International Organization for Medical Physics

IOMP

eMPW

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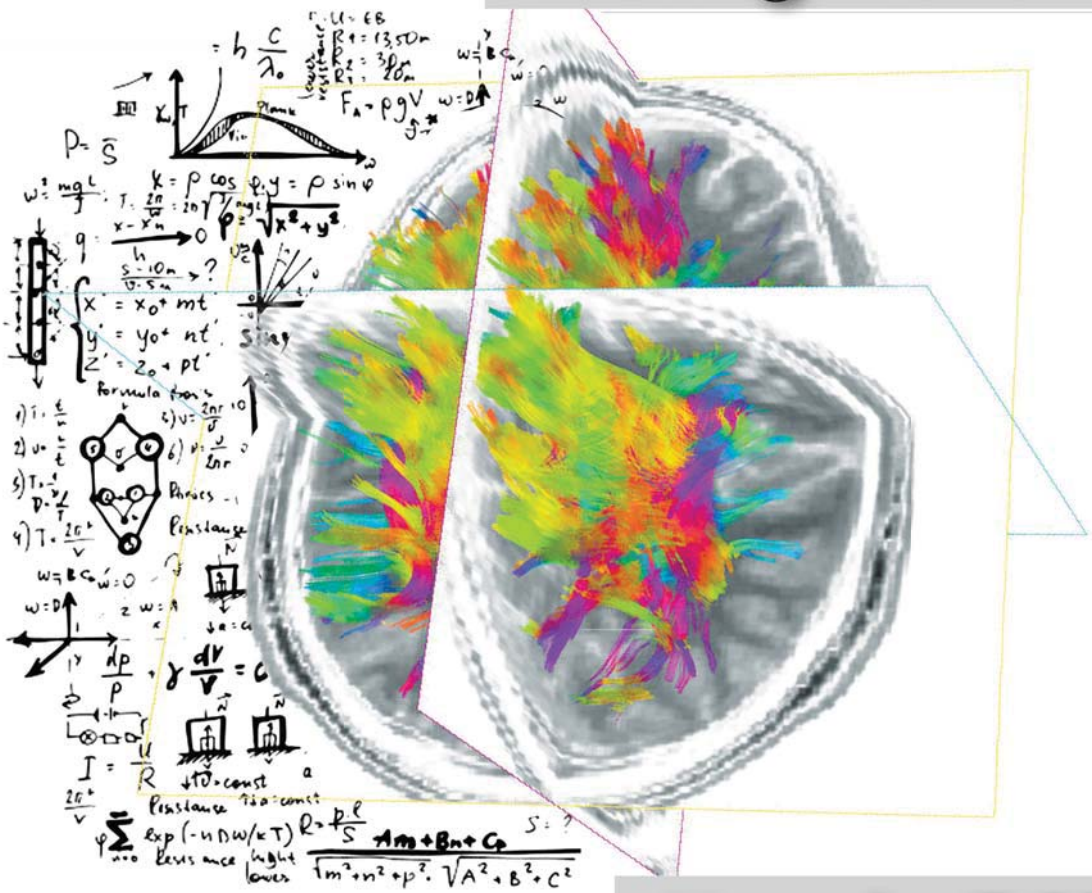
Education in Medical Physics

The Key to Success



November 7, 2016

International Day of Medical Physics

Medical Physics World

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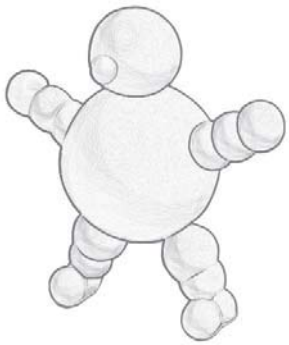

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Medical Physics World

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MPW/eMPW

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IOMP
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Message from the Editor

Magdalena Stoeva, PhD, Chair MPW Board

Dear friends and colleagues,

It is one year since our enthusiastic team took the responsibility and the honor of being the new Medical Physics World Editorial Board.

This issuue of Medical Physics World may be considered as a key publication in the newsletter's history. Following the decision of the latest editorial board meeting, we now introduce several new initiatives:

- Topical editors - the editorial board decided to invite topical editors for the upcoming issues of MPW, selecting a topic related to an upcoming important event for our profession.
This issue's topic is EFOMP, related to the 1st European Congress of Medical Physics, Athens 2016. I would like to welcome our topical editor - Paolo Russo, Editor-in-chief of Physica Medica. Under the topical section dedicated to EFOMP, Paolo presents Physica Medica, as well as some of the leading European NMO's.

- Start distributing MPW via the MEDPHYS automatic digest. This initiative is a part of the dissemination activities and we expect it to increase the interest in MPW.

- Reverting to the original numbering of MPW issues. In 2010 MPW reset the volume numbering starting again from Vol. 1. We are currently at Vol. 7, which actually correspond to Vol. 32, if the original numbering is to be followed. This step will bring the historical connection to the editorial teams that have published MPW in the period 1982-2010, as well as emphasize the role of MPW for IOMP during these many years.

In addition to these important initiatives of the Medical Physics World Editorial Board, I would also like to draw your attention to the President's message, the reports of the IOMP Committees, Regional organizations and other hot topics.

Among our invited authors is Professor Richard Frackowiak, Co-director of the "Human Brain Project". Prof. Frackowiak is presenting an article dedicated to the Modern clinical neurosciences and neuroimaging.

MPW is also happy to announce the topic of the International Day of Medical Physics - Education in Medical Physics: the Key to Success!

... and last, but not least, take a moment to look at our Calendar of Events. There are many important events on the way. Be active, join our professional community!

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Ukraine
United Arab Emirates
United Kingdom
United States
Venezuela
Vietnam
Zambia
Zimbabwe

NMO status being reviewed

IOMP in 2016

Focus on Education

President's Address

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

Dear Colleagues,

As you know this year the International Day of Medical Physics will be focussed on Education – an area I have worked a lot - in various projects and as previous Chair of IOMP ETC. Education is one of the most important elements of any profession, but with special importance for very dynamic professions as medical physics. Almost every year there are new types of equipment or methods which enter healthcare, and behind these stays an army of medical physicists and engineers, who have invented, tested and clinically introduced it, as well as providing continuous care for the safe and effective use of the medical equipment. Hence, not only our young colleagues, students and trainees, but we all are constantly educating ourselves to keep up-to-date with the newest developments.

With this on mind I am grateful to all colleagues who constantly develop and deliver educational and CPD courses – at Conferences, topical meetings or on-line. IOMP opened a special platform for sharing educational and professional information - the online Journal Medical Physics International, which now enters into its 4th year and continues to attract more than 5000 readers per month (www.mpijournal.org). Starting with the International Conference on Medical Physics (ICMP2016) in Bangkok, we shall introduce an additional new specific activity in this field - "IOMP School", which will coordinate various CPD activities and will arrange for their materials to be available to other colleagues.

The growth of our profession internationally is directly linked with the enlarged role of medical technology in healthcare, and related establishment of new educational and training courses in many countries. According to IOMP statistics, at its establishment in 1963 the Organization included about 6000 medical physicists globally (predominantly in most developed countries).

IOMP ExCom

www.IOMP.org

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The growth of the profession in the first decade (1965-1975) had added about 2000 new professionals, and this growth is similar in the next two decades (1975-1985 and 1985-1995). However, after 1995 the growth per decade doubles (to 4000+) both in 1995-2005 and again in 2005-2015. During 2016 we have about 22,000 medical physicists worldwide (about 80% more specialists, compared with 1995). This double growth was underpinned by the early introduction of e-learning (starting with project Emerald – www.emerald2.eu); the organisation of Conferences addressing Education and Training; the increased number of Tracks and sessions dedicated to Education at our Congresses; the formation of new courses and MSc-level programmes in many countries; the unique International Medical Physics College in ICTP, Trieste, etc. We have to specially underline the expansion of the profession in Low-and-Middle-Income-Countries (LMIC), which now have about 30% of the global workforce (respectively the number of National Medical Physics/Engineering Societies, members of IOMP, has risen to 82). The professional growth during the last decade was specially seen in LMIC, where in Asia alone the growth of medical physics specialists is over 120% (and this was one of the reasons to select Bangkok in South-East Asia as the host of the coming ICMP 2016). In most of these international educational activities IOMP has worked together with other institutions (as IAEA, WHO, IUPAP and others), as well as with our largest members – AAPM and IPEM. This international collaboration will have further increased importance in the coming two decades (2015-2035), when the predictions are that the need of medical physicists in healthcare will lead to some 2-3 folds increase of their number globally. Special activities will be necessary for supporting the professional growth in Central America and Africa. As an example, currently the African continent with population of 1.1 billion (15.5 % of the people on the planet) has about 400 medical physicists (less than 2% of the global number of medical physicists). These geographical areas need the attention of all in our profession.

International collaboration in these activities is paramount for their success. We recently described in the e-book "The Pioneering of e-Learning in Medical Physics" (www.emerald2.eu/e-learning) how such collaboration of 300+ specialists from 36 countries resulted in the development of the on-line Encyclopaedia of Medical Physics (www.emitel2.eu) and the linked Dictionary of Medical Physics Terms (now translated in 29 languages). These materials are currently used by thousands of medical physicists worldwide, and this is exactly the type of collaboration we shall need for the completion of the big task of professional expansion in front of us. I very much hope that we all shall be able to combine our forces and to deliver new exciting educational materials and activities, thus strengthening the foundation of our profession.

