

29 April-4 May 2013
PAHCE 2013 (Pan American Health Care Exchanges), Medellin, Colombia

6-9 May 2013
17th Int'l Conference on the Use of Computers in Radiation Therapy (ICCR); Melbourne, Australia www.iccr2013.org;

4-8 August 2013
AAPM 55th Annual Meeting; Indianapolis, IN USA www.aapm.org/meetings;

21-24 August 2013
AAPM-ISEP Diagnostic Imaging Workshop, Bangkok, Thailand

1-4 September 2013
ICMP 2013; Brighton, UK

22-25 September 2013
ASTRO 2013; Atlanta, GA USA

1-6 December 2013
RSNA 2013;Chicago US,www.rsna.org

13-15 March 2014
2nd International Conference on Medical Physics in Radiation Oncology and Imaging and 3rd Annual Conference of BMPS, Dhaka Bangladesh.

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