

International Organization for Medical Physics



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Volume 6 Number 1 July, 2015



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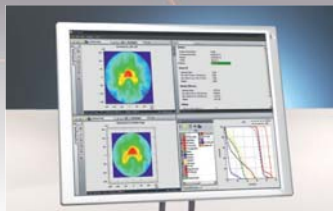
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Medical Physics World

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MPW/eMPW

ISSN 2313-4712

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Message from the Editor

Magdalena Stoeva, PhD, Chair MPW Board



Dear friends and colleagues

Medical Physics World (MPW) has been the official bulletin of the International Organization for Medical Physics for over 30 years. The first issue of the bulletin was published in 1982 presenting a challenge to the IOMP and the medical physics societies around the world: "... to make 'Medical Physics World' worthy of its title".

Ever since then the IOMP's leading professionals have chaired and contributed to the development of MPW.

Medical Physics World Editors 1982-2015

- Prof. Lawrence H. Lanzl
- Prof. Colin Orton
- Richard L. Maughan
- Dr. Bhudatt R. Paliwal
- Dr. Azam Niroomand-Rad
- Dr. E. Ishmael Parsai
- Dr. Virginia Tsapaki

The last several years mark a great progress in Medical Physics World. The new style and layout introduced in 2012 increased

the interest towards MPW not only among our professional society, but also among corporate members and professionals from other disciplines. MPW is now regularly distributed on all major professional events – AAPM meetings, RPM, ICMP, many regional events.

Medical Physics World has always been in-line with IOMP's initiatives and hot topics. Besides providing the regular organizational reports, we have actively supported some of the IOMP's most successful activities – IOMP's 50th anniversary, the foundation of the Medical Physics International Journal (MPI), the International Day of Medical Physics (IDMP) and the formation of the IOMP Women subcommittee (IOMP-W).

During this 3-year period we successfully conducted a dissemination campaign that resulted in MPW's wide recognition among world's leading institutions. The journal is now regularly delivered to the European Congress of Radiology (ECR), the UNESCO International Center for Theoretical Physics (ICTP) and to the US Library of Congress.

The latest achievement of MPW's editorial team is including Medical Physics World in the International Standard Serial Number registry.

With all the contemporary technology our world turned into an electronic world, so did Medical Physics World. We often call it eMPW now, but we are still devoted to the very first promise "... to make 'Medical Physics World' worthy of its title". ◀

IOMP NMOs

National Member Organisations

Algeria	Nepal
Argentina	Netherlands
Australia & New Zealand	New Zealand (with Australia)
Austria	Nigeria
Bangladesh	Norway
Belgium	Pakistan
Brazil	Panama
Bulgaria	Peoples Rep. of China
Cameroon	Peru
Canada	Philippines
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Croatia	Qatar
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Cyprus	Rep. of Macedonia
Czech Republic	Rep. of Moldova
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Ecuador	Russia
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Estonia	Singapore
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France	South Africa
Georgia	Spain
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Indonesia	Trinidad & Tobago
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Iraq	Uganda
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Korea	Vietnam
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Morocco	<i>NMO status being reviewed</i>

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President's Address

**Slavik Tabakov, PhD, FIPEM, FHEA,
FIOMP, Hon. Prof., IOMP President**



It is a great honour for me to serve the medical physics community as President of the International Organization for Medical Physics (IOMP). Taking the Presidency from Prof KY Cheung, I would like to sincerely thank him for his excellent leadership over the past term. Having been in the IOMP ExCom since 2000, and Vice-President during 2012-2015, I could say that the past period was a particularly successful one. This was due to the excellent collaboration and cooperation of all ExCom members and Committee members, to whom I would like to express special gratitude!

Some milestones from the previous period include: the celebration of the

IOMP 50th Anniversary (at ICMP2013, Brighton, UK); the initiation of the International Day of Medical Physics (IDMP, 7 November); the expansion of IOMP Awards (launching of the FIOMP and Honorary Membership); the initiation of activities related to the development of the profession in Africa; the renewed Newsletter e-Medical Physics World; the start of the new IOMP Journal Medical Physics International; the establishment of an independent International Medical Physics Certification Board (IMPCB); the development of new membership (Affiliated) and a new Regional Coordination Board; the start of the Women Subcommittee; the just achieved NGO status with the World Health Organisation (WHO); the support for a number of publications and scientific/educational activities. I want to assure all our members and colleagues, that the IOMP team (2015-2018) will enthusiastically continue to support the global development of the profession. The current team includes a number of previous ExCom members, together with new Chairs of some Committees (Dr Y Pipman, Dr M Stoeva and Dr S Kudlulovich Renha), to whom I extend a warm welcome. Of specific importance for IOMP is that we now have a large percentage of ▶

IOMP ExCom

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▶ women in the ExCom. Another extremely strong characteristic of our team is that it includes some of the current and past leaders of most Regional Organisations – namely the President of EFOMP (Dr J Damilakis); the President of ALFIM (Dr S Kudlovich Renha); the President-Elect of AFOMP (Prof T Suk Suh); the Past-President of SEAFOMP (Dr A Krisanachinda). We shall actively involve also the leadership of the MEFOMP and FAMPO, as well as of our largest members AAPM (USA) and IPPEM (UK). This formation of the ExCom will very much facilitate and accelerate the work of the new Regional Coordination Board (RCB), which aims to provide better links between the IOMP Regional Organisations and synchronise their activities. The first meeting of the IOMP RCB was successfully held during the World Congress in Toronto – just a day after the inauguration of the new ExCom team. I believe this new Board will be very beneficial for the global development of the profession and we already planned a number of activities for the period ahead.

I am particularly grateful to our two largest members – the UK IPPEM and the USA AAPM - who nominated me for Vice-President in 2012. Together with being a member of these Societies, I have also been a member, for almost 35 years, of the Bulgarian Society of Biomedical Physics and Engineering. I live and work in the UK, leading the MSc courses at King's College London and King's College Hospital, but was born and started my career in the historic town of Plovdiv, Bulgaria. This is how I know well the potential challenges which a small country could have. With this in mind I dedicated a significant part of my professional activities for the past 20

years to the development of education and training materials and courses. Thus I supported the formation of 15 MSc courses in various countries and also developed and led the international projects, which pioneered the e-learning in medical physics. The resulting projects - EMERALD and EMIT are now used in more than 60 countries. The largest project I led included more than 300 experts from 36 countries, which developed the first e-Encyclopaedia of Medical Physics (EMITEL) and Multilingual Dictionary of terms in 29 languages. The Encyclopaedia was launched in 2009 and is now used by 4,000+ colleagues per month. All these materials, together with other educational developments and projects, were pivotal for the doubling of the global growth of the profession in the past 2 decades. One of my strongest objectives in the new term is to continue to support the development of education and training in medical physics. The accent on education/training activities will also include the IOMP Validation/Accreditation of educational courses. One specific task I intend to develop under the new term will be the transfer of the e-learning web sites and materials EMERALD, EMIT and EMITEL, under IOMP, who will handle the future updates and use of these e-learning materials, aiming to support the global development of the profession.

Another strong accent during the future period will be to continue the help for the development of the profession in the low-and-middle-income countries (developing countries), many of which are in the African, Asian and Latin American regions. This is especially important in Africa, where, for example, the number of medical physicists in the

whole continent is less than 10% of that in the UK. Contemporary medicine is impossible without medical technology. The workforce of medical physicists, dealing with the effective and safe use of this equipment, is of paramount importance for the healthcare in any country. The lack of such properly trained specialists reflects onto the whole provision of healthcare. IOMP will work in collaboration with WHO, IAEA, ICTP, UNESCO, IUPAP and other national and international organisation in addressing this professional issue. It was very encouraging to see the readiness for help expressed by the leadership of the profession during the RCB meeting. To help these activities IOMP will develop an extended database of specialists and will improve the reference of our existing Library system. IOMP will actively work towards securing additional funding for these activities.

Together with the development of education/training and professional activities, strong emphasis will be given to scientific activities. IOMP has already discussed with the AAPM, IPPEM and IAEA to develop joint scientific courses and an overall scientific programme for the International Conference on Medical Physics in Bangkok (2-5 December 2016), as well as for the World Congress in Prague (June 2018). Additionally IOMP will continue to assess and endorse various scientific/educational/professional activities at national/regional level. We shall also seek further links with Medical Imaging Physics – related societies and organisations, aiming to increase the accent over this particular field of the profession.

One extremely important task ahead is the increased visibility of the ▶

► medical physics profession. This is a very large and long-term task, supported by all previous ExComs. The recognition of the profession through the International Labour Organization (ILO), which recently classified medical physicists in the International Standard Classification of Occupations (ISCO-08) was a major step towards this goal. The just achieved NGO status to the WHO is another step in this direction. We have to continue in this direction through links with other important Organisations; with increased input and visibility of our publications (namely Medical Physics World, Medical Physics International and our web site); with various other publications of textbooks and guides through the Publication Committee; with further expanding the celebrations of our International Day of Medical Physics. We shall now plan a special IDMP for 2017, marking the 150th birthday of Marie Skłodowska-Curie.

IOMP and its sister organisation IFMBE form the International Union for Physical and Engineering Sciences in Medicine (IUPESM). Our links with the biomedical engineers have to be expanded beyond the World Congress and we have already taken steps toward this aim, planning joint meetings during the next three years. Finally I would like to heartily thank all our members, who elected the present IOMP Officers and Chairs. On behalf of all IOMP ExCom I would like to assure all that we shall work strongly in support of the mission of the International Organization for Medical Physics (IOMP) - 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. Over the next 3 years the main objectives listed here will be further expanded with additional ideas

and activities. I would encourage all colleagues to send us new proposals and to contribute to the existing tasks. All ideas will be consolidated in a renewed document Way Forward of IOMP, which will be submitted to the Council by the end of the year. Twenty two years ago, when I presented at an International Conference the concepts and plans for the development of international courses and e-learning in the profession, a colleague from the audience asked if there is some reality in these plans, or if this is just a vision. My answer was that with dedication and hard work each vision could become a reality, which was proved by our team only 5 years later. I strongly believe that, driven by our dedication and collaborative activities, we can continue to achieve a lot for the global development of medical physics and the strengthening of its place in health-care. ◀

IOMP Regional Coordination Board

Slavik Tabakov, PhD, FIPEM, FHEA, FIOMP, Hon. Prof., IOMP President

During 2015 IOMP established a new Board, aiming to coordinate the exchange of activities and good practices between all members in the Regions of IOMP and to regularly share information about the developments in the IOMP Regional Organisations. The creation of this IOMP Regional Coordination Board (RCB) was approved by the IOMP Council on 9 June 2015 and immediately after this RCB had its first meeting. The Board is chaired by the IOMP President and includes also the IOMP Vice-President and Secretary-General and the Presidents of all Regional Organisations - from Africa, Asia-Oceania, S-E Asia, Europe, Middle East, South America and North

America (AAPM/COMP). The first meeting collected status-quo information and discussed various inter-regional collaboration activities. It was agreed for the largest Societies in IOMP (AAPM, COMP, IPEM) to help with the organisation of refresher courses during the International Conference on Medical Physics in Bangkok (ICMP, 2-5 December 2016) and to provide input to the Scientific programme. It was also agreed the European and Middle-East Federations (EFOMP and MEFOMP) to cooperate and provide organisational support to the colleagues in Africa (FAMPO). The AFOMP experience of using affiliated members was found useful and already has been adopted at IOMP level.