I wish to all of you a very successful period ahead and fruitful celebration of the IDMP 2016 – "Education in Medical Physics – The Key to Success". I also hope to see many colleagues and friends at the ICMP2016 in Bangkok, 9-12 December 2016 (https://icmp2016.org/home).

IOMP Regional Coordination Board (RCB), June 2016

Following the establishment of the RCB at the WC2015, Toronto, a Virtual meeting of the Board was held in February 2016. It was noted that Board has improved the collaboration between the IOMP Regional Organisations (RO). In this line a number of International Conferences and activities have been co-organised during 2015 and 2016:

-EFOMP and MEFOMP have collaborated for the IDMP 2015;

-AFOMP and SEAFOMP collaborate for the organisation of ICMP2016;

-ALFIM and AAPM collaborate for the organisation of the Latin American Congress in Argentina;

-FAMPO has the support of all IOMP RO for their first African Conference;

-The European Congress of Medical Physics, organised by EFOMP, will include participants from all RO.

RCB members will additionally encourage their members to take active part in the International Conference on Medical Physics in Bangkok (9-12 December 2016) and the new IOMP activity at ICMP2016 - the "IOMP School".

RCB also discussed and strongly supported the two themes for the IDMP 2016 (related to Education) and IDMP 2017 (Women in Medical Physics). Each RO will plan additional focussed events during these two celebrations.

RCB agreed to further expand the inclusion of IOMP news at the Newsletters of Regional Organisations and large Medical Physics Societies.

From the Desk of the IOMP Secretary General

Virginia Tsapaki, PhD, IOMP Secretary General

The first six months of the year 2016 were busy for IOMP. Representatives of IOMP (President and Secretary General) participated in an IAEA Consultancy meeting on Radiation protection in dental uses of ionizing radiation, in February at the headquarters of IAEA in Vienna. The team of invited experts included representatives of the World Dental Federation (FDI), the International Association of Dento-Maxillofacial Radiology (IADMFR) and the Alliance for Radiation Safety in Pediatric Imaging (the Image Gently Alliance). A WHO representative submitted comments in advance of the meeting. The main conclusions of the meeting were that there is a need to improve the education and maintain the competence of dentists regarding the safe use of X rays in dental practice. A number of actions are decided among experts to support the implementation of the appropriate and safe use of X ray imaging in dentistry.

The first virtual meeting of IOMP Regional Coordination Board (RCB) was held in April 2016 with representatives from most Regional Organizations. A number of actions were agreed in order to strengthen relationship with IOMP. A new initiative was announced in this meeting, the "IOMP School" with various CPD-type courses or symposia. RCB members were encouraged to support this activity.

These 6 months were busy for all the IOMP committees. Until this report was submitted for publication to the eMPW, seven (7) applications have been received for various scientific events and/or conferences in Asia (3), Africa (2), Europe (1) and Latin America (2). The request from national or regional organizations was either for endorsement or/and for financial support. IOMP is proud to announce that all decisions for endorsement are positive so far confirming the high quality of forms submitted.

A number of activities have been scheduled for the 21st International Conference on Medical Physics (ICMP) 2016 which will be held in 6-9th December in Bangkok, Thailand (www.icmp2016.org). Some of these activities include the IOMP school, presentation of European initiatives on Medical Radiation Protection, a symposium on the new era of medical physics in Asia and two symposia related to education and training of women medical physicists and their participation in international events, just to name a few of these events.

Apart from the ICMP 2016, an unprecedented number of International Conferences related to medical physics are scheduled this year. You are encouraged to visit the IOMP website for more information.

Finally yet importantly, it should be reminded that there was a big attempt to update the NMO information. Those NMOs that have not yet updated their information are encouraged to do so using the link: http://goo.gl/forms/LSBFqZv0a4.

WHO Publication on Communicating Radiation Risk in Pediatric Imaging

Madan M Rehani

Vice-President, IOMP

Harvard Medical School and Massachusetts General Hospital, Boston

Good medical practice encompasses effective communication about benefits and risks of health interventions. In this context, radiation risk communication is an essential component of good practice in medical imaging and has a key role to inform the appropriate risk–benefit dialogue between health professionals as well as with children, their families or caregivers.

The use of radiation in paediatric imaging saves lives, but inappropriate or unskilled use of such technologies may result in unnecessary exposures that may increase risk and provide no added benefit to paediatric patients. While the radiation dose delivered during diagnostic procedures is low and is not expected to cause acute injuries, image-guided interventional procedures may deliver doses high enough to cause deterministic effects such as skin injuries. Stochastic risks are of special concern in paediatric imaging since children are more vulnerable than adults to the development of certain cancer types, and have longer lifespans to develop long-term radiation-induced health effects.

While individual radiation risks are at most quite small, enhancing radiation safety in paediatric imaging has become a public health issue due to the increasingly large paediatric population exposed, as well as the increased public awareness and often alarm on the part of the public.

Health-care providers requesting and/or performing radiological imaging procedures in children have a shared responsibility to communicate radiation risks accurately and effectively to patients, parents and other caregivers. They should be able to conduct risk–benefit discussions to inform the decision-making process as well – radiologists, radiographers, medical physicists and other mem bers of the imaging team should be able to conduct risk–benefit discussions with their colleagues, in particular paediatricians, family physicians, emergency medicine physicians and other referrers. Effective and balanced communication of radiation risks requires sufficient background, education and resources to support the risk–benefit dialogue, particularly in paediatric patients. While the fundamentals of risk communication and risk–benefit dialogue are common to all health-care settings, the implementation of an effective communication strategy in paediatric imaging often requires unique considerations.

This document provides practical tips to support the risk–benefit discussion, including examples of frequently asked questions and answers, which may also be used to develop information materials for patients and their families. The document also discusses ethical issues related to the communication of radiation risks in paediatric imaging and proposes different scenarios and stakeholders involved when creating a dialogue in the medical community. Also discussed are concepts and principles of radiation protection, how they are applied to paediatric imaging and the key factors needed to establish and maintain a radiation safety culture in health care to improve practice – a pillar of radiation protection in medicine. Those discussions are prefaced by a chapter that describes the types of radiation and sources of medical exposure of children, and provides an overview of the current trends in the utilization of ionizing radiation in paediatric imaging. It presents estimates of radiation doses for paediatric procedures and provides an overview of known and potential risks associated with radiation exposure during childhood.

IOMP was represented by Madan Rehani in preparation of this document. The document is available for free download from: http://www.who.int/ionizing_radiation/pub_meet/radiation-risks-paediatric-imaging/en/

Education in Medical Physics: The Key to Success

John Damilakis, PhD, Chair IOMP Education and Training Committee

The theme of the International Day of Medical Physics (IDMP) 2016 is 'Education in Medical Physics: The Key to Success'. Education and training in Medical Physics is of crucial importance for the effective use of medical equipment and protection from associated physical agents, ionizing radiation being the agent of greatest importance. High-standard well-planned continuing professional development (CPD) delivers great benefits to Medical Physicists and ensures excellence in radiation safety. However, education in Medical Physics is the key to success not only for Medical Physicists but also for many medical professionals. I'll focus in this article on the importance of teaching medical physics to practitioners, referring physicians and other healthcare personnel.

Training and education on physics, technology and radiation protection of systems installed in diagnostic and interventional radiology, nuclear medicine and radiotherapy should meet the different needs of at least six groups of professionals.

1. Referral physicians requesting a diagnostic examination. This group is involved in justification of examinations and requires knowledge about the possible risks related to radiation.

2. Radiologists and nuclear medicine physicians may need to acquire knowledge and skills related to a) physics and technology of radiology and nuclear medicine and b) X-ray and nuclear medicine radiation protection. Training should incorporate the physical and technological principles to allow participants to acquire a full understanding of the possibilities and difficulties of each technique. Training should also provide the basis for participating in the radiation dose optimization processes. Development of strategies for dose optimization is not always an easy process. The role of medical physicists in radiologists' and nuclear medicine physicians' education and training in this field is very important.

3. An important challenge for us is to train medical doctors employing fluoroscopically-guided procedures. Training interventional radiologists in the present era is a very complex process. Furthermore, the extensive use of fluoroscopy outside the radiology departments has created newer audience of medical specialists that includes interventional cardiologists, electro physiologists, vascular surgeons, urologists, orthopaedic surgeons, gastroenterologists, gynaecologists etc. The usage of radiation by these specialists is, in some cases, equivalent to that of interventional radiologists. Conventional training approaches may not be valid for this 'newer audience' of medical specialists working with ionizing radiation. New training methods focused on practical aspects of radiation protection should be developed.

4. Radiation Oncologists may need to acquire knowledge related to physics and technology of radiation therapy as well as knowledge and skills related to radiation protection and optimization of radiation therapy dose delivery.

5. Radiographers operate all types of radiological, nuclear medicine and radiation therapy equipment and must be fully educated and trained on aspects of medical physics, including radiation protection, associated with their work. Permanent CPD courses on radiation protection for radiographers are essential due to fast technology development.

6. Dentists must be competent at implementing the ionising radiation regulations. They must also be competent at taking radiographs of relevance to clinical practice, managing and avoiding the hazards of ionizing radiation. New modalities such as cone-beam CT have increased the necessity for a greater awareness of radiation protection in dental imaging.