Several professional studies in Latin America, Asia and Africa were discussed, which will be published at the IOMP Journal Medical Physics International. IOMP announced that it will update the information related to Medical Physics Libraries with the help of the Regional Organisations, and will explore the possibility to facilitate the use of some scientific databases by colleagues from developing countries. The formation of the RCB, as a close link between all medical physics leads, was appreciated by all colleagues attending the first RCB meeting. The next RCB meetings will be on-line, and also associated with the ICMP/WC. ◀

International Cooperation & Advancement in Medical Physics

Virginia Tsapaki, PhD, IOMP Secretary General



Three years ago I joined the IOMP team as the editor of the electronic Medical Physics World (eMPW), during the World Congress on Medical Physics & Biomedical Engineering 2012 at Beijing, China. The editorial team, with the undivided support of all IOMP officers and all ExCom chairs, worked exceptionally to invigorate the IOMP Newsletter. The new “face” of the IOMP bulletin was presented in a number of medical physics and radiological conferences and received many auspicious comments. The core eMPW team has worked also hard to disclose even more, the numerous IOMP activities by creating leaflets and

posters and distribute issues of eMPW and MPI journal. The facebook IOMP and IDMP page were also recently produced with constant uploading of new material making more friends around the world. The recently founded IOMP women group (IOMP-W) and the IOMP gender survey that was lately published in European Journal of Medical Physics (<http://www.physica medica.com/article/S1120-1797%2815%2900043-5/abstract>) is another recent initiative that has proven to be of high interest to our members. IOMP-W important mission is to implement and coordinate tasks and projects related to the role of women in scientific, educational and practical aspects within the medical physics profession. During all this time I contacted, worked, communicated with, discussed and exchanged ideas and thoughts, with a number of medical physicists around the world. Within this communication and intense work, I realized that “international cooperation in medical physics and advancement of medical physics in all its aspects, especially in developing countries” are very important issues. For all these reasons and profoundly motivated by the excellent and fruitful period of time

within IOMP, I applied for the position of Secretary General. It was a big challenge primarily because Prof Madan M. Rehani, IOMP SG for 6 years, had done an exquisite work during this period. His outstanding efforts towards raising the profile of our profession and his constant support to medical physicists around the world motivated me.

I would not be writing these lines if the members of the Council did not elect me. I would therefore like to express my gratitude to all for your confidence. My work this term will focus on even stronger collaboration with NMOs and Regional Organizations during meetings, conferences and web meetings. I would also like to welcome coming ExCom chairs and members as well as congratulate the rest for their second term. Any suggestions for more effective outcome are always welcome having in mind that our one and only goal is to strengthen the medical physics profession in the global professional arena.

The coming issue of eMPW contains various news, ranging from ExCom and IOMP Officers’ reports to interesting scientific articles, for our readers around the world. ◀



IOMP Regional Coordination Board

Educational Accreditation in Medical Physics

John Damilakis, PhD, Chair IOMP Education and Training Committee



Many universities offer undergraduate and postgraduate courses for students who are interested in Medical Physics. Moreover, several education and training refresher courses are organized to keep medical physicists up to date with advances in research and technological innovations. However, educational accreditation is needed to assess the quality of education or training provision. A recent publication (1) states that 'accreditation is a process by which a recognized body assesses and recognizes that education and/or training provided by an institution meets acceptable levels of quality. This means that there are two parties involved in this process: the institution that provides education and training and an external organization which performs the external assessment and awards accreditation as a result of positive evaluation'. An educational provider seeking accreditation must submit a written application in accordance with a procedure established by the accreditation board (2). The university or the society that organizes the educational course has to do an

internal self-assessment during which the organizer should review the program and evaluate compliance with the accreditation standards and guidelines. After self-assessment, an external evaluation follows. An accreditation decision should be made following a periodic on-site evaluation by a team of experts in the field of medical physics. On-site evaluation is not always needed or is not always possible. In these cases, a validation process is followed during which the external body confirms that requirements have been fulfilled in accordance with standards. Standards form the basis for all accreditation activities. The IOMP model curriculum project presents guidance on the organization of postgraduate courses (4). This model has been used in the IAEA publication 56 entitled 'Postgraduate medical physics academic programs' (5). A European Commission document has been published recently to provide guidelines on Medical Physics Expert (3). In accordance with the European Qualifications Framework (6), learning objectives in this document are expressed in terms of knowledge-skills-competences in table format. The above information (3-5) can be used by accreditation bodies to evaluate the content of education and training programs in medical physics offered by universities and professional and scientific societies. The IOMP Education and Training Committee will establish a board for the validation and accreditation of Medical Physics educational programs. This board will support medical physics education and training through accreditation of education provision in accordance with

the requirements of IOMP guidelines. References

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Medical Physicists Work at the Sharp Edge

An interview with Dr. William R. Hendee,
awarded the IOMP's Harald E. Johns medal, 2015



Dr. Stoeva: *How did you start your career in Medical Physics?*

Dr. Hendee: I was a graduate student in Physics at Vanderbilt University, when I was offered a scholarship in Medical Physics at the University of Texas, which I accepted and went into the field of Medical Physics.

My first job in Medical Physics was at the University of Colorado, where I worked for 20 years.

Dr. Stoeva: *What are your most important accomplishments?*

Dr. Hendee: My most important accomplishment is educating students and fellows in Medical Physics. Without any question that was the most enjoyable part of my career, and I think the most meaningful. Many of my former students are very prominent medical physicists today. Geoffrey Ibbott, the chair of the IOMP Science Committee is my former graduate student.

I had lots of success in other things, in research, in education, textbook writing, writing papers, but the most meaningful thing has been educating students.

Dr. Stoeva: *What is the most difficult task you have ever been involved into?*

Dr. Hendee: In 1985 I accepted a position as Vice President for Science, Technology and Public Health at the American Medical Association, which is a physicians' organization and I am not a physician. I was asked to rebuild the science and public health activities of the American Medical Association, working with physicians. That position was quite challenging because scientists communicate

differently than physicians, so I had to bridge the different languages and the different outlooks on things between physicians and myself as a scientist. I was able to do that, but it was quite a challenge.

Dr. Stoeva: *How did you start with your involvement in the IOMP?*

Dr. Hendee: I have written a lot in Medical Physics and I was also the editor of the journal Medical Physics, and because I was interested in publications, I was interested in the Publications Committee of the IOMP. I had not been involved in IOMP activities until then, other than being the co-president of the World Congress in 2000. So, I did have some relationship with IOMP, and I was asked to chair the Publications Committee starting in 2006. I chaired that committee for 6 years, and then I was asked to chair the Science Committee. I chaired that committee until I retired from Medical Physics.

Dr. Stoeva: *What are the 3 most important advices you would give to young medical physicists?*

Dr. Hendee: The 3 most important pieces of advice are:

- Believe in yourself! Always believe in yourself! You can do a lot if you believe you can do it.
- Do not be afraid to take risks! Do not be afraid to change! Change and taking risks are what propel people to greater heights.
- Enjoy the discovery of new knowledge! If you enjoy that discovery, you will always be searching for new knowledge, and that will make your profession richer and your career more enjoyable.

Dr. Stoeva: *What are your biggest challenges at the moment?*

Dr. Hendee: I am now retired, so my biggest challenges are not in Medical Physics anymore. I love opera and I need to find more time to study the operas that I like. Another challenge is – I love gardening and I have a lot to learn. My third challenge is to stay connected with my 7 children and their children (my grandchildren). They and my wife are the most significant people in my life.

Dr. Stoeva: *If you were in my position what question would you ask yourself and what would you answer?* ▶ [Continues at p. 12](#)

So We Decided to Call It Medical Physics World...

An interview with Colin G. Orton,

awarded the Marie Skłodowska-Curie award of IOMP, 2015



Dr. Stoeva: *How did you start your career in Medical Physics?*

Dr. Orton: In the first place, let me tell you how I got involved in Medical Physics at all. I had never heard of Medical Physics when I actually finished up getting into a Medical Physics program. I thought I was getting into a Radiation Physics program, because I wanted to be an atomic physicist. That was what I thought was exciting. My professor who taught me atomic physics at university was a great teacher and a Nobel Prize winner. After I finished my degree I asked him how I might get into atomic physics research, and he referred me to a friend of his – Joseph Rotblat who was a professor in Radiation Physics in London University. In fact Joseph Rotblat himself later won the Nobel Peace Prize.

When I interviewed with Professor Rotblat (we called him Prof., by the way), he offered me an opportunity to do some research with him. At the same time he wanted me to do a Master's degree that turned out to be a Master's degree in Medical Physics. It was called Radiation Physics, but it was definitely Medical Physics. This is how I got involved with Medical Physics.

Dr. Stoeva: *What are your most important accomplishments?*

Dr. Orton: My first job after finishing my M.Sc. was teaching in the department while working on my Ph.D., and then I continued on as an Instructor, but I was still looking for a real job, where I could do some teaching and something useful too in addition. I saw on the noticeboard

at the British Institute of Radiology (they were having their annual meeting), that a radiation oncologist from New York University was looking for a chief medical physicist. I applied, just to practice being interviewed, thinking I would never have any chance to get the job since I had no clinical experience as a medical physicist. He interviewed me and then, to my amazement, asked me what he had to do to persuade me to go to New York and be his chief medical physicist. I just said "Make me an offer I can't refuse". He looked me in the eye and said "I hope you don't mind, but I asked your chairman how much money you make as an Instructor in the university". I said of course I did not mind. He offered me five times what I was earning then, so this is how I became a medical physicist.

The very first day that I sat on my desk in New York, the department radiobiologist entered my office and said: "Colin, I hope you don't mind, but I hate teaching and we have to teach the residents. I'd rather spend my time in the lab. Would you be interested in teaching radiobiology?" I had had a course in radiobiology and had done some work with the radiobiologists in London, so I thought a little bit (maybe 10 seconds) and I said: "OK, I'll do it". And this is probably the most significant change I made in my career, because from then on every year I taught radiobiology to residents, to technologists, to physicians, and to medical physicists. I probably taught radiobiology in 50 courses, maybe 100. Immediately after starting to teach radiobiology I realized there were significant radiobiological problems that had to be solved. One of them at that time was a new concept known as Nominal Standard Dose to determine what dose to give in courses of fractionated radiotherapy. I was teaching it, but hardly any of the residents could understand what I was talking about. First of all the equations were fairly complicated and you needed a slide rule to solve them. None of them knew how to use a slide rule. We did not have pocket calculators. So I decided to simplify the method and that started a life-long interest in biological modeling and simplifying biological models, so people could use them.