An effort should be made to increase CPD courses in medical physics and radiation protection for healthcare professions and specialities. The European Union, the International Atomic Energy Agency (IAEA), the International Commission on Radiological Protection (ICRP), the World Health Organization (WHO) and other organizations have published recommendations and guidelines related to education and training of healthcare professionals in medical radiation protection (1-3). Furthermore, radiology, nuclear ▸

IOMP participation in 14th International Conference of the International Association of Radiation Protection (IRPA) held on 9-13 May 2016 at Cape Town, South Africa

Madan M. Rehani, Simone Kodlulovich, Tae Suk Suh, John Damilakis

Vice President, IOMP. Massachusetts General Hospital, Harvard Medical School, Boston and Duke University Radiology and Medical Physics, USA

IRPA holds its international conference every 4 years, just as we have World Congresses (WCs) every 3 years. This conference was held on 9-13 May 2016 at Cape Town, South Africa. It was the 14th international conference and it also celebrated the 50th year of IRPA. IOMP had its 50th year celebration in 2013 at Brighton and thus we can be taken as elder brother. It was mentioned that there were 900 participants. There has been emphasis on increasing the medical component in IRPA meetings but the number of medical physicists besides speakers is limited. There are however good number of health physicists from hospitals. Among ExCom members of IOMP, four of us were present.

The third day of the conference was devoted to the opening of 50th year celebration. During the one hour opening session, those at the stage besides IOMP included representatives of IAEA, WHO, ILO, ICRP, NCRP, ISRRT and ICNIRP. Every organization had one slide to show (Fig. below) and few minutes provided for address by IOMP and each.

Madan Rehani made a keynote presentation on "Large scale multi-national studies on radiation protection of children in CT", was panelist in the session on "Implementation of the Basic Safety Standards in the Medical Sector" and presented IOMP's views. Also he had an assignment to chair a session. John Damilakis made a keynote presentation on "Global developments in DRLs and assessment of medical exposures". Simone Kodlulovich was panelist in a session on 'International Response to Bonn Call for Action' and presented Latin America response to Bonn "Call for Action" and she also chaired a session.

There were some poster presentations in which Simone and Tae Suk were involved.

medicine and radiation oncology professional societies have published curricula for education and training in medical physics. However, more effort is needed to ensure excellence in patient care and radiation safety.

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Collaboration is key to address Global Cancer

Yakov Pipman, DSc, Professional Relations Committee Chair

The Global Task Force on Radiotherapy for Cancer Control (GTFRCC), created by the Union for International Cancer Control (UICC), published last year an essential report showing that addressing the global shortfall in radiotherapy could save millions of lives and, at the same time, boost the economy of poorer countries. The report projects that investing in radiotherapy services could bring up to $365 billion of economic benefits to low and middle income countries (LMICs) alone over the next 20 years. The detailed calculations in the GTFRCC report quantified the needs in equipment and personnel for 2015-2035. To address just the needs of cancer care in LMICs by 2035, along with 13,000 more teletherapy units, there is a need for 22,000 more Medical Physicists. This means that more than 1,000, newly trained Medical Physicists, are needed each year, for twenty years, in LMICs alone! This is an enormous task, considering that at the present time there are about 28,000 Medical Physicists worldwide, and barely a third of them in LMICs.

There is no doubt that investment in the educational and professional aspects of Medical Physics in LMICs is indispensable and will produce multiple paybacks towards the Health Care Sustainable Development Goals set by the UNDP last year.

It is well known that Professional workforce development is a very labour and time intensive undertaking. The time required to develop competent professionals is far more than that needed to purchase and install equipment. Thus it is urgent to create and expand Medical Physics education and training in LMICs as swiftly as possible. Lacking fully trained Medical Physicists typically results in delays of equipment deployment and utilization. Attempting to shortcut the process is laden with significant risk of inadequate use and injury to patients and personnel.

There are two clearly major difficulties to develop proper educational and training programs. The first is the need to bootstrap the local programs when the locally available professionals are not experienced in the creation of such programs or when their available time is already under high demand by other duties. This is true in high income countries but it is magnified in LMICs.

To address this situation, at least partially, there are quite a few approaches that have been undertaken. The IOMP has a long tradition of collaborating with international, regional and national organizations active in the promotion of Medical Physics educational opportunities in LMICs. Among them are the many courses and workshops co-sponsored with the IAEA, PAHO, WHO, EFOMP and the AAPM. The longest standing joint IOMP-AAPM program, ISEP, is now in its 24th year, and going strong.

These short and concentrated courses can be likened to 'a shot in the arm' on specific subjects. Additionally they often offer an opportunity to enhance the standing and visibility of our colleagues and turn out the course to an opportunity to organize. Indeed, over the years, a number of our NMO's have been formalized some time after, and as a follow up to, ISEP courses. However, there is a great need for deeper, broader and longer term programs, combining academic and clinical training, dedicated to Physicists in LMICs where these programs are not yet available and the need is most acute.

The two years, ICTP's Master's of Advanced Studies in Medical Physics program, which next year starts its fourth cycle, stands out in this respect. The number of students, all from LMICs, while still not enough to meet the needs, has been dramatically increased to 30, in large part by the serious support of the IAEA.

Other contributors are academic and clinical institutions in High Income Countries (HICs) that partner with individual educational or healthcare institutions in LMICs.

Just one recent example, among others, is the academic program between Duke University in the US and Kunshan University in China.

A number of volunteer organizations in High income countries, such as "Radiating Hope", the "International Cancer Expert Corps" (ICEC) and ▸

"Medical Physicists Without Borders" (MPWB), are engaging in a variety of efforts to address these challenges through the support of education and training of professionals, some at the grassroots level, with the goal of making these self sustained in the long term.

Several of these initiatives incorporate and may rely in good part on remote Information and Communication Technology (ICT), which by itself requires improvements in infrastructure and access, again a challenge in many LMICs.

A good resource for those interested in navigating, and hopefully contributing, to this global effort is a recent book by Will Ngwa and Twalib Ngoma titled "Emerging Models for Global Health in Radiation Oncology", which compiled many of these approaches and resources.

On the other hand, the other major difficulty is that education and training alone, is not always congruent with the recognition of the profession by the health and government institutions. This often results in limited employment opportunities for graduates. Instead of them becoming a valued element of the health care force, they face economic pressures that every so often result in underemployment and even 'brain drain' – a very unfortunate outcome that compounds the very problem at hand.

The recognition of Medical Physics by the International Labour Organization in 2008 is a major achievement that can be credited to the IOMP efforts. Nonetheless, their inclusion and recognition in the Healthcare structures in most LMICs is still painfully lagging.

The creation of professional opportunities in the health care and academic sector is a major factor for the sustainability of these efforts.

Clinical Medical Physics, being a technology related field, is poised to increase the availability of well-trained professionals and the creation of good employment opportunities, which in turn should halt the brain drain tendencies.

For that to happen there is a need to work with other professions, with institutional, regulatory and government leadership to get their support. The PRC is committed to advocate for that support and to shore up the efforts of our national members in persuading institutions and government agencies to invest in professional resources. This advocacy is value that we need to add to all the events we participate in.

To a large extent, the financial and policy support of local institutions, governments and regulatory agencies is vital to address the Global Cancer effort.

As the needs of Medical Physics expand we are not likely to have the necessary resources to do it all.

Therefore, the IOMP should continue to work with all other bodies, including equipment manufacturers and vendors, in a way that complements their activities. There is too much to do and we need to work smartly and effectively together.

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Report from the Publication Committee

Tae Suk Suh, PhD, Chair Publication committee

Tae Suk Suh, PC chair, appointed Paolo Russo as Vice Chair and Magdalena Stoeva as Secretary of IOMP PC. As discussed in the first IOMP PC meeting, IOMP PC organized three sub-task groups (TGs) for: 1) New book ideas and on-line access, 2) Medical physics history book, and 3) Utilization of IOMP facilities (IOMP website, eMPW, MPI). On behalf of IOMP PC, Magdalena Stoeva published a new book titled Radiation Protection in Medical Imaging and Radiation Oncology with Richard Vetter. Paolo Russo is planning to publish another book titled Handbook of X-ray Imaging; Physics & Technology

A group teleconference was held last January to discuss about a special discounted deal on CRC e-Books for IOMP members. The offer from CRC was that if an individual physicist affiliated to the IOMP (i.e. a member of an IOMP national/regional organization) were to pay c. $100 - $200, they would receive a year's access to CRC's entire medical physics book collection in e-book format.

One of the main objectives of IOMP PC is to strengthen the relationship among regional, and national journal of medical physics through mutual cooperation and information exchange. Simone Kodlulovich, President of ALFIM and one of PC members informed us of the official journal of medical physics in Latin America titled, Revista Latinoamericana de Física Médica and was willing to share idea with PC members to develop the quality of the regional journals of medical physics. Radiological Physics and Technology (RPT), which is the official English journal of JSMP (Japan Society of Medical Physics) and JSRT (Japan Society of Radiological Technology), has been recognized officially by the AFOMP. The ceremony to recognize RPT as the AFOMP official journal was held at the 111th JSMP annual meeting in Yokohama, Japan on April 14, 2016. We hope that RPT journal develops globally and contributes to enhancing the field of medical physics and technology in the Asia-Oceania region. Paolo Russo, editor in chief of Physica Medica, organized Focus Issue of the AOCMP 2015 in Physica Medica. AOCMP 2015 Focus Issue will include papers that were presented at the AOCMP 2015 in Xian, China, and were recommended by guest editors of AOCMP 2015.

Ceremony to recognize RPT as the AFOMP official journal

MPW Presents: Modern clinical neurosciences – a new paradigm and the role of neuroimaging

Professor Richard Frackowiak

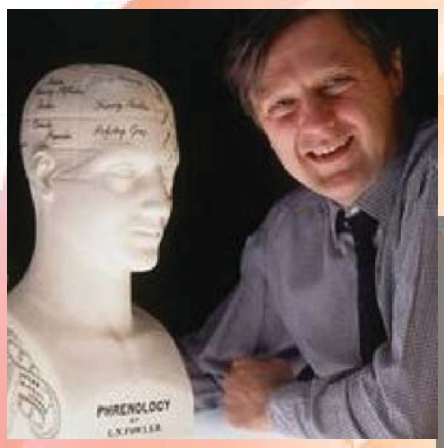
Co-director "Human Brain Project", EC-FET programme, Lausanne

Professeur titulaire, BBP-HBP, Ecole Polytechnique Fédérale de Lausanne

Professeur ordinaire ad hominem, Centre Hospitalier Universitaire Vaudois & Université de Lausanne,

Visiteur permanent, Departement d'études cognitives, Ecole Normale Superieure, Paris

Honorary Professor, UCL Institute of Neurology, London



The physician scientist is in danger of extinction and this is grave for both neurology and psychiatry. At the same time, there is more and more pressure to orient science in the clinical arena towards translation. What has been lost in modern translation is an environment that facilitates the concept of bringing together the competencies of an array of sub-specialists across the whole translational chain. Breaking down the culture of disciplinary boundaries is difficult. However, in other areas of science the impact of informatics and computer science has been radical. In any event, the aim of producing better medicines directed against better targets in the brain can no longer be done by small clinical teams working alone or in purely clinical environments. This has become a complex process that depends on integrating competencies and knowledge from molecular biology and genetics, physiology, anatomy, pharmacology and biochemistry, physics and brain imaging, through mathematical modelling, specialist clinics, clinical science, drug discovery, toxicology, and finally health economics to assess efficacy and value for money of new drugs. The translational pipeline is long and not even linear in organisation. Finding new treatments for complex diseases has become complex too, and often very prolonged.

We now know that a single gene mutation may present with multiple phenotypes, and vice versa, that a range of genetic abnormalities may cause a single phenotype. As a result, our traditional approach to determining disease nosology, though it has served medicine and therapeutics well in the last century and a half, is now out-dated. Under the traditional model, the collection and aggregation of data is subjective, depending as it does on patient-doctor interactions. The interpretation of this information is through experience in the absence of an integrated, multi-level theoretical appreciation of the structural and functional architecture of the human brain. That may also be why it has not generated fundamental breakthroughs in our understanding of the pathophysiology of many psychiatric and certain neurological diseases of a degenerative or developmental nature.

So what lies ahead? It is time to radically overhaul our epistemological approach to brain disease. We actually know a great deal about brain structure and function. However, this knowledge is fragmented and difficult to relate to different levels of description. From genes, through functional protein expression, to cerebral networks and functionally specialised areas we have accumulated a mass of facts about the brain that defies easy integration and interpretation. Advances in information technologies, from supercomputers to distributed and interactive databases, allied to new mathematics, knowledge of the human genome, and the increasingly sophisticated brain imaging methods finally make it possible to dream of a system that federates and integrates existing and future clinical and neuroscientific data for a more biologically based, mechanistic approach to brain disorders.

In disorders of the nervous system

there is a need to identify disease mechanisms from disorders of genes, the proteins they produce and all post-translational modifications, including compartmentalisation and control. Beyond these fields that are addressable by current experimental technologies we know very little before arriving at top-down mathematical or metaphorical models of cognitive functions, isolated from their cellular substratum. Imaging of the brain bridges the gap, at least partly, but only seriously since the 1990's. We now desperately need a rational attempt at disease classification by a wider integration of biological information into the process, rather than, or in addition to, diagnosis by symptoms and syndromes. Because the brain is so complex, it is inconceivable that all information about all cells can be garnered even for a "typical" individual. This is where systems analysis, non-linear mathematics with heavy-duty informatics combined with novel statistical and computing expertise will at least be able to make a stab at solving the problem. This is the task the Human Brain Project has set itself and why it has been funded as a European Union Flagship of Enterprise and Technology (FET).

At the mesoscopic spatial and temporal scales, human functional and structural brain imaging with MRI continues to revolutionise tissue characterisation from development, through ageing and as a function of disease. Multi-modal and multi-sequence imaging approaches that measure different aspects of tissue integrity are leading to a rich characterisation of brain tissue properties. Novel image classification techniques capitalising on increasingly advanced machine-learning techniques and powerful computers are opening the road to individual brain analysis in addition to group studies that explore differences and correlations at that level. Data-mining methods, often developed in other data-rich domains of science, such as meteorology, astronomy and particle or nuclear physics, are making it possible to identify causes of disease or its expression from patterns derived by exhaustive analysis of combinations of genetic, molecular, clinical, behavioural and other biological data. The concept of disease signatures – stable vectors of abnormal clinical and biological features identifying homogeneous patient populations – is gaining acceptance. Imaging is generating data that link molecular and cellular levels of organisation to the systems that subtend, action, sensation, cognition and emotion. In short, the identification of therapeutic targets and constitution of purer study cohorts is a real possibility. The aim is to define smaller patient and control cohorts based on an enlarged information base. Such cohorts, with improved diagnostic precision that increases the statistical power of trial results using smaller numbers of participants, will result in smaller cheaper and more powerful drug trials. So, it is not enough to identify the mechanistic basis or diagnostic biomarkers for brain diseases or their progression, whether neurological or psychiatric. We need a blueprint of the anatomical and functional organisation the brain from its most basic building blocks through to the most complex organisational principles across all spatial and temporal scales that finally result in behaviour, emotion and cognition. If we know the rules (mathematically) that govern such organisation – the organisational principles - it will become a simpler matter to classify brain diseases and investigate the effects of their treatment. In the meantime, we create genetic models of disease; we look for genome wide associations of diseases and the like, whilst well aware that there is no simple relationship between even a single well described genetic mutation and the presentation and clinical evolution of a disease (for example, Huntington's disease or the spino-cerebellar degenerations). The disappointing finding that one gene-one disease is a false premise is nevertheless one of the most significant discoveries attributable to the Human Genome Project. We believe that the Human Brain Project, with its adoption of bottom up, data driven, reconstruction and simulation modelling as its primary methodology and a unifying aim of generating an integrated blueprint (model) of the brain within a decade, can now provide us with the means to tackle the great societal challenges of the psychiatric afflictions and neurodegenerations that affect us in youth and with age. Neuroimaging will have its role to play in constraining the brain model as it develops and grows from bottom up by data and in generating markers for more sophisticated diagnosis of diseases and their subtypes when generating a catalogue of disease signatures for neurology and psychiatry.

MPW Topic: EFOMP

European Federation of Organisations in Medical Physics

Paolo Russo

Topical Editor, Medical Physics World, vol 32(1), 2016

Editor-in-Chief, Physica Medica

University of Naples "Federico II", Naples, Italy

Paolo Russo (born 1958, graduated in Physics in 1981) is a Full Professor of Physics Applied to Medicine and Biology at Federico II University (Naples, Italy). His research activity is in the field of Medical Physics, with most work in the area of development of semiconductor imaging detectors for digital mammography, digital autoradiography, X-ray and gamma-ray small animal imaging, X-ray CT dedicated to the breast. He coordinated national and local projects in the technologies of Medical Imaging within the activity of the Italian Nuclear Physics Institute (INFN). He is Editor-in-Chief of the journal Physica Medica - European Journal of Medical Physics since 2013. He is in the Board of Directors of the International Medical Physics Certification Board (IMPCB) and member of the Publication Committee of the International Organization for Medical Physics (IOMP). He is the author of over 120 papers in peer reviewed scientific journals and scientific book chapters.

Physica Medica: European Journal of Medical Physics

Paolo Russo

University of Naples "Federico II", Naples, ItalySuperieure

Physica Medica: European Journal of Medical Physics (EJMP) published (since 2007) by Elsevier B.V. for the European Federation of Organisations for Medical Physics (EFOMP) and Associazione Italiana di Fisica Medica (AIFM), is the official journal of EFOMP, AIFM, the Irish Association of Physicists in Medicine (IAPM) and Société Française de Physique Médicale (SFPM). Physica Medica is also officially supported by other 28 national societies for Medical Physics (please visit the journal web pages at http://www.physicamedica.com). Physica Medica began its publications in 1985 with Alberto Del Guerra (Italy) as Editor-in-Chief (now Honorary Editor) and Fridtjof Nuesslin as Editor-in-Chief from 2008 to 2012. Starting January 2016, EJMP is published in monthly issues.

Physica Medica is an international scientific journal dedicated to the publication of scientific articles in Medical Physics, as well as papers on educational and professional aspects of Medical Physics. Physica Medica publishes papers in the field of Medical Imaging, Radiation Therapy, Radiation Protection, Measuring Systems and Signal Processing, Education and Training and Professional issues in Medical Physics, but it covers also such fields as Molecular Imaging, Hadron Therapy, System Biology, Nanoparticles and Nanotechnologies. Papers in the field of Small Animal Imaging, Radiobiology, Synchrotron Radiation diagnosis and therapy, Computer Analysis of Medical Images are also encouraged.