Dr. Stoeva: *How did you start with your involvement in the IOMP?* ▶

► Dr. Orton: I did attend the 1976 World Conference on Medical Physics in Ottawa, but I was not involved in the IOMP then at all. The next World Conference I attended was actually one of the first World Congresses in Hamburg. Larry Lanzl was the incoming IOMP President. He came to me and asked me if I would help him with the new newsletter that he was starting to communicate between council members; would I be the managing editor and develop ways of supporting it financially amongst other things. My first thought was: “We can’t call it the IOMP Council Newsletter. I am never going to be able to get financial support and advertising for that.” So I decided to call it Medical Physics World. I went out looking for sponsors and people to advertise in it and it soon became obvious that the sponsors wanted a much wider audience than just the 60 or 70 council members. We opened it out to the entire membership and I was appointed the Editor. Soon after I started that, the Secretary General of IOMP got sick. There was a World Congress coming up in 1988 and he was not going to be able to work on that, so he asked me to be the acting Secretary General for the upcoming World Congress in San Antonio, where Council elected me the next Secretary General.

Dr. Stoeva: *What are your biggest challenges at the moment?*

Dr. Orton: I don’t really have any challenges right now. I retired officially about 12 or 13 years ago. I was still editing the journal Medical Physics at that time. I am not doing that anymore, but I am still the Moderator of the Point/Counterpoint series. That’s certainly a challenge to get new ideas. I just got one five minutes ago at this

Conference with somebody for a good P/CP debate. You have to be coming up with good ideas for interesting debates. This is probably my biggest challenge right now.

Dr. Stoeva: *What are the 3 most important advices you would give to young medical physicists?*

Dr. Orton: Get involved. Look for things that need to be solved. People will benefit from your expertise if you put some effort into it. Get involved with your societies. As soon as I arrived in America I got involved with the local AAPM Chapter and within about a year I was elected President. Within a year of that I was selected to be the Editor of the AAPM newsletter, which at that time was called the Quarterly Bulletin, which later evolved into the journal Medical Physics. Just get involved and it is a lot of fun.

Dr. Stoeva: *What are you doing in your free time?*

Dr. Orton: I try to keep involved in teaching, moderating the Point/Counterpoint series in Medical Physics. I still review papers for the journal, still give some lectures here and there, and then I just have fun and relax playing golf, badminton, and doing some hiking. Life is good!

Dr. Stoeva: *If you were in my position what question would you ask yourself and what would you answer?*

Dr. Orton: How are you enjoying being involved in the IOMP?

It is fascinating, you meet lots of new exciting people and give interviews like this one. ◀

Continues from p. 10 ► Dr. Hendee: I would ask myself what is the greatest opportunity in Medical Physics today? Healthcare is changing dramatically with new technologies, new information systems and new demands for accountability. The three major forces that are driving healthcare are accountability, information systems and technology. These forces all converge at what I call “the sharp edge of medicine”, which is where healthcare is delivered to patients. Medical Physicists work at the sharp edge. It presents a great opportunity for medical physicists to take more responsibility in healthcare settings, because they are experts in technologies, knowledgeable about information systems and they understand the cost of delivering care. Their greatest opportunity is to become

much more influential in shaping the future of healthcare. To take advantage of the opportunities that medical physicists have today, to be more influential in shaping the course of healthcare delivery, they have to be 3 things – they have to be knowledgeable about technologies, information systems and accountability; they have to be willing to take on more responsibility; and they have to be professional in their knowledge and demeanor, so they are viewed as true professionals, defined as always putting the welfare of others before their own welfare. If they are seen as knowledgeable, willing and professional, they will have great opportunities in the future. ◀

IOMP Science Committee Report

Geoffrey S. Ibbott, PhD, IOMP Science Committee



The IOMP Science Committee is responsible for disseminating current information to medical physicists; assisting in the planning and conduct of regional meetings on medical physics; contributing to and reviewing scientific documents prepared by organizations such as the International Commission on Radiation Units and Measurements, the International Commission on Radiological Protection, the World Health Organization, and the National Council on Radiation Protection and Measurements; and participating in various forums for the generation of scientific information in medical physics.

The Science Committee was chaired by Dr. William Hendee until January 2014, at which point I was honored to be invited to take over the chairmanship. At the June meeting of the IOMP, during the World Congress in Toronto, I was fortunate to be elected to a full term as chair. Members of the Science Committee during my tenure this far include: Facundo Ballester, Sha Chang, Lawrence Dauer, Benedick Fraass, Paul Gueye, Yaoxiong Huang, George Kagadis, Reinhard Loose, Malcolm

McEwen, Hossein Mozdarani, Hugo Palmans, Mark Rivard, Ferid Shannoun, Michael Stabin, Alberto Torresin, George Xu, Yoshiharu Yonekura.

During 2014-2015 the Science Committee participated in the following activities: On behalf of the IOMP and of the Science Committee, Geoff Ibbott attended a meeting at the headquarters of the World Health Organization (WHO) entitled “Consultation to Define Priority Medical Devices for Cancer Management – Targeting Low and Middle Income Settings”. The meeting was held 29-30 April, 2015, in Geneva, Switzerland. A summary of the objectives of the meeting, together with some notes, follows:

- To present the WHO strategies and tools for cancer management.
- Understand the regional and country challenges faced in relation to medical devices for cancer management.
- Discuss cancer guidelines with consideration of resource levels and potential stratification.
- Define the potential role of attending organizations towards increasing access to medical technologies for cancer management in LMICs.
- Discuss methodologies to prioritize medical devices and propose resources allocation.
- Discuss the suitability of medical devices identified in the tool on medical devices for cancer management.
- Identify the criteria for the selection and quantification of medical devices required for discussed interventions.

Representatives of a number of organizations in attendance spoke briefly about the ability of their organizations to contribute to cancer management in LMI countries. I was given the opportunity to explain the role of the IOMP in supporting and contributing to the professional development of medical physicists; to assist in raising their stature in their countries; in providing educational opportunities and encouragement to participate in national and international events; to assist in establishing criteria for evaluation of credentials, and developing testing mechanisms.

This was a valuable meeting for the IOMP to have representation. There were no other organizations present that represented medical physics, although there was a representative from IFMBE there, with whom I found a number of common interests. Also, there were some industrial representatives that recognized the value of medical physicists, although were there clearly to represent their own industries.

Science Committee members reviewed and commented on a 2005 publication from the IAEA entitled “Generic procedures for medical response during a nuclear or radiological emergency”. We reviewed and contributed to the nominations for various awards, including travel awards, given by the IOMP. We also contributed to a review and discussion of the proposals from the International Medical Physics Certification Board, and its relationship to the IOMP. ▶

► The Science Committee reviewed proposals from several regional organizations for an ICMP to be held during 2016-2017. The committee provided comments and a recommendation for the selection of one of these proposals. This recommendation met with concurrence from the Executive

Committee. The SC also reviewed and commented on proposals for educational programs to be held in several regions around the world.

Most recently, the Science Committee reviewed and approved the nomination of two IOMP representatives to be considered for membership on an

IUPAP interim Working Group to establish a new Commission on Accelerator Science.

It has been an honor to serve as chair of the Science Committee, and I look forward to continuing in this role. ◀

Awards & Honours: Promoting the Recognition of Medical Physicists Throughout the World

Simone Kodlulovich Renha, PhD, Chair of Awards & Honours Committee



Awareness of the medical physics profession has increased significantly throughout the world. However, many countries are still struggling to get official or formal recognition of the profession. Furthermore, the number of Medical Physics courses available (both at undergraduate and postgraduate levels) to prospective students wishing to start a career in the profession is insufficient to meet the demand. These factors are having a significant effect on the career development of medical physicists in some countries by restricting the

attainment of qualifications, and of post-qualification experiences and competencies. The main impact of this is reflected in inequality of opportunities they experience when competing with physicists from those developed countries that have provided more resources to develop relevant scientific and technological projects of greater relevance. Much effort has already been made by many organisations in order to give the necessary support to change this scenario, with varying levels of success. IOMP considers it fundamental to recognise the contribution of medical physicists in all countries. The Awards and Honours Committee (AHC) was created in 1998 in order to formally recognise medical physicists who have made significant contributions in the application of radiation in medical practices. The available awards include: the Marie Sklodowska-Curie Award, the Harold Johns Medal and the Young Scientist Award in Medical Physics.

This committee is convinced of the importance of recognising the great scientific contributions of medical physicists as well as their dedicated

work, determination, enthusiasm and altruism in always aiming to improve the diagnostic and the treatment of patients. Therefore the Committee wishes to support those contributions by proposing new awards in order to provide further incentives to the medical physicists of all regions. Currently, the Committee is being established in order to review all projects in place and to evaluate new awards.

This committee has been fortunate to have had very enthusiastic, dynamic and well-regarded past chairs: John Cameron (1998 – 2000), Fridtjof Nusslin (2000–2003), Perry Sprawls (2003–2006), Slavik Tabakov (2006-2007), Don Frey (2007 – 2009; 2009 – 2012), and Tomas Kron (2012 -2015). Now, as I have been given the privilege and honour to be the chair elected for the next period, I have the responsibility to continue this important program of IOMP.

I would like to thank everyone for the trust that has been placed in me as Chair, and look forward to putting into practice all our plans in order to accomplish great achievements. ◀

Report from the Publication Committee

Tae Suk Suh, PhD, Chair Publication committee



suggestions were made from IOMP PC, and some action plans were discussed based on them. IOMP PC has worked jointly with Raymond Wu (PRC chair) for accessing of journals by HINARI libraries, which are mainly supported by WHO and widely used for developing countries. IOMP PRC and PC have found out how HINARI can be accessed and subsequently inform physicists in developing countries about its usage, and encourage editors in national or regional journal of medical physics to join HINARI. According to the agreement between

CRC Press and IOMP in 2006, CRC adverts were promoted in the issues of eMPW, MPI, and AFOMP newsletter/website. Also, CRC adverts were promoted in regional conferences such as EFOMP, AFOMP, Korea-Japan Joint Meeting etc. IOMP PC meeting was held at WC2015 in Toronto on June 11, 2015. In accordance with the many ideas suggested from IOMP PC meeting, some action plans will be made to increase the output of publication on medical physics, and to make the publication more accessible to the medical physicist worldwide. ◀

I will briefly summarize work done by Publication Committee (PC) during 3-year periods (2012-2015). We organized PC which represents many regional and national journals of medical physics, including key editors in major journal of medical physics. I would like to thank all the PC members for their wonderful contribution during 3 years. Many books relating with series in Medical Physics and Biomedical Engineering were published, with the collaboration of CRC Press. Many



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IUPAP Young Scientist Award 2014

The IOMP is pleased to announce the IUPAP Young Scientist Awards 2014 and 2015.

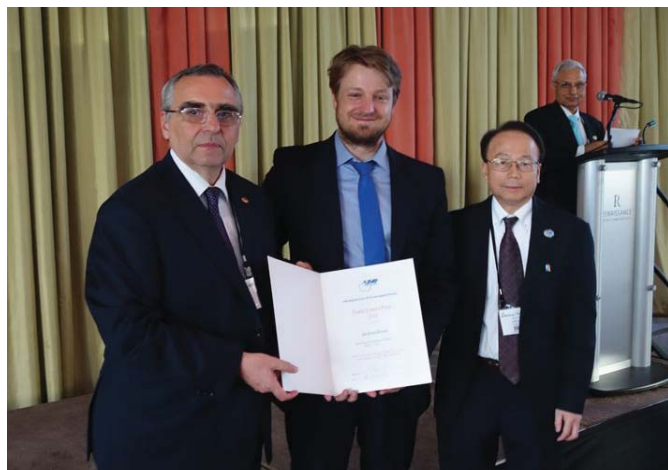
This award is established and funded by the International Union of Pure and Applied Physics (IUPAP) and awarded by the International Organization for Medical Physics (IOMP) as the IUPAP affiliated International Commission for Medical Physics.

The awards were presented at the 2015 World Congress on Medical Physics & Biomedical Engineering

2014 IUPAP Award

Jan-Bernd Hövener, PhD

Head of Hyperpolarization
Research,
University Medical Center,
Freiburg, Germany



Dr. Jan-Bernd Hövener was born in Münster (Westfalen), Germany, and studied Physics and Business Informatics at the “Westfälische Willhlems Universität” in Münster. After receiving his Vordiplom in 2001, he moved on to the University of Heidelberg. For his PhD, Dr. Hövener decided to join the hyperpolarization research group at the California Institute of Technology. Building on the existing contacts, Dr. Hövener was invited by Prof. Hennig in 2009 to implement an entirely new hyperpolarization program in Freiburg. In 2010, Dr. Hövener was admitted to the Academy of Excellence of the German Science Foundation (DFG). The preliminary peak of work is represented by the discovery of the effect of continuous hyperpolarization. His future potential and past accomplishments were recognized by the admission to the Emmy-Noether Program (ENP) of the DFG.

2015 IUPAP Award

Guerda Massillon-JL, PhD

Instituto de Física,
Universidad Nacional Autonoma
de Mexico
México



Dr Guerda Massillon was born in Bassin-Bleu, Haiti. She moved to Mexico City in 1998 where she earned an MSc in Medical Physics and a PhD from the Universidad Nacional Autonoma de Mexico (UNAM). In 2007 she was appointed by the Institute of Physics, UNAM as a Research Associate. She took 2 years post-doc at the National Institute of Standards and Technology (NIST), Gaithersburg, MD USA. In 2010, she was promoted as Assistant Professor. Since then, she has been concentrating on two research projects: “Response of dosimetric materials exposed to low-energy photons” and “Reference dosimetry for small radiotherapy fields”. In 2011, Guerda Massillon has been awarded as a Fellow of the InterAmerican Network of Academies of Sciences (IANAS). In Mexico, she has been recognised as National Researcher Level II from the Mexican National System of Researchers (SNI) in 2014.

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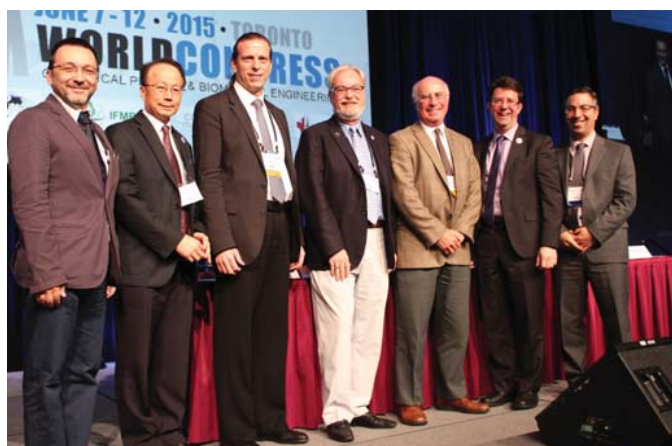
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Report on the World Congress of Medical Physics and Biomedical Engineering 2015 – Health, Technology, Humanity

**Dr. David A. Jaffray PhD FCOMP and Dr. Tony Easty PhD, PEng, CCE
Co-chairs, World Congress 2015**

The 2015 International Union of Physics and Engineering in Medicine (IUPESM) World Congress of Medical Physics and Biomedical Engineering was a resounding success with over 2300 attendees filling the Toronto Convention Centre with a week of science, networking, collaboration, and fun! Attendees came from 105 countries, including 34 low resource countries, to learn and share their efforts in advancing biomedical engineering and medical physics through science and clinical practice –roughly equal attendance by the two disciplines highlighted the collaborative tone of the meeting. With 1042 oral presentations and 402 posters across 19 tracks, the participants were able to access a broad range of topics from speakers from around the planet. In addition to the tracks, there were 25 special sessions covering various topics of interest that aligned with our 5 themes: Global Health, Women in Physics and Engineering, Next Generation Medicine, Urban Health and Future Earth, and Evidence and Health Informatics. The continuing education program of the World Congress was unprecedented with 83 lectures in three languages (English, French, and Spanish) providing topics of interest to both medical

physicists and biomedical engineers. Industry also played a major role in the success of the congress with 104 exhibitors and sponsors presenting thought-provoking technologies and financial support for the meeting. The opening ceremony launched the week's events with the Canadian host societies - the Canadian Medical and Biological Engineering Society (CMBES) and the Canadian Organization of Medical Physicists (COMP), the international societies - the International Organization of Medical Physics (IOMP), the International Federation of Medical and Biological Engineering (IFMBE), and the IUPESM joint society welcoming the attendees. The President of the IUPESM, Dr. Herb Voigt, invited the congress registrants to engage in collaboration and networking with their fellow attendees and in the words of T.S. Elliot '...not cease from exploration...'. The opening ceremony also had some drama with a technical failure in the audio-visual system that broke the ice and Shannon Thunderbird saving the day with her drum and booming voice filling the huge plenary hall as the technical team addressed the issue.



IUPESM World Congress 2015 Leadership – From left to right: Dr. Ratko Magarevic (President, IFMBE), Dr. KY Cheung (President, IOMP), Dr. David Jaffray (WC2015 Co-chair), Dr. Herb Voigt (President, IUPESM), Dr. Tony Easty (WC2015 Co-chair), Mr. Martin Poulin (President, CMBES), and Dr. Marco Carlone (President, COMP).



Shannon Thunderbird and her troupe performing their drumming tradition from Canada's west coast first nations.



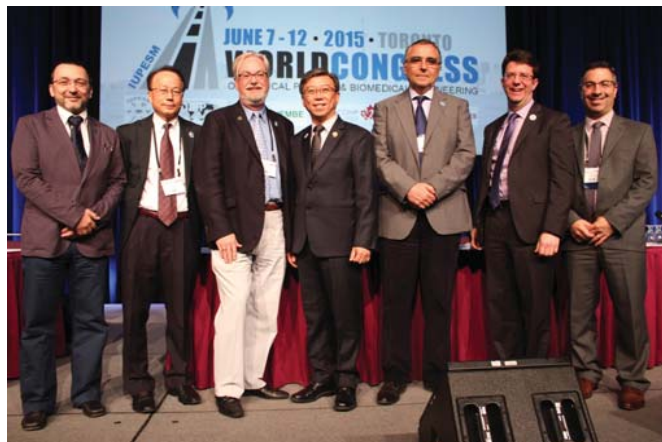
Jeff Immelt, CEO of General Electric, Mary Gospodarowicz, past-President of the UICC, and Bob Bell, Deputy Minister of Health, Province of Ontario highlighted the issues and opportunities for industry, government, and civil society to work together.

The week was full of highlights that drew the thousands of attendees back together. Tuesday's plenary speaker was Mr. Jeff Immelt, CEO of General Electric. Mr. Immelt shared his vision of the future of medicine and the role of companies like his and joined Dr. Mary Gospodarowicz, past-President of the UICC and Dr. Bob Bell, Deputy Minister of Health of the Province of Ontario for a panel discussion (see photo below). Covering topics of industry, government, and civil society collaboration – the audience enjoyed heated debate between the three luminaries that brought spontaneous applause from the crowd of several thousand.

The gala dinner was the social highlight with numerous awards given to outstanding physicists and engineers from across the globe for their remarkable contributions and careers. The camaraderie and social nature of the attendees was palpable and extended into the late evening as the Parkside Band was called back to the stage multiple times by the hundreds of well-healed attendees and spouses that took part in the dancing. Sorry - no pictures ;-).

There were also many special sessions and sub-meetings held over the course of the 6 days of the World Congress. Of particular note was the MedTech Institutes – an effort that sought to bring together medical technology development houses from across the globe to learn from each other. I had the pleasure of participating in these discussions with participants from Qatar, Germany, and many other countries sharing their experience and strategizing for future collaboration.

The closing ceremonies were held on the Friday with an excellent attendance of registrants eager to hear the



Changing of the Guard – Dr. K.Y. Cheung (2nd from left) takes over the Presidency of IUPESM from Dr. Herb Voigt (3rd from left), Dr. James Gob (4th from left) takes over the Presidency of IFMBE from Dr. Ratko Magarevic (at left), and Dr. Slavik Tabakov (5th from left) takes over Presidency of IOMP from Dr. K.Y. Cheung.

outcome of the Young Investigator's Competition and additional honours. The incoming presidents of the IOMP, IFMBE, and IUPESM took their first official duties in giving out the awards and encouraging future collaboration between the disciplines.

The true success of the meeting could be measured by the substantial crowd that stayed on after closing to congratulate awardees and wish each other well with plans to meet again in Prague at WC2018.

There are many people and organizations to thank for their hard work and dedication to making the 2015 World Congress a success. The many people on the Congress Organizing Committee worked hard over the past year with weekly teleconference calls in preparation – these were both challenging and enjoyable – the stresses of finance often tempered with humour. The many track chairs, keynote speakers, and lecturers brought the highest quality of science and education to the meeting and involved countless hours of volunteer effort. While they are too numerous to list here, the congress program book lists each contributor. We thank our industry and government sponsors for their support and investment in the meeting. The team at the International Congress Services were instrumental in bringing the event together with particularly effective support during the congress. And finally, we would like to thank the many attendees that share the vision of the IUPESM and the unique nature of the World Congress and made their way to Toronto in early June for their efforts – you made the meeting a great success. See you all again in Prague at World Congress 2018! ◀

Regional Meeting on Medical Physics in Europe: Current Status and Future Perspectives

Stelios Christofides

This high level meeting was held at the International Atomic Energy Agency's (IAEA) headquarters in Vienna, Austria between the 7th and 8th of May 2015. It was one of the activities under the IAEA Technical Cooperation Regional project RER/6/031 Strengthening Medical Physics in Radiation Medicine. The meeting was attended by 67 high level officials representing Ministries of Health of European Member States and other relevant national authorities. Representatives of the World Health Organization, the European Commission, the IAEA and professional medical physics organisations.

The main meeting objective was to raise awareness of national authorities and to gain better understanding of medical physics, medical physicists (MP) roles, status, education, training, recognition, and accreditation, and staff shortages in European Member States. In particular, the meeting discussed the need for medical physicists staffing provision to ascertain adequate physics services in radiation oncology, nuclear medicine and diagnostic radiology in order to

enhance the benefit of patient healthcare and safety in radiation medicine.

The meeting included presentations by the representatives of the international and European organisations and professional societies on medical physics topics of interest/concern. The results of a questionnaire on medical physicists' roles, status, education, training, recognition, and accreditation, and staff shortages in European Member States was presented. The meeting facilitated the sharing of experience/information by Member States on the roles and responsibilities of medical physicists and the need for adequate medical physics coverage in radiation medicine. Examples from individual countries were also presented. The meeting also reviewed the European and international basic safety standards and recommendations:

- Radiation Protection and Safety of Radiation Sources: International Basic Safety Standards, IAEA (2014);
- European Council Directive 2013/59/Euratom laying down basic safety standards for protection against

the dangers arising from exposure to ionising radiation;

- Roles and Responsibilities, and Education and Training Requirements for Clinically Qualified Medical Physicists, Human Health Series 25, IAEA (2013);
- European Guidelines on Medical Physics Expert, European Commission, Radiation Protection No 174;
- 'Bonn Call for Action' to improve radiation protection in medicine.

The information gathered during the meeting will be utilised in defining best approaches of addressing issues concerning medical physics at national levels in European Member States, including adopting international recommendations and transposing European directives where appropriate into national levels.

A full report on meeting including the analysis of the questionnaire, the presentations and the discussions as well as the recommendations of the meeting will be published in the next issue of MPI. ◀

**World Congress on Medical
Physics & Biomedical Engineering**

June 3–8, 2018, Prague, Czech Republic



On an innovative patient-specific QA process for pre-treatment radiotherapy plan verification in brain tumour patients

E. Pappas, Department of Radiology/Radiotherapy Technologists,
Technological Educational Institute of Athens, Athens, Greece
RTsafe (www.rt-safe.com) Founder



Modern radiation therapy incorporates complex dose delivery procedures. Pre-treatment plan verification is an important QA process required to reassure treatment effectiveness and patient safety. However, conventional methods used for this purpose are mainly plan-specific

rather than patient-specific. They incorporate standard geometry QA tools that are used for the plan-verification for all patient treatment plans. This way, with the current standard, each and every patient anatomical individualities are not taken into account during plan-verification QA. Moreover, their application for cranial radiotherapy becomes challenging mainly due to the often inadequate spatial resolution of the dosimeters used in the conventional QA tools. It is recognized that the pre-treatment plan verification process needs to be improved towards enhancing patient safety and treatment effectiveness [1]. In this article such a method is presented and evaluated for an hypophysis VMAT treatment plan. It incorporates 3D-printing technology and polymer gel dosimetry. The presented method addresses both the 3D-spatial dosimetry challenges in cranial radiotherapy and also take into account each and every patient anatomical individualities. The selected patient CT scans are used for 3D-printing ▶

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S. Tabakov & V. Tabakova

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▶ a patient-specific dosimetry phantom. The phantom duplicates the selected patient in terms of bone structures and skin surface (Figure 1). The 3D-printing material has a CT number of ~ 900 and therefore simulates bone in terms of interaction with radiation.



Figure 1. The 3D-printed patient specific hollow phantom before gel filling and phantom sealing. High 3D-printing accuracy of bone structures was implemented.

After the 3D-printing of the patient-specific hollow phantom, it is filled with VIPAR polymer gel [2,3]. The gel is liquid when hot and can fill a container of any shape. At room temperature it becomes solid gel. The final product is a patient-specific dosimetry phantom (PSDP) that can be treated as if it is the real patient. Set-up, image guidance and irradiation using the patient plan is following. A 3mm set-up error in the head-feet direction was



Figure 2. Set-up and Image Guidance of the PSDP as if it is the real patient.

intentionally introduced in order to investigate the capability of the proposed methodology not only to detect this intentionally introduced error but also to quantify the error effects on the treatment effectiveness and patient safety. The irradiated PSDP is afterwards MRI scanned in order to derive 3D-T2 maps of high spatial resolution [4]. These T2-maps can be converted to dose maps using the polymer gel dosimetry calibration curve. In this work, the polymer gels used exhibited a linear Dose – 1/T2 response within the dose range of 0 – 35 Gy. The MRI-scans of the irradiated phantom (that contain the full-3D-dosimetric information) are finally co-registered with the real patient CT-scans. A patient specific evaluation of the accuracy of the plan is following. Spatial-accuracy of dose delivery, isodose lines measurements and DVH measurements are the outputs of the presented methodology. These data can be inter-compared to corresponding data calculated by the TPS in order to evaluate, test and verify the overall treatment process.

A selected patient hypophysis VMAT treatment was used for proof of concept. The patient-specific PSDP is constructed and used for set-up (Figure 2) with a 3mm intentionally applied set-up error in the head-feet direction.

The irradiated phantom are MRI scanned and T2-maps of a spatial-resolution of 1 mm x 1 mm x 1mm were extracted. This is also the full 3D-spatial resolution of dose ▶

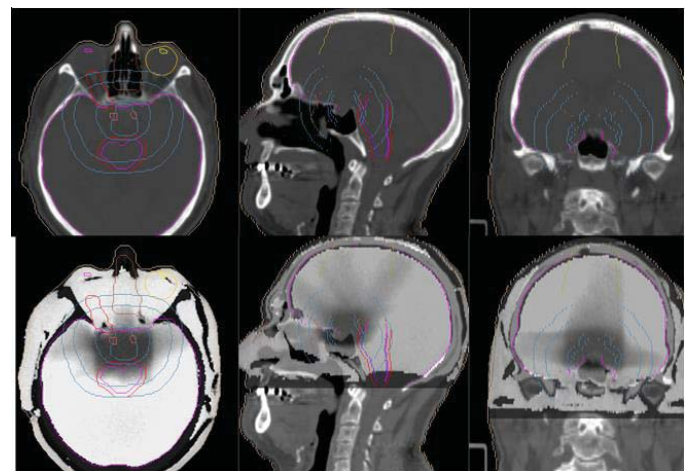


Figure 3. Axial, sagittal and coronal patient CT scans along with the RStructures data (PTV and Organs at Risk) (upper row). Corresponding MRI T2-maps of the irradiated PSDP are co-registered with the patient CT scans (lower row). The dark areas seen in the MRI scans are the high dose areas.

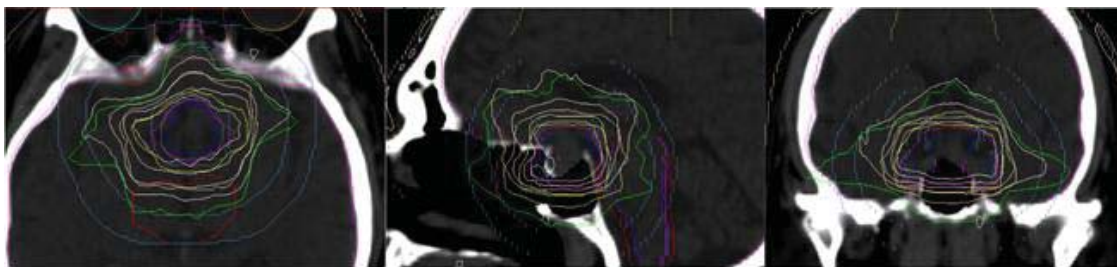


Figure 4. TPS-calculated isodose lines (50, 40, 25 and 15 Gy colored lines) and corresponding PSDP-measured isodose lines (white lines).

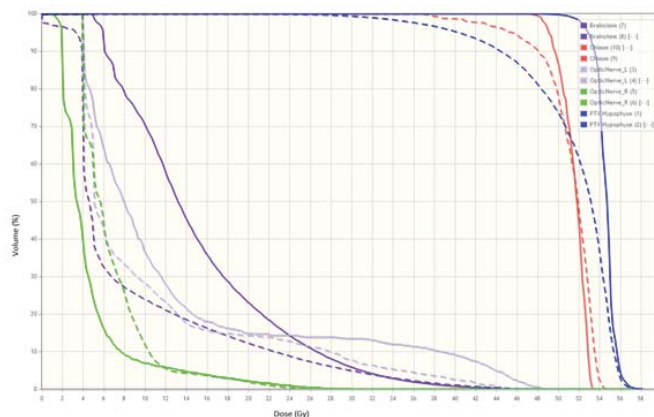


Figure 5. TPS-calculated (solid lines) and PSDP-derived (dashed lines) DVHs of the target and some OARs.

► measurements performed with the presented methodology. The MRI scans of the irradiated PSDP are co-registered to the planning CT scans of the real patient that also contain the RStructures information (Figure 3). The MRI dark areas (low-T2 values areas) indicate the high dose region areas. The T2 values can be converted to dose values following the polymer gel dosimetry calibration curve and therefore to measured isodose lines that can be directly compared to the TPS calculated corresponding isodose lines (Figure 4).

A quick inspection at the data and images presented in Figures 3 and 4 show that overall the high dose region exists very close to the area where the PTV exists. The 3 mm intentionally applied set-up error in the head-foot direction can be hardly detected by eye inspection. However, the error is clearly detected via a gamma-index comparison between the 2 datasets (TPS dose calculation and PSDP dose measurements) and more importantly by a comparison between the DVH calculated by TPS and corresponding DVHs measured by the use of the proposed methodology (Figure 5). The PTV underdosage is evident. The clinical effect (i.e. DVH alterations) of the 3 mm set-up error is quantified not only for the PTV but also for all OARs. This way both treatment effectiveness and

patient safety are evaluated.

This innovative method offers unique performance metrics that are related with clinical endpoints. It is proposed for the presented method to be used for plan verification in demanding cranial radiotherapy cases towards ensuring and enhancing treatment effectiveness and patient safety. It is also used as an excellent end-to-end QA tool for the quality control of the dose delivery systems.

Acknowledgements

The present work was funded by 'RTsafe P.C.,- Athens, Greece' (www.rt-safe.com)

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The 57th Annual Meeting & Exhibition of AAPM

Johnson Darko, Grand River Hospital, Kitchener, Ontario, Canada



Over 4,000 participants from around the world gathered on July 12 – 18 for the 57th Annual Meeting & Exhibition of the American Association of Physicist in Medicine (AAPM). This year's meeting was held at the Anaheim Convention Center in California, USA under the theme “Reinvigorating Scientific Excellence”.

The AAPM meeting offer an opportunity for professionals to gain practical knowledge on emerging technical and professional issues. As explained by AAPM president Dr. John Boone, the scientific program features the latest research in the physics of medical imaging and radiation therapy, including a major focus on the increasing integration on advanced imaging technologies in the guidance of medical therapeutics. He challenged all participants, regardless of what their role is in the field of medical physics to improve their scientific skills by adopting a personal commitment to life-long learning and take advantage of the outstanding opportunities offered at this summer's meeting to reinvigorate their scientific excellence.

The highlight of the meeting was the President's Symposium on “Revitalizing Scientific Excellence: Turning Research into Clinical Reality through Translational Research” by J. Boone, B. Minsky, R. Arenson, R. Pettigrew, C. Yu, and E. Jackson. The symposium explored the translational path from research through clinical implementation. Dr. Pettigrew shared his perspectives as director of the National Institute of Biomedical Imaging and Bioengineering (NIBIB) and suggested that NIBIB funded grants leads to a very high patenting rate (per grant dollar), and these patents tend to have higher citation rates than other patents, suggesting greater clinical impact. Dr. Yu described two examples of clinical translation that have resulted from NIH-funded research in radiation therapy and diagnostic imaging; a stereotactic radiotherapy device developed in his laboratory for treating breast cancer with the patient in the prone position. Dr. Jackson concluded the symposium by describing the RSNA Quantitative Imaging Biomarkers Alliance (QIBA) funded in part by NIBIB; a synergistic collaboration between medical physicists, radiologists, oncologists, industry representatives, and other stakeholders. The overall goal of this symposium was to illustrate the bidirectional exchange between medical research and clinical practice.

Over 100 vendors and organization with an interest in medical physics or related equipment, products, and services including the International Organization of Medical Physics (IOMP) participated in this year's technical exhibition. Organizers continued Partners in Solutions for the second year, offering a new way for physicists to interact with and learn from vendors. Vendors provided physics-level applications training classes in a special-purpose lecture room located on the exhibit floor. These were not sales pitches, but practical information for the clinical physicist from the people who know their systems in depth. Topics for this year were; for imaging: Tools for Collecting and Analyzing Patient Dose Metric Information from Imaging Equipment; and Therapy: Deformable Image Registration, Contour Propagation and Dose Mapping.

New at the 2015 meeting was a special three-day track on ultrasound; a Carson-Zagzebski distinguished lectureship on medical ultrasound; a day-long track on MR guided radiation therapy; joint scientific symposium with the ▶

► World Molecular Imaging Society; and a joint scientific symposium with ESTRO on Imaging Markers for Assessment of Treatment Response. Also new this year the meeting organizers introduced an electronic posters session held in a special electronic poster theater in the exhibition hall. This session featured the top 5 abstracts in each track - Imaging, Joint -Imaging and Therapy, and Therapy. A select group of high-scoring posters on a specific theme that were identified by the Program Directors to be of special interest to attendees were also presented at the electronic poster sessions.

Various social activities organized for participants included the Awards Ceremony and a Night Out at the Grand Plaza. At the Awards Ceremony on Monday, the 2015 AAPM William D. Coolidge Award, AAPM's highest honour to a member who has exhibited a distinguished career in

medical physics, with significant impact on the practice of medical physics, was awarded to Maryellen Giger, PhD (A.N. Pritzker Professor of Radiology / Medical Physics at The University of Chicago). The Night Out at the Grand Plaza on Tuesday provided a taste of the local flavour from food trucks parked along the plaza with music by the California's Surftones, a beach band quartet.

Located in the heart of sunny Southern California, Anaheim provided the perfect venue to also enjoy time outside, catch up with colleagues and visit nearby attractions with the whole family. Anaheim had a unique and vibrant yet laid-back vibe with a diverse range of activities including those offered at the Disneyland resorts.

The 58th AAPM meeting will be held in Washington, DC on July 31 – August 4, 2016. ◀

Donation of Equipment – PRC Report Jan-Jun 2015

Mohammed K. Zaidi, Program Manager, IOMP PRC



The objective of the Equipment Donation Program (EDP) of the International Organization for Medical Physics (IOMP) and the American Association of Physicists in Medicine (AAPM) and is to help developing countries acquire used equipment in good working condition. The staff verifies as-far-as possible that it meets the need of the recipient country. Some of the countries benefited were Argentina, Bangladesh, Brazil, Egypt, India, Iran, Nigeria, Pakistan, Philippines and United Arab Emirates (UAE) and the donors were from Australia, Germany, Lebanon, United Kingdom and the United States of America. The program is a modest one and under review to ensure it meets current needs, regulations and guidance. Links,

liaison and co-operation with EDPs of WHO, AAPM, ASTRO, IFMBE, ISSRT, ICCE, and PAHO are made to run a smooth Program. I had attended the WC-2015 and had made connections with these international organizations and vendors to secure equipment and funding. I also helped manage the IOMP booth very well prepared by the IOMP staff. A poster was also presented at the congress to promote the EDP.

A donation of Omega Model B-200 Fluoroscope was offered by Dr. Abid Fakhri, a Cardiologist at Latrobe Hospital, Latrobe, PA, USA and necessary arrangement are being made to ship it to Rana Al-Habib Memorial Hospital, Raiwind, Pakistan. PRC is thankful to Dr. Fakhri for this donation and the support to get the machine deinstalled.

A large donation of 30 pieces of equipment used in calibration of radiographic and therapeutic machines and also a used CT and a mammographic machine by Ms. Anita Galkin-Dwork (daughter of Late Benjamin M Galken (who was a member of AAPM all his life) offered by the Estate in Philadelphia. I plan to ship it to Dr. Kalu, Amazing Grace Clinic, Umuahia, Abia State, Nigeria, shipping port Apapa Lagos, Nigeria. Necessary arrangement for their shipment are being made.

A request for Block-cutter from Ghana Society of Medical Physics, Oncology Directorate, Komfo Anokye Teaching

Hospital, Kumasi, Ghana. I had another request from CEO WHO International Aid (forwarded by Dr. KY Cheung) from Liver Trust Foundation, Faisalabad, Pakistan for UE to help them screen and diagnose. They badly need those UE, so please ▶

▶ donate one.

We are looking forward that the donors should come with useable equipment which should be less than 10 year old. Some of the items recently offered and we are looking for a home are: Water tanks, hydraulic lift assembly, dual channel electrometer – this system is controlled by Wellhofer’s OmniPro Accept software. TLD reader, farmer ionization chambers and stack of ready pack x-ray films, USG Doppler, Video-EEG & CT machine.

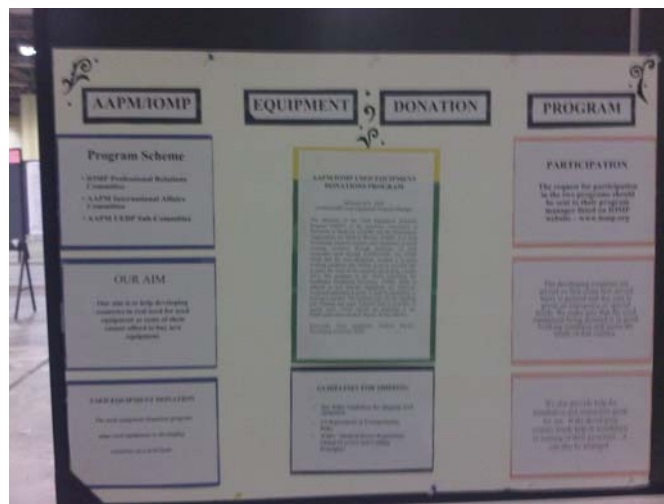
The equipment donated to our Program is in good working condition but we don’t guarantee its usefulness. The donations of used equipment are sometime tax deductible. AAPM/IOMP will not be responsible for any warehousing expenses or loss if the used equipment donated couldn’t be shipped.

If you want to donate, or want specific used equipment donated to your organization, please contact the EDP Manager. For more information, please email your request to zaidimk@gmail.com.

PS: Letter of appreciation received from Mr. Martin Mukosai, Mwandi Mission Hospital, Livingstone, Zambia, Central Africa on receiving seven books (some collected and some bought). The books will help him and others at the hospital to prepare for the award on master’s degree in medical technology with specialization in use of sonography in the study of cario-vascular system.

30th July, 2015 THE AAPM / INTERNATIONAL ORGANISATION FOR MEDICAL PHYSICS (IOMP)

Thank You For Donation: It is my sincere pleasure to express my heart felt gratefulness of the generous support of the package of cardiovascular /radiology study materials from the American Association of Physicist in Medicine and the International Organisation for Medical Physics. With this magnitude of assistance, it is extremely anticipated that educational knowledge will be accomplished through the use of the materials. The introduction of echocardiography has made a dramatic influence on patient management typically in the peri-operative, critical care, emergency medicine, surgery and internal medicine environments. As such to meet the challenges encountered in today healthcare practice, the use of the study materials has a pivoted role in acquiring the skills, knowledge and practise to better equip for the tasks. Every patient either visiting or admitted at healthcare centres, has a chance of being referred for diagnostic imaging to make certain the probable treatment and management plan. The HIV / AIDS’ association of the oppoturmistic infections has adverse effects on the cardiovascular system which requires to be well abreast for effective diagnosis technically. As I embark on to explore the speciality profession of echocardiography sonographic imaging in various disease conditions, it is learned that the use of the study materials will be of greatsignificance in this regard. It is through the continued support of the AAPM/IOMP that the benefits will be extended to our communities. Thank you so much once again. Martin Mukosai Livingstone – Zambia, central Africa. ◀



Workshop on Heavy Metals Sponsored by Peruvian INS-PUCP-IUPESM held in Lima on 7-8 May 2015

H.F. Voigt and Rossana Rivas

On 7 May 2015, in the Biomedicine Auditorium of the National Institute of Health in Chorrillos, Lima, Peru, Dr. Ernesto Gozzer Infante, Head of the Peruvian Instituto Nacional de Salud (INS), opened the 1st International Course on Technology Transfer for Epidemiological and Public Health Research on Heavy Metals.

Peru has a growing heavy metal toxicity problem among its population because of informal mining practices: legal and illegal. In the case of mercury it finds its way into the water supplies poisoning fish and then the people who eat the fish. In addition, the mercury/gold/earth amalgams are burned to extract the gold while mercury vapors pollute the air. But mercury (Hg) is not the only

problem; lead (Pb), cadmium (Cd) and arsenic (As) are also leading causes of concern in Peru, the exchanges and research are specially interesting for the Latin America region.

According to Dr. Bruce Lanphear in the USA, 100% of children are found to have Pb in their blood; 89% have Hg. Other toxins include organophosphate pesticides, PCBs, BPA and PBDEs. These materials are what Dr. Philippe Grandjean, head of the Environmental Medicine Research Unit at the University of Southern Denmark, calls "Brain Drainers". They are brain drainers because they chip away at IQ scores of the children affected.

Speakers in the Workshop were Dr. Laura Borgel Aguilera, University of

Chile, Dr. Christopher Frederickson, CEO NeuroBioTex, Inc., Dr. A. J. Attar, President of Appealing Products, Inc., Dr. Patricia Fabian,

Boston University School of Public Health, Dr. Herbert Voigt, IUPESM and PhD (c) Rossana Rivas, Pontifical Catholic University of Peru. The partnership of a National Institute of Health, a Private University, Pontifical Catholic University of Peru (PUCP) and an International Union (IUPESM) of the International Council for Science (ICSU) is an excellent example of cooperation in an area of international concern. The partnership will seek additional ways it can address heavy metal toxicity in Peru and in other countries. ◀



AAPM ISEP 2015 Diagnostic Medical Physics Course in Kaunas (Lithuania)

Eugene Lief, AAPM Course Organizer

On May 18-22 Kaunas (Lithuania) hosted 2015 Course in Diagnostic Physics that is traditionally administered by International Scientific Program Committee (ISEP) of American Association of Physicists in Medicine (AAPM). There were five AAPM instructors: Douglas Pfeiffer, Robert Jeraj, Madan Rehani, Charles Shang, and Eugene Lief. The course was well arranged by a local organizer Antanas Vaitkus. There were total 50 participants, including attendees, faculty, and the local organizer. Although most attendees were coming from the Baltic region and neighboring countries, some of them came from as far as the Middle East. The list of countries of origin includes Belgium, Estonia, Latvia, Lithuania, Oman, Qatar, Russia, Saudi Arabia, UAE and Ukraine. The course was endorsed by IOMP, EFOMP, and IAEA, which helped to disseminate information about it.

During 5 days of intensive lecturing we covered extensive material on practical aspects of Diagnostic Radiology Physics. The topics included Radiography, Fluoroscopy, CT, MR, PET, Nuclear Medicine, dental imaging, ultrasound, Radiation Protection, Mammography, PACS, shielding calculations, radiation dose modeling, PET, Molecular Imaging, Medical Physics training and European regulations. In addition to the physics topics, there was a panel session regarding education of Medical Physicist, workforce issues and ways to develop high educational standards. Visit to a local hospital was an excellent supplement to the lectures.

The course opening was attended by The Director General of the Hospital "Kauno

Klinikos" of the Lithuanian University for Health Sciences Prof. Habil. Dr. Renaldas Jurkevičius and the Head of Radiology Department, president of Kaunas Regional Society for Radiologists

Prof. Dr. Algidas Basevičius, as well as representatives of the local press. By the end of the day, articles about the course were published on the web edition of the national portals for public and health care professionals: emedicina.lt, vlmedicina.lt, lsveikata.lt

and on official websites of: the Ministry of Health of the Republic of Lithuania, Lithuanian University of Health Sciences and the Hospital of Lithuanian University of Health Sciences Kauno klinikos. We want to thank our capable local organizer Antanas Vaitkus not only for the perfectly organized course but also for the impressive opening ceremony and attention of the local authorities and the press. This coverage is important to maintain global high standards in our profession.

In addition to extensive academic program, the attendees had ample opportunities to establish professional relations with their colleagues.

During the opening reception, social event, and evening hours there was extensive communication between the colleagues from different countries. An important part of the program was a visit to a local hospital which demonstrated high standards of health care in Lithuania.

Overall, the course was highly evaluated by the attendees. Most of them were interested in receiving CAMPEP (Commission for Accreditation of Medical Physics Educational Programs) educational credits that are required for Board certification renewal in the US and are becoming more popular in other countries. Some participants expressed interest in hosting similar courses in their countries that may become possible in future. The course became an important milestone in continuous efforts of AAPM ISEP to provide Medical Physics education in different parts of the world. ◀



Women and Lung Cancer: Looking at the Problem More Closely

Simone Kodlulovich Renha

**National Nuclear Energy Commission, Rio de Janeiro, Brazil, ALFIM
President, IOMP Female in Medical Physics Group**

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Early detection of cancer is probably the best way to ensure illness control and reduce mortality. Screening programs for malignancies, such as breast, cervix and colon, have proven to be efficient and changed the panorama of survival rates all over the world. All these programs have been supported by Government policies, National Health Campaigns and several organizations, mobilizing the population and health care providers. The media has also contributed to these efforts by disseminating information on risk factors, diagnosis and treatment options, as well as making visible user's opinions.

Chest x-ray screening programs for the early detection have been previously used, but they failed to decrease lung cancer mortality. This is likely because conventional radiography could not detect cancers small enough or at an early enough stage to improve survival, even in high-risk heavy smokers¹. Surrounded by questions about its effectiveness, Low Dose Computed Tomography (LDCT) merged as an alternative for lung cancer screening of specific high-risk groups.

But, is women population well informed about lung cancer incidence, mortality and risk factors? Is this screening option also suitable for woman? Are we addressing the problem effectively? What actions should be done to change the current scenario? The task group of IOMP on female MP invite all to this discussion.

1. General panorama of women lung cancer incidence and mortality

Recent statistics demonstrated that lung cancer is the leading cancer killer worldwide, independently of gender. Currently, this type of cancer cause more deaths than the next three most common cancers combined (colon, breast and pancreatic cancers). In the United States, the estimates for 2015 are about 221,200 new cases (115,610 in men and 105,590 in women) and 158,040 deaths (86,380 in men and 71,660 among women) from lung cancer, representing approximately 27% of all cancer deaths.²

Once considered a "man's disease", nowadays lung cancer is the third most common cancer in women in developed countries, after breast and colon cancer. While the number of lung cancer new cases decreased each year for men, the incidence increases each year for women. In UK, between 1993 and 2008, lung cancer cases in men fell by almost one third, while cases in women increased by 11%³.

In 2012, Denmark had the highest rate of women lung cancer (Age-Standardised Rate per 100,000 - World), followed by Canada and the United States of America. By regions, the highest incidence of women lung cancer was in Northern America and Oceania; and the lowest incidence in Africa and Latin America and the Caribbean⁴.

In North America, almost half of all lung cancer cases occur in women, whereas in Latin America and the Caribbean almost two thirds of all lung cancer cases occur in men. Among women, the number of new lung cancer cases is almost 4 times higher in North America than in Latin America and the Caribbean. Among Latin American women, the number of cases and deaths from lung cancer is expected to almost double by 2030⁵.

Although breast cancer has been the leading cause of cancer death in women for many years, since 1987 it was surpassed by lung cancer⁶. The Cancer Journal for Clinicians reported that in 2012 this aggressive type of cancer killed approximately 209,000 women in developed countries, while 197,000 women died of breast cancer. Studies carried out in UK indicated that lung cancer kills almost 4,000 more women each year than breast cancer³.

In recent years a rapid increase in lung cancer mortality has been observed among women in developed countries, contrasting with a leveling off or decrease among men. In Australia mortality rates for lung cancer decreased in men (from 78.9 deaths per 100,000 in 1982 to 43.8 deaths per 100,000 in 2011) but increased in women (from 15.4 deaths per 100,000 in 1982 to 23.7 deaths per 100,000 in

2011)⁷.

2. Risk factors

Tobacco is the most significant risk factor for the development of lung cancer. An estimated 84% of lung cancer deaths in the Americas are attributable to tobacco. Other significant risk factors include pipe and cigar smoking, as well as exposure to asbestos, secondhand smoke, radiation, and air pollution⁸.

However, a proportion of lung cancers in women occur in those who have never smoked (about one in six). Several studies have suggested that women's lungs are more vulnerable, even among non-smokers, and therefore the risk of developing lung cancer is higher among women than men. This different susceptibility to tobacco carcinogens between genders is controversial. Nevertheless, there are some factors such as the difference in the histological distribution of lung cancer, with glandular differentiation being more common in women, biological factors and probably environmental factors and lifestyle, which may play a role in carcinogenesis⁹.

Recently, genetic variation among men and women and its possible role in oncogenesis has become evident. The role of estrogen in lung tumorigenesis has been shown in case control studies where factors such as early menopause, association between tobacco use and estrogen, and hormonal replacement therapy have been associated with an increased risk of lung cancer. Nevertheless, the role and impact of genetic and hormonal variations in lung carcinogenesis in women is still under study¹⁰.

On the other hand, evidence suggests that when women quit smoking, their lungs recover more quickly than men's. Women with lung cancer usually live longer than men with the disease³.

3. Early Stage Detection: low-dose computed tomography lung cancer screening

Lung cancer mortality in specific high-risk groups can be reduced by annual screening with LDCT, according to the findings from the National Cancer Institute's National Lung Screening Trial. CT lung cancer screening is the first and only cost-effective test proven to significantly reduce lung cancer deaths. (ACR release, Feb. 5, 2015).

Consequently, the American Cancer Society issued an initial guideline for lung cancer screening. It recommends that clinicians with access to high-volume, high-quality lung cancer screening and treatment centers should initiate a discussion about screening with apparently healthy patients aged 55 years to 74 years who have at least a 30-pack-year smoking history and who currently smoke or have quit

within the past 15 years (one pack-year = smoking one pack per day for one year; 1 pack = 20 cigarettes). The process of information and shared decision-making with a clinician, underlying the potential benefits, limitations, and harms associated to lung cancer screening with LDCT should occur before any decision is made to initiate lung cancer screening.

The National Comprehensive Cancer Network (NCCN) in February 2012 became the first organization to publish guidelines that endorse LDCT screening as a screening tool, and serves as a useful source of information on the LDCT screening process. NCCN recommendations specify that LDCT screening requires: 1) sophisticated multidetector CT scanners and analytic software; 2) professional physicists and staff who certify equipment and perform studies to a consistent standard at acceptable radiation exposures; 3) qualified radiologists who use standardized terminology and standardized interpretation; 4) appropriate guidelines; 5) reliable communication requirements with primary care physicians; and 6) medical environments that can absorb patients who require ongoing management and handle the responsibility of tracking screened individuals and documenting outcomes¹¹.

The effectiveness of this screening depends on the quality of the diagnostic center which should accomplish some specific requirements. The American College of Radiology (ACR) and the American Association of Physicists in Medicine (AAPM) have published specific criteria and guidelines for lung cancer screening, including CT equipment characteristics and scan protocols.

Based on their previous role in monitoring the quality of the breast cancer screening process (acr.org/Quality-Safety/Lung-Cancer-Screening-Center) ACR has developed certifying standards for the process of lung cancer screening, which include specific requirements for equipment, personnel, and imaging protocol. On the other hand, ACR is also promoting the Lung Imaging Reporting and Data System (Lung-RADS) which the ACR characterizes as a quality assurance tool with which to standardize lung cancer screening, CT reporting, and management recommendations; reduce confusion in lung cancer screening CT interpretations; and facilitate outcome monitoring⁽¹¹⁾.

On the same line, AAPM recommendations includes key elements when performing LDCT lung cancer screening: one breath-hold (thoracic motion is problematic); thin image thicknesses (≤ 2.5 mm, ≤ 1.0 mm preferred); reconstruction of coronal and sagittal reformations as well as MIPS may be helpful and are encouraged; $CTDI_{vol} < 3.0$ mGy for a standard sized patient, with adjustments made for smaller

and larger patients. This typically requires a 16 detector row (or greater) scanner to meet these requirements (12).

Regarding patient dose, AAPM reminds that effective dose is defined in ICRP 103 as a population dose metric and should not be used to estimate dose or risk to an individual. From a screening population point of view, one method to estimate the effective dose is to calculate the Dose Length Product (DLP) and then apply a conversion factor described in AAPM TG Report 96 to estimate the effective dose. For an idealized standard sized patient and a 25 cm scan length, and using the k factor of 0.014 mSv/mGy*cm; these protocols should result in an effective dose below 1 mSv (12).

In February 5th, 2015, the Centers for Medicare & Medicaid Services (CMS) in Washington DC determined that the evidence is sufficient to add a lung cancer screening counseling and shared decision making visit, and for appropriate beneficiaries, annual screening for lung cancer with LDCT, as an additional preventive service benefit under the Medicare program. CMS will require providers to submit clinical and follow-up data to an approved registry. The ACR Lung Cancer Screening Registry has applied for CMS approval to help providers efficiently meet those registry reporting requirements.

The benefit of LDCT did not appear to vary substantially by age or smoking status; there was weak evidence of a differential benefit by sex, with women having a more protective effect from LDCT than men (13).

4. Tobacco control – World No Tobacco Day, 31 May

In all studies it was verified that tobacco is the strongest epidemiological risk factor for the development of lung cancer. For that reason, recent publications have highlighted the convenience of integration of smoking cessation measures with LDCT screening in order to improve screening benefits. The LDCT screening setting, which (for now) involves annual follow-up, provides an opportunity to manage tobacco cessation at each annual encounter. This new screening management setting comprises a new platform in which to adaptively personalize efforts at smoking cessation (11).

For ten years, the World Health Organization (WHO) has promoted the WHO Framework Convention on Tobacco Control (WHO FCTC) which is the pre-eminent global tobacco control instrument, containing legally binding obligations for its Parties, setting the foundation for reducing both demand for and supply of tobacco products and providing a comprehensive direction for tobacco control policy at all levels. Since it came into being, the Convention

has been by 180 Parties, covering 90% of the world's population and "stands out as the single most powerful preventive instrument available to public health," according to Dr Margaret Chan, WHO Director-General (14).

As health professionals, we encourage medical physicists to follow the WHO code of practice on tobacco control for health professional organizations: be a role model, advice on cessation, make your own premises and events smoke-free, influence health and educational institutions to include tobacco control in curricula, prohibit the sale and promotion of tobacco on premises and support smoke-free places. Medical physicists are also invited to participate in the celebration of the World No Tobacco Day, next May, 31st.

Conclusion

In summary, based on the clinical evidence already available, we can say that some lung cancer deaths can be prevented with LDCT. If the screening is performed in conjunction with smoking cessation services, then screening benefits will improve.

LDCT imposes new challenges for medical physics community, as quality control and equipment performance become critical to ensure adequate imaging, diagnosis and patient protection. Medical physicists also have a role as health professionals to encourage tobacco control and be a model to follow.

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ICMP 2016 THE 22ND INTERNATIONAL CONFERENCE ON MEDICAL PHYSICS 06–09 December 2016, Thailand

Middle East Federation of Organizations of Medical Physics (Bahrain, Iraq, Syria, Lebanon, Qatar, Jordan, KSA, Kuwait, UAE, Yemen, Oman, Palestine)

Ibrahim Duhaini, Past President of MEFOMP



MEFOMP countries have participated in many activities throughout its territories some of which are listed below:

1. 2013: Training Course on Radiation Safety in Nuclear Medicine and PET CT during the Kuwaiti Medical in Kuwait.
2. 2014: New Trends on Radiation Therapy during the National Lebanese Medical Summit in Lebanon
3. 2015:
 - a. Radiation Safety on Interventional Radiology in Qatar
 - b. Summit on Radiation for Life in Qatar
4. Writing the Chapter on the IOMP Book about the Radiation Regulations in the MEFOMP Countries.
5. Election on February 2015 supervised by Prof. Fridtjof Nusslin and Prof. KY Cheung:

The MEFOMP Elected Candidates for

2015 - 2018:

A. ExCom Officers:

1. President: Abdullah Al Hajj , KSA
2. Vice-President: Huda Al Naemi , Qatar
3. Past President: Ibrahim Duhaini, Lebanon
4. Secretary-General: Laila Al Balooshi, UAE
5. Treasurer: Rabih Hammoud, Lebanon

B. Committees Chairman:

1. Science: Nabaa Naji , Iraq
2. Publications: Lama Sakhnini , Bahrain
3. Professional Relations: Ibrahim Duhaini, Lebanon
4. Education & Training: Nabil Iqeilan, Jordan
5. Awards & Honors: Hanan Al Dousari, Kuwait
6. MEFOMP Newsletter: Hassan Kharita, Syria

6. The First MEFOMP Board meeting took place on April 5, 2015 3:00 – 4:00 pm at the Conference Hall A7 in Doha, Qatar. It was started by welcoming message from Ibrahim Duhaini, Past President of MEFOMP and congratulating the newly elected MEFOMP ExCom. Below are some of the main items discussed:

- o Presenting the history of establishing the MEFOMP showing the list of the countries of ME who had the erg to form such federation under the umbrella of IOMP.

o Briefing of the MEFOMP Activities

during the previous terms.

o Handing over Respective Positions to the newly Elected Officers.

o Dr. Al Naemi thanked everyone for attending the Radiation for Life Summit in Doha.

o She invited the new team to work hard and activate more MEFOMP action during the upcoming term.

o Dr. Al-Naemi put forward a plan to arrange for the “Second MEFOMP Conference” to be held in Doha, Qatar at the end of 2015.

o A special welcome to Dr. Hanan Al Dousari who came especially to attend this meeting

o Dr. Al Haj started by thanking the previous team for their efforts in establishing the organization and he valued the exertions that Ibrahim put forward to reach to where we are now.

o He requested the newly elected Committee Chairmen to start selecting their members the soonest in order to activate the Committees.

o Dr. Hassan Kharita highlighted the matter of advertising in the newsletter so that to integrate the Corporations to support our activities in the region.

o Mr. Rabih Hammoud, stresses the fact that all MEFOMP Medical Physics Societies to settle their membership with IOMP and pay their corresponding dues so that every society will have the right to nominate and vote in the IOMP Elections in the future.

o Dr. Hanan Al-Dousari mentioned that MEFOMP should remain in close

collaborations and communication with colleagues from other IOMP countries to coordinate efforts to recognize Medical Physicists from our region too.

o Mr. Nabil Iqeilan suggested formulating a plan of training Junior Medical Physicists in Arabic Language to deliver the concepts of physics clearly using the native language of

Arabic.

7. The updated MEFOMP societies are tabulated below:

Country	No. of Medical Physicists	No. of Female Medical Physicists	Name of President/Representative
KSA	376	84	DR. ABDALLAH AL-HAJJ
Qatar	13	4	DR. HUDA AL-NAEMI
Bahrain	7	6	DR. LAMA SAKHNINI
Iraq	45	28	DR. NABAA NAJI
Jordan	19	7	MR. AHMAD HAMDAN
Kuwait	20	4	DR. HANAN AL-DOUSARI
Lebanon	15	7	DR. WASSIM JALBOUT
Oman	26	22	DR. AFKAR AL-FARISI
Syria	25	4	PROF. IBRAHIM OTHMAN
UAE	61	43	MS. NAJLAA KHALFAN AL MAZROUEI
Yemen	5	2	MR. ABDO AL-QUBATI
Palestine	4	3	MS. HUSSUN KHOULI



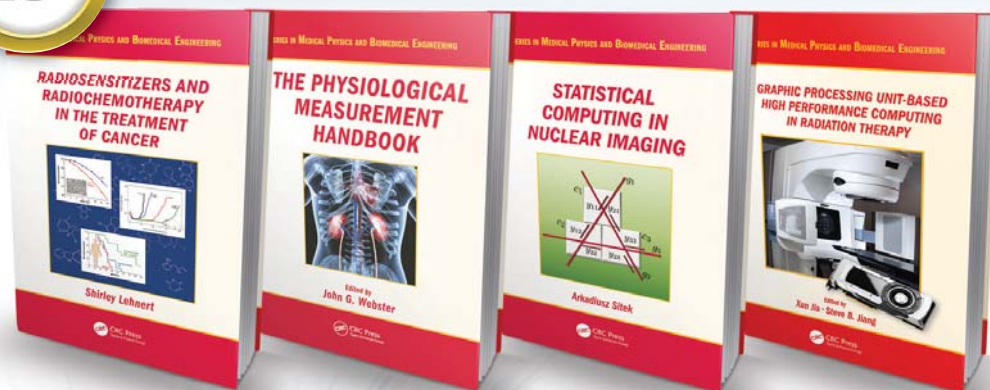
CALENDAR OF EVENTS - Ibrahim Duhaini, Calendar Editor

- ▶ Int'l Conference on Medical Physics - U.K
Aug 3 – 5, 2015
Birmingham, West Midlands, UK
- ▶ 37th Annual International Conference of the IEEE Engineering in Medicine and Biology Society
Aug 25 – 29, 2015
MiCo - Milano Conference Center, Milan, Italy
- ▶ Medical Physics and Engineering Conference (MPEC) - Liverpool
Sep 8 – 10, 2015
Liverpool, Merseyside, UK
- ▶ Annual Meeting of the German Society of Medical Physics - Marburg
Sep 9 – 12, 2015
Marburg, Germany
- ▶ National Congress of the South African Association of Physicists in Medicine and Biology (SAAPMB) - South Africa
Sep 23 – 27, 2015
Bloemfontein, South Africa
- ▶ European Society for MR in Medicine and Biology - Scotland
Oct 1 – 3, 2015
Edinburgh, City of Edinburgh, UK
- ▶ International Conference on Clinical PET/CT and Molecular Imaging (IPET 2015) - Vienna
Oct 5 – 9, 2015
Vienna, Austria
- ▶ KFMC Conference on Physics and Engineering in Medicine
Oct 11 – 15, 2015
Riyadh Saudi Arabia
- ▶ Int'l Symposium on the System of Radiological Protection - S Korea
Oct 20 – 22, 2015
Seoul, South Korea
- ▶ Int'l Training Course on Carbon-Ion Radiotherapy - Japan
Nov 9 – 14, 2015
Chiba Prefecture, Japan
- ▶ XIV Mexican Symposium on Medical Physics
Mexico City March 16-21, 2016

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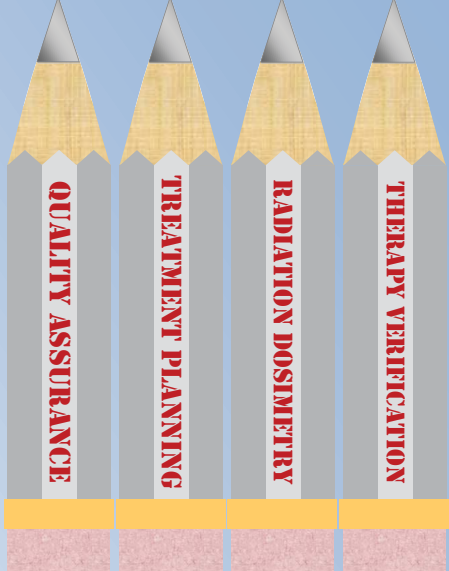
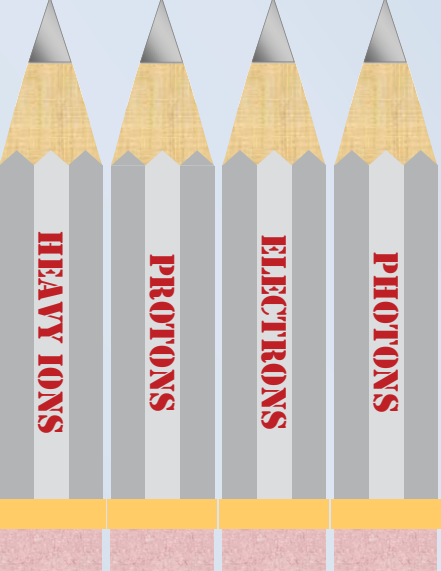
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