The board of Associate Editors includes 30 scientists from Australia, Belgium, Canada, Cuba, Czech Republic, Finland, France, Germany, Greece, Ireland, Italy, Japan, Malta, Netherlands, Poland, Spain, Switzerland, United Kingdom, United States. The Editorial Board includes

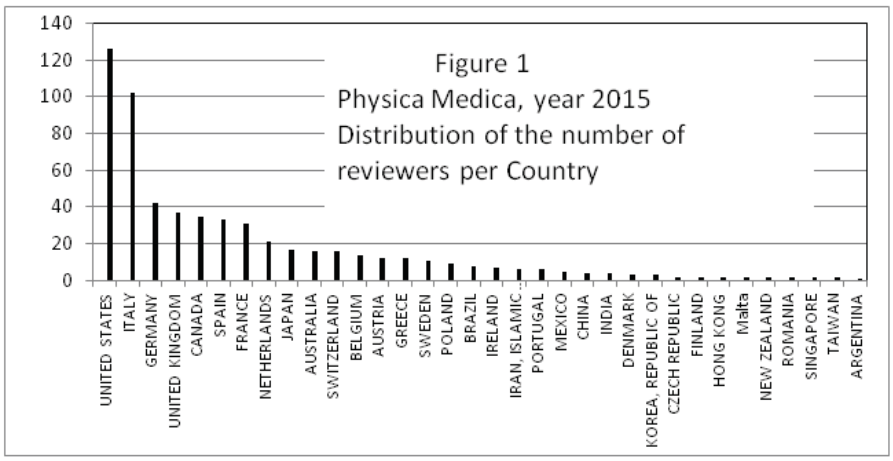


Figure 1
Physica Medica, year 2015
Distribution of the number of reviewers per Country
Nreviewers = 613
Ncountries = 50

over 40 scientists from four continents. All the following statistical data about Physica Medica refer to the year 2015 (volume 31), in which we published about 1200 journal pages; since January 2016 (volume 32) the journal is published only online. The 2015 Impact Factor is 1.763 and the five year impact factor is 1.748; the Source Normalized Impact per Paper (SNIP): 1.135, SCImago Journal Rank (SJR): 0.715; its ranking in the JCR category of Radiology, Medical Imaging and Nuclear Medicine for 2015 is 68/124. Physica Medica received 499 articles and rejected 62% of them. In terms of editorial speed, the average time between paper submission and first decision was 6.6 weeks, the average time between submission and acceptance was 11.4 weeks, and the overall publication speed for the web version of papers was 33 weeks, including the time for paper revision by the authors. As for all scientific journals, consistent quality of papers published in Physica Medica can only be maintained with the cooperation of a number of expert reviewers, who donate the hours necessary to review, evaluate, and comment on manuscripts. In 2015 we had the cooperation of as many as 613 reviewers from 50 countries (see Fig. 1).

Focus Issues of Physica Medica are dedicated, each year, to special topics or to the publication of selected papers from important scientific conferences; they are regular issues of the journal. In 2016 we have published a Focus Issue on "Prostate Radiotherapy" (Vol. 32, issue 3) and we plan to publish Focus Issues dedicated to selected papers from the following conferences: the 2015 South African Conference of Medical Physics (SACMP); the 2015 Workshop on Medical Applications of Synchrotron Radiation (MASR); the 15th Asia-Oceania Congress of Medical Physics (AOCMP); the 9th Congress of the Italian Association of Medical Physics (AIFM).

Each year Physica Medica assigns the Galileo Galilei Award for the best paper published the previous year in the journal (see fig. 2), on the basis of the votes of all members of the Editorial Board.

Physica Medica has no page charges and it offers authors a choice in publishing their research on a subscription basis or open access. Via the HINARI Access to Research in Health Programme, Physica Medica is freely available to local, not-for-profit institutions in developing countries.

I warmly encourage medical physicists worldwide to consider publishing their best papers in Physica Medica!

Figure 2
Medal (front and rear views) for the Galileo Galilei Award in Medical Physics.

European Board for Accreditation in Medical Physics (EBAMP)

Peter Sharp, EBAMP

There is a strong demand for new education and training courses in medical physics following the publication of the European Commission (EC) Guidelines on Medical Physics Expert (MPE) report No. 174 and the European Union Basic Safety Standards Directive 2013/59/EURATOM (EU BSS), as well as by the rapid development of medical techniques based on ionising radiation, the growth of hospitals and the continuous need to produce competent health professionals in medical physics. To ensure that that the education and/or training provided by an institution meets acceptable levels of quality, assessment and accreditation needs to be carried out by a recognised body.

To satisfy this requirement, the European Federation of Organisations for Medical Physics (EFOMP) decided to set up an independent European Board for Accreditation in Medical Physics (EBAMP). As EFOMP is itself involved in providing educational courses, for example through the European School for Medical Physics Experts, it could not also accredit courses. There are several initiatives and tools developed by the EC to facilitate the accreditation, certification, validation and recognition of knowledge as well as to promote the mobility of students, educators and researchers. The European Qualifications Framework (EQF) for Lifelong Learning is a tool based on Learning Outcomes (LOs) and aims to relate national qualifications frameworks to a common European reference framework. In accordance with the EQF, EC Guidelines on the Medical Physics Expert lists the required LOs in terms of Knowledge, Skills and Competences (KSC) and so is available to be used by accreditation bodies to evaluate the content of education and training programmes in medical physics.

Initially EBAMP will concentrate on accrediting medical physics education and training events by allocating Continuous Professional Development (CPD) credits depending on the number of hours of education and hands-on training required of participants. It is expected, as it develops, that it will develop appropriate polices and protocols to accredit degree courses.

The work of EBAMP will be carried out by its Board consisting of a President, Vice President /Past President, Secretary General, Treasurer and five ordinary members. They are prominent medical physicists with expertise in the education and training of medical physicists as well as in medical physics professional matters.

Each of EFOMP's National Member Organisations (NMO) will be entitled to designate a senior member as the liaison person with this Board. This person will be entitled to receive all communications from the Board on behalf of the NMO, to vote for new Board members and to represent the NMO at any meeting called by the Board.

The Board will accept applications from the organisers of educational events, excluding degree courses at present, to assess and provide accreditation for CPD for medical physicists. For a conference, seminar, congress or workshop the form will ask for information such as the intended EQF level of the event, the names and professional status of organisers and presenters, and total hours of learning activities. For courses more information is requested including the pre-requisites for course participation, the aims and learning outcomes of the course, course content and the target KSCs to be developed, how the course will be assessed and its quality assurance process.

On receipt of the application, the Secretary-General will appoint 3 Board members as assessors. They will use the evidence supplied to judge whether the event meets the criteria for a medical physics educational programme. In the case of courses this will be the EQF level of the course itself as specified in the application. For other training events it will be whether it is suitable for participants whose education in medical physics has reached the EQF level as specified in the application. They will also assess the number of CPD points to be awarded at the rate of 1 credit point per educational hour for participation only and 2 credit points per educational hour on the successful completion of an examination.

The assessors will judge the application against various criteria including:

- Are the learning outcomes clearly stated? Do they reflect the teaching that the student will receive?
- Is the supporting material sufficient to support the learning outcomes?
- Is the programme aimed at the EQF level as specified in the application form?
- Is the teaching methodology suitable?
- Is the method for recording attendance robust?
- Where an end-of-course assessment is planned; is it appropriate and at the correct level?

The membership of the Board has been agreed. The website through which applications will be made and the assessment process managed is being developed and it is hoped that EBAMP will be operational during the summer.

Medical Physics in Germany

Jürgen R. Reichenbach, PhD, FISMRM, DGMP President

The German Society for Medical Physics (DGMP) was founded in 1969 in Stuttgart in Germany. What began back then with a modest number of 78 members has meanwhile increased to more than 1500 members of the society. Being a non-profit organization, the society is first and foremost devoted to the promotion of science in the field of Medical Physics and considers itself as the crystallization point regarding exploration, development and application of physical and technological methods in medicine and related fields. Further core missions of the society are the professional exchange among its members, the presentation, discussion and publication of scientific results and the continuing process of education and promotion of young physicists working in this field.

The society is currently organized in three different divisions, encompassing the division Therapeutic Methods and Procedures, which is the largest of the three, the second-largest division Biomedical Imaging and the division Biomedical Measurement Methods and Signal Processing. Each division is led by an elected division head who is concurrently member of the executive board of the society. Within each division there are work groups dedicated to work on specific scientific topics and subfields related to Medical Physics. Examples include Computers in Radiation Oncology, Intensity-modulated Radiotherapy, Magnetic Resonance Methods or Audiology – to name a few.

Apart from this professional division the DGMP also supports regional subdivisions (currently seven) spread across Germany, in which members of the society from larger coherent geographical areas meet once or twice a year on a regular basis for scientific and professional exchange. These regional divisions are encouraged to organize their own events thus making a significant contribution to the Society's education and training program in medical physics.

Each year the annual meeting is the society's central event at which not only the latest scientific results are presented but which also serves to reflect on the requirements for continuous training by offering educational events, workshops and refresher courses. The annual meeting, which takes place at changing venues, regularly attracts between 700 to 800 and more participants. Last year it was held in Marburg from 9-12th September, 2015; this year the Society convenes from 7-10th September 2016 in Würzburg (www.dgmp-kongress.de). At greater intervals joint meetings of the German, Austrian and Swiss societies of Medical Physics (purposively called Dreiländertagung) are held on a rotational basis in Germany, Austria and Switzerland, thus strengthening the cohesion between medical physicists in the three countries. In the same vein, the Zeitschrift für Medizinische Physik (http://www.journals.elsevier.com/zeitschrift-fur-medizinische-physik) serves as an official organ of the German (DGMP) and Austrian Society of Medical Physics (ÖGMP) and the Swiss Society of Radiobiology and Medical Physics (SGSMP). The journal (founded 1990, current impact factor of 2.065) appears quarterly and represents the platform for basic research and practical applications of physical procedures in medical diagnostics and therapy.

For the young researchers the society offers a regulated postgraduate training to qualify graduates for the job description medical physicist or medical physics expert as part of the professional recognition through the acquisition of specific knowledge and practical experience (www.dgmp.de/de-DE/134/weiterbildungsordnung). One particular role in this program plays the more than 20 years old annual winter school for Medical Physics organized by DGMP and supported by ÖGMP and SGSMP (www.dgmp.de/de-DE/47/winterschule-pichl), which traditionally takes place in Pichl, Austria, and offers courses in medical physics as an integral part of education and vocational training.

The society is also member of the International Organization for Medical Physics (IOMP; www.iomp.org/) and the European Federation of Organisations for Medical Physics (EFOMP; www.efomp.org/).

For further information and details about the German society for Medical Physics please visit our website (www.dgmp.de) or contact the office (office@dgmp.de).

Medical Physics in Italy

Michele Stasi, AIFM President

The Italian Association of Medical Physics (AIFM) is a non-profit Scientific and Professional Association established in Milan in 1998 by the merger of two existing associations. The fusion had the aim of putting together the Italian medical physicists belonging to various medical and scientific societies. Currently it consists of about 1000 members differently distributed throughout the country. The number of medical physicists per million inhabitants ranges from 3.6 for Campania Region, placed in the south of the country to 31.6 for Trentino Region, placed in the north, with a national average of 12.6. The majority of the members are employed in the National Health Service. According to the Italian Ministry of Health at the end of 2013, 555 medical physicist (286 females, 269 males) had a permanent position and about the 65% were 30 to 49 years old. AIFM members are divided into about 160 services at both public and private hospitals. Fewer medical physics carries out their activities as consultants to smaller health facilities.

The main workplace of Italian Medical Physicists is Radiotherapy: approximately 69% of members realize and optimize treatment plans and execute quality controls. About 59% are involved in radio-diagnostic activities, 41% deal with Magnetic Resonance imaging and about 10% deal with Ultrasound imaging. Every year, in Italy, have carried about 100 million imaging performance, including at least 60 million with ionizing radiation (on average two per citizen, children excluded). Medical physicists are also responsible for nuclear medicine (42%), Laser security (18%), Non Ionizing Radiation (16 %) and Artificial Optical Radiation (10%) activities concerning quality assurance and security aspects in addition to dosimetric evaluations..

AIFM has the property of Physica Medica - European Journal of Medical Physics and from 2007 is publishing with Elsevier. The 2015 impact factor is 1.7632.403.

AIFM runs a permanent School of Continuous Education in Medical Physics (Piero Caldirola Medical Physics School) that organizes residential courses in medical physics and in the applications of physics in medicine. Through this School, AIFM promotes continuous professional development of its members and other professionals involved in the healthcare, according to the National Program of Education in Medicine (ECM) of the Ministry of Health.

Every two years AIFM organizes its National Congress. The last one was held in Perugia, administrative and cultural capital of the Umbria Region, mighty Etruscan centre and an important mediaeval city, site of the University for over 700 years. This edition was particularly successful because counted 641 participants, 434 speakers/moderators, 106 exhibitors, 510 presented papers, 12 refresher courses. An important role had the 9 Round Table, because represented an opportunity for debating and strategic planning, being also involved physicians and clinical experts. Round Tables were a sign of future scientific, cultural and professional synergies.

In Italy there were set up 15 Schools of Specialization in Medical Physics supported by Universities: after three years of study and a contemporary training at affiliated hospitals, physicists acquire the title of “specialist in medical physics” and can access the National Health Service. AIFM includes among its members about 100 of these students.

In the effort to promote and develop the application of physics methodology to the Diagnosis, Therapy and Health Prevention, AIFM actively cooperates with other Health Organisations, Research Institutions and Universities, with a particular interest toward Physics Departments, Faculty of Medicine, Specialisation Schools in Medical Physics, and Institutions that operate in the various fields of Physics and Medicine.

Spanish Society of Medical Physics (SEFM)

The Spanish Society of Medical Physics (SEFM) was founded as a scientific society in 1974 with the aim of promoting and developing medical physics in Spain and its scientific and professional aspects.
The SEFM brings together professionals who perform activities related to medical physics in the areas of clinical assistance, research, education and industry.
Currently, the SEFM has approximately 900 members.
Since 2000, the SEFM has been publishing the Journal of Medical Physics (Revista de Física Médica) as a body of scientific communication. The SEFM also uses its web site www.sefm.es as a means of communication to share information between members and general society.
In Spain, unlike other countries, Medical Physics is treated in a similar manner to medical specialities. It was first regulated in 1997 under the name of "Hospital Radiophysics" focusing primarily on radiation physics and its application in diagnosis and therapeutic procedures in medical specialties. Since then, the training of "Radiophysicists" (Medical Physicists) follows the same model seen within other medical disciplines, which a 3-year residence program in accredited teaching hospitals. "Hospital Radiophysics" (Medical Physicists) is recognized as a medical speciality in charge of the following: physics and clinical radiation dosimetry treatment and diagnostic purposes, involvement in quality assurance and quality control programs of equipment, procedures and installations, and for the radiological protection of personnel involved in their use. Education and training for radiological protection to the health professional and research activities are also relevant responsibilities of the Medical Physicists in Spain.
According to the report on "Human resources in Medical Physics and Radiological Protection units", carried out by a SEFM working group last year, the number of hospitals with Medical Physics Departments, during 2013, totalled 112.
A survey was sent to these centres in order to draw up the report, and was answered by 76% of them. According to this feedback, the total number of Medical Physicists working in those centres was 381 (which means, if extrapolated, a total of 502 in the whole country). Of those, as main activity, 55% worked in Radiotherapy Physics, 12% in Diagnostic Radiology, 8% in Nuclear Medicine, 18% in Radiological Protection and 7% in teaching and research. The total number of centres attended by these units is 198 hospitals, 475 community health centres and 114 diagnostic centres. Although there is a great number of tasks covered by the Medical Physicists in Spain there is still a lack of professionals in all areas (the average number of Medical Physicists dedicated, as main activity, to the areas of Diagnostic Radiology and Nuclear Medicine is still below one)
The last jointly biennial congress of the SEFM and the Spanish Society on Radiological Protection (SEPR), was held in the Polytechnic University of Valencia (UPV) in June 2015. It was a forum for presenting the activities and innovative research, both basic and clinical, of both societies in Spain.
The meeting, under the leadership of Prof. Gumersindo Verdú from the UPV, certainly met every expectation. A total of 725 participants, 27 speakers and 25 exhibitors attended the meeting. A total of 206 oral presentations, 6 debates and 342 poster bear witness to the success of the meeting. The sessions were divided in topics specific to each society activities and common ones to both societies. The SEFM-AAPM Joint Symposium: "ART: Adaptive Radiation Therapy" was one of the stellar events of the scientific program. The AAPM was represented by its president, Prof. John Bayouth.
Prizes were awarded for best oral presentation and poster, as well as for best young scientist. During the congress, there was a special recognition award for outstanding services to our society to Prof. Eliseo Vaño. The SEFM gave him the gold medal in recognition of his professional career and his involvement in development of Medical Physics in Spain.
We look forward to welcoming you to our next joint national meeting in Girona, Catalonia, Spain, which will be held from 13 to 16th June 2017.

Board of the Spanish Society of Medical Physics: 1st row, left to right: Coral Bordineau (Chair of scientific affairs), Marisa Chapel (President), Cristina Picon (Vicepresident). 2nd row, left to right: Juan Castro (Chair of international affairs), Carlos Martin (Secretary), Sergio Lozares (Treasurer) and Victor Gonzalez (Chair of Communications and Publications)

Medical physics and medical engineering in the UK

David Brettle, President, Institute of Physics and Engineering

Medical physics, medical engineering and biomedical engineering have long been major research strengths for the United Kingdom, and many of the healthcare technologies now being used worldwide have their origin in discoveries by British physicists and engineers.

In the UK, healthcare is accessed primarily through the public sector National Health Service (NHS). Although since 1999 many aspects of healthcare policy and delivery have been devolved to each of the home nations (England, Wales, Scotland and Northern Ireland), the landscape of medical physics and medical engineering provision remains similar in each country.

Medical physics and medical engineering services are diverse, comprising radiation based areas such as radiotherapy physics, diagnostic radiology physics, radiation protection and support for non-ionising radiation; support for imaging based areas such as ultrasound, MRI and nuclear medicine; and engineering based areas such as rehabilitation biomechanics, clinical engineering and informatics and computing. Services may exist under one roof in a traditional large integrated department which provides support under service level agreements to nearby hospitals and other healthcare providers who do not have medical physics (or medical engineering) provision themselves. Services may also exist in smaller groupings or separately within a clinical department.

Medical physics and medical engineering services play a key role in managing quality and safety in the hospitals, and in leading and supporting innovation and research. There are approximately 80 integrated medical physics and medical engineering departments in England, three in Wales, five in Scotland, and two in Northern Ireland. There are also a larger number of smaller units, within clinical departments. Less than 10 per cent of healthcare in the UK is accessed through independent or private sector providers, but these hospitals, depending on their size and location, either employ medical physics and medical engineering staff themselves or buy in the service from a nearby NHS or independent provider.

There are around 1,500 clinical scientists and some 2,600 technologists employed across the UK. There are several routes to registration as a clinical scientist in the UK; through a graduate entry three-year national Scientist Training Programme; through a similar but separate scheme in Scotland; or an experienced physicist with an MSc or PhD in a relevant discipline can qualify in-service through the assessment of a suitable portfolio demonstrating equivalence of the national scheme.

The Institute of Physics and Engineering in Medicine (IPEM) was formed in 1997 by the amalgamation of three historic organisations. It ¬is the professional organisation for physicists, clinical and biomedical engineers and technologists working in medicine and biology in the UK and overseas. As a charity with more than 4,300 members from healthcare, academia and industry, IPEM's aim is to advance physics and engineering applied to medicine and biology for the public good. IPEM works in partnership with a wide range of organisations. This reflects the multidisciplinary nature of our members' work and helps to maximise our impact and effectiveness at national level. In collaboration with the Royal College of Radiologists and the Society and College of Radiographers, a national Radiotherapy Board and Clinical Imaging Board have been established to influence policy in these two key areas. In the engineering sphere, we have signed a memorandum of agreement with the Institute of Healthcare Engineering and Estate Management to strengthen our combined influence in areas of common interest, such as medical equipment management. IPEM also has an agreement with the National School of Health Care Science, the body responsible for delivering the national training scheme.

As a UK-wide organisation, IPEM aims to work constructively with the Governments of the four countries of the UK on issues related to healthcare science, education, research and innovation.

On the international front, IPEM is the sole National Member Organisation representing the UK in the International Organisation for Medical Physics and the European Federation of Organisations for Medical Physics. IPEM is also a member of the European Alliance for Medical and Biological Engineering and Science, and the International Federation for Medical and Biological Engineering. We have international members from all over the world. This is a busy time for IPEM as we look to implement our new strategic aims, including strengthening our international work, extending our influence on standards and policy, and connecting across industry, academia and health services. In September, IPEM will hold its flagship annual conference, the Medical Physics and Engineering Conference, in Manchester – this year's European City of Science – under the banner of our pioneering public campaign: 'Science for Patient Benefit'.

Report from Awards and Honours Committee

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

Since the A&H committee has been established, the group has concentrated all its efforts on the establishment of new awards, which are considered very important to the medical physics community. The first aspect discussed was the importance to recognize medical physics professionals who are developing their work in different regions in spite of the challenges that they routinely face and the difficulties that they have overcome, and to reward their dedication, experience, knowledge and enthusiasm in making a difference in the provision of medical services to the patient, maximizing the benefit of the application of ionizing radiation in diagnosis and treatment. The second aspect discussed was the notable example of the medical physicist John Mallard, whom IOMP would like to honor. He was one of the founders of IOMP, a Past President, first Secretary General of IOMP, one of the pioneers of the development of PET and MRI and an eminent medical physicist in the UK and globally. This award will recognize a medical physicist who has developed an innovation of high scientific quality, or who has led a team developing such an innovation, and who has successfully applied this innovation to clinical practice.

As a result of this discussion, the decision of the committee was to implement two new awards this year: the IDMP Award and the John Mallard Award. We are glad to confirm that the awards have already been approved by ExCom and also by COMP Board. The IDMP award will be given on the occasion of the celebration of International Day of Medical Physics (IDMP), and the John mallard award will be given during the next ICMP in Bangkok.

We invite you all to visit the IOMP web page (www.iomp.org) to get updated information and to be aware of the criteria.

I would like to thank all members of the committee for their collaboration and I would like to take this opportunity to present to you all who worked tirelessly on this committee.


Simone K. Renha


Slavik Tabakov


KY Cheung


Tomas Kron


Taofeeq IGE


Nadia K. Toutaoui


Jim Thurston


Mahadevappa Mahesh


Lidia V. de Sá


Ibrahim Duhaini


Daniel Venencia


Eduard Gershkevitsh

Treasurer's Report and Accounts For the Year Ended 31st December 2015

Dr. Anchali Krisanachinda

IOMP Treasurer

Subscription income in 2015 was $63,636 (2014 $68,760), this figure includes $4,346 from the Corporate members (2014, $7,588). Overall response from NMO's has not significantly changed with a total of 54 paying dues in 2015 compared to 56 in 2014.

Medical Physics World has suffered throughout 2015 with no advertising revenue received as compared to $6,256 income in 2014.

Interest rates remain low for investors although the amount of interest received in 2015 has risen to $639 (2014, $340). The total amount currently sitting in interest bearing accounts for IOMP is $170,905.

Total income for 2015 was $133,334 (2014, $76,786), the variance on the previous year being attributable to the Word Congress in June of 2015 which brought in sponsorship and award contributions. An agreed share of the surplus from WC2015 of $22,500 has been provided for in these accounts.

Total expenditure saw an increase to $113,525 (2014, $55,251) again due primarily to the expenses associated with the World Congress and travel awards. The money set aside for website hosting fees in 2011 was exhausted by 2014 (except for $200 remaining) resulting in an entry in expenditure for the website in 2015.

The resultant overall surplus for the year was $11,229 (2014, $10,510) and continues to be affected by the currency exchange rate fluctuations resulting in a loss of $8,580 in 2015, although this is a little less than the 2014 figure of $9,235. The weak Canadian dollar has also affected the overall total as 70% of the WC2015 income was paid in CAD.

The Balance Sheet shows that the organisation's reserves continue to be robust and are held in cash deposits, principally in US Dollars ($313,415), but also smaller holdings in Euros ($78,035) and Sterling ($16,459), all of which are currently deposited with Lloyds TSB PLC in the United Kingdom.

International Organisation for Medical Physics
Income and Expenditure Account
Year Ended 31 December 2015

	2015		2014	
	$	$	$	$
INCOME				
Subscriptions				
National Organisations (Note 2)		59,290		61,172
Corporate Members		4,346		7,588
Donations				
Medical Physics World				6,256
Interest Received		639		340
WC 2015		68,316		
Other Income		743		1,430
Total Income		133,334		76,786
EXPENDITURE				
Medical Physics World		1,664		
Committees				
Travel Costs				
President	458		2,150	
Officers	10,752	11,210	9,577	11,727
Subscription to IUPESM		10,866		13,927
WC 2015		57,118		
Sponsorship & Awards		6,656		9,234
Plaques & Medals		1,348		241
MPI Expenses				759
Support Costs				
Website	1,400			
Reviewing Accountant's Fee	349		365	
Bank Charges	2,859		1,588	
Transfers	1,372			
Administration	18,683	24,663	17,410	19,363
Total Expenditure		113,525		55,251
Surplus for year on ordinary activities		19,809		21,535
Currency adjustment (note 1)		-8,580		-11,025
Retained surplus		11,229		10,510

International Organisation for Medical Physics
Notes to the Accounts

1. Exchange Rates

The accounts are expressed in US Dollars however transactions have taken place and balances held in both Euros and Sterling, these have been converted at the following rates as at 31st December 2015

1 Euro = 1.0866 USD (1.2110 USD in 2014)
1 GBP = 1.4763 USD (1.5586 USD in 2014)

Variances between the conversion rate on actual transactions and the above exchange rates have been identified separately in the accounts.

2. Subscriptions

Total subscriptions received from National Member Organisations in 2015 amounted to $59,290 ($61,173 in 2014)

	Band A At 100%	Band B At 50%	Band C At 10%	Total Number
Fully Paid	37	13	4	54
Outstanding	7	1	3	11
Waiver or Inactive	5	3	11	19
	49	17	18	84

3. Debtors

	2015	2014
Subscriptions	124	55
World Congress	22,500	30,000
Taylor & Francis Royalties	197	151
Total Debtors	22,821	30,206

4. Creditors

	2015	2014
AFOMP Subscriptions received	175	300
IUPAP funds (ICMP 2013) [1]	6,159	6,159
IUPAP funds (WC 2015) [1]	3,866	0
Administrative Charges	5,992	18,380
Officers' Travel and Expenses	596	593
Funds held for ALFIM [2]	10,000	10,000
Plaques		241
Bank Charges	124	75
Accounts Review Fee	369	390
Provision for website development		200
Total Creditors	27,281	36,338

[1] remainder of funding towards events, to be used for support of developing countries

[2] grant received from Varian in 2010 for ALFIM project, IOMP agreed to handle the money

Reviewing Accountant's Report to the Officers and Members of International Organisation for Medical Physics Year Ended 31st December 2015

Ian Wolstencroft, CPFA

I have reviewed these accounts, consisting of Income and Expenditure Account, Balance Sheet and notes, which are the responsibility of the Officers of the Organisation. My responsibility is to issue a report on these accounts based on my accounting review.

I planned and performed my review to obtain moderate assurance as to whether the account is free from material misstatement. A review is limited primarily to enquiries on management and analytical procedures applied to financial information, and thus provides less assurance than an audit. I have not performed an audit and, accordingly, do not express an audit opinion.

Based on my review, nothing has come to my attention that causes me to believe the

accounts are not presented fairly in accordance in all material respects, with generally accepted accounting principles.

International Organisation for Medical Physics
Statement of Assets and Liabilities
as at 31st December 2015

	2015		2014	
	$	$	$	$
Assets				
Cash at Bank:				
US Dollar Current Account	142,510		133,879	
US Dollar Interest Account	170,905		170,266	
Euro Account	78,035		71,683	
Sterling Account	16,459	407,909	23,035	398,863
Debtors (Note 3)		22,821		30,206
Total Assets		430,730		429,069
Less Current Liabilities				
Subscriptions in Advance	1,155		1,666	
Creditors (Note 4)	27,281	28,436	36,338	38,004
Net Assets		402,294		391,065
Represented by				
Accumulated Surplus				
as at 31st December 2014	391,065		380,555	
Retained Surplus for Year	11,229	402,294	10,510	391,065

Dr. Anchali Krisanachinda
Treasurer

Date June 1, 2016

Report – International Symposium on Advances in Diagnostic Imaging Physics | 26-29 Mars 2016; Rabat (Morocco)

Prof. Habib Zaidi, Geneva University Hospital, Geneva, Switzerland

The first AAMP-ISEP/FAMPO Diagnostic Imaging Symposium was held on 26-29 Mars 2016 in Rabat (Morocco). This workshop was sponsored by the American Association of Physicists in Medicine (AAPM) under the International Scientific Exchange Program (ISEP), with additional financial support provided by the IOMP, the Moroccan Association for Medical Physics (MAMP) and local companies. The attendance comprised mostly professional medical physicists involved in diagnostic and therapeutic medical physics, nuclear medicine physicians, radiation oncologists, graduate students and university professors from the faculties of science and medical schools of the universities of Rabat and Casablanca.

This almost one week workshop included advanced lectures and visits to the hospital covering various aspects of the applications of physics in medicine, emphasizing diagnostic imaging techniques and radiation treatment of cancer. The invited AAPM faculty included Profs. Habib Zaidi (Geneva University Hospital, Switzerland), Adel Mustafa (Yale University, USA), Anthony Seibert (UC Davis, USA) Moyed Miften (University of Colorado, USA), Robert Jeraj (University of Wisconsin, USA), Robert Gould (UCSF, USA) and Virginia Tsapaki (Konstantopoulio General Hospital, Greece). The co-directors for the workshop were Prof. Habib Zaidi, representing AAPM-ISEP and Dr Samir Mouatassim, President of the MAMP.

The first day was very well attended, with over 150 participants including invited guests representing different bodies involved in medical physics activities in the country, also representatives from the ministries of Health and Education. The participants were from 25 different countries, mostly within Africa, but also from Europe (Switzerland, Belgium and France). About 25 participants from Africa supported by the IAEA attended the meeting.

The official program included more than 24 hours of class¬room lectures on various diagnostic medical imaging topics. The full scientific program can be consulted on the workshop web site (http://www.asso-ampm.com/isep/).

After 4 inspiring days, the workshop came to a close on Wednesday 29 March 2016; leaving behind some remarkable teachings and countless wonderful memories …

The local organizing committee did an excellent job. The educational program was remarkably executed, as witnessed by all participants. All invited speakers delivered brilliant lectures and provided plenty of valuable handouts that were made available to the participants on the workshop's web site.

Photography showing the invited faculty including: Professors Mustafa Adel, Habib Zaidi, Anthony Seibert, Moyed Miften, Robert Jeraj, Robert Gould and Virginia Tsapaki and the local organizers Drs Samir Mouatassim and Lakbir El Hamidi.

XIV Mexican symposium on Medical Physics Mexico City, March 16-21 2016

Guerda Massillon-JL, President of the Organizing & Scientific committee

The XIV Mexican symposium on Medical Physics took place at the Hotel Fiesta Inn Insurgentes Sur Mexico City, from the 18th till the 21st of March 2016. A total of 150 professors, researchers, clinical Medical Physicists and students (~ 43%) has participated, coming from Mexico, United States of America, Ecuador, Brazil, United Kingdom, Colombia, France, Canada, and Guatemala.

A total of 150 abstracts was submitted, which is remarkably higher than the amount submitted in previous editions. After the review process by a group of internationally recognised researchers from Mexico, United States of America, United Kingdom and Brazil, 114 abstracts (76%) were accepted. In order to present a talk or a poster at the symposium, the presenting author had to be registered and was required to confirm his/her participation at least one month before the conference. This requirement has caused a reduction to 96 abstracts included in the program and presented during the event, which corresponds to 64% of the amount originally submitted. Consequently, the scientific program was completely followed. The abstracts were distributed as 4 Plenary Talks, 6 Invited Talks, 4 Special Presentations on Education in Medical Physics, 5 Student Paper Awards, 30 Oral talks and 47 Posters in several topics (see attached final program).

As is customary, a pre-symposium school was organized before the symposium. The pre-symposium school happened at the Physics Institute of UNAM during March 16-17 and counted with more than 55 participants, of which most were clinical Medical Physicists and students. Since the beginning of these symposia, the pre-symposium schools have been conceptualized to familiarize the students with some specific topics that would be presented during the symposium. In the present edition, some changes were implemented by introducing basic concepts in Medical physics as well as new trending topics in the field in order to complement the academic training of students and Medical Physicist professionals. During these two days, 16 hours of courses were imparted (see attached Final Program) For the first time in the series of the Mexican Symposia on Medical Physics, we applied to the Commission on Accreditation of Medical Physics Education Programs (CAMPEP) of the USA for a total of 17.51 Medical Physics Continuing Education Credits (MPCEC), for both the symposium and the re-symposium school, and the application for credits was approved. Consequently, the participants will receive CAMPEP credits.

Middle East Federation of Organizations of Medical Physics

Ibrahim Duhaini, Past President of MEFOMP

A. Activities sponsored by the MEFOMP during the last 6 months:

Activity Title	Sponsored by	Location	Date
1. 1st Medical Physics Workshop on CT	HMC- QMPS - MEFOMP	Doha - Qatar	Dec.31, 2015 - Jan.1, 2016
2. Workshop about Physics in Nuclear Medicine	EMPS -MEFOMP	Dubai - UAE	Feb 2-4, 2016
3. 3rd Workshop on Radiation Safety in Interventional Radiology and Cardiology	HMC- QMPS - MEFOMP	Doha - Qatar	25-26 February 2016
4. Workshop on Quality Control in Mammography & CT	JMPS -MEFOMP	Amman – Jordan	April 23-26, 2016

B. Radiation Therapy Treatment in Lebanon:

No	Hospital	Area	N# of MP	N# Linacs
1	American University Medical Center	Beirut	4	2
2	Notre Dame de Secours/	Byblos	1	1
3	Rizk Hospital	Beirut	1	1
4	Mount Lebanon Hospital	Mount Lebanon	2	3
5	Hotel Dieu De France Hospital	Beirut	3	2
6	Centre treatment medical du Nord	Zagharta	2	2
7	Rafik Hariri University Hospital	Beirut	2	2
8	Middle East Institute of Health	Mount Lebanon	1	1
9	Riyak Hospital	Bekaa	1	1
10	Nabih Berry University Hospital	Nabatyii	1	1
11	Clemenceau Medical Center	Beirut	2	1
Total	**11**		**20**	**17**

Lebanon is located in the heart of the Middle East Region with a population of 4.5 million and is considered one of the best places of Medical Hot Spot destination that attracts many of the neighboring countries to seek medical treatment. This is due to the fact of the highly skilled medical professionals and advanced health infrastructure in the country.

Radiotherapy Treatment started in the early 20's with Cobalt Machines and has developed tremendously thought the years to include the highly technological and advanced Linac Systems. Now, there are 11 Hospitals (below Table) that offer Radiotherapy Treatment with 17 Linacs equipped with the state of the art technology using 3-D Conformal, IMRT, Stereotactic Radiosurgery, IGRT and other modalities. In this report, an overview of the current cancer treatment in 9 out of the 11 hospitals will be revealed.

1. American University of Beirut Medical Center:

AUBMC have been treating patients since 1955, having been the first in Lebanon and neighboring countries to implement high-dose-rate brachytherapy (HDR), Stereotactic Radiosurgery (SRS), Stereotactic Radiotherapy (SRT), systemic radioimmunotherapy (RIT), Stereotactic Body Radiation Therapy (SBRT), and Intensity Modulated Radiation Therapy (IMRT). AUBMC treat about 750 new patients per year, one quarter of them are not Lebanese as the referral base extends to Syria, Iraq, and other Arab countries. AUBMC established official relationships with The University of Texas MD Anderson Cancer Center and St. Jude Children's Research Hospital underscore our commitment to offering the highest expertise with the latest scientific knowledge using the best and scientifically proven technical tools. Treatment techniques include: 3-D, IMRT, IGRT, CBCT, FFF, SRS, SRT, and TBI.

2. Hotel-Dieu de France Hospital

The radiation oncology department at the Hotel-Dieu de France Hospital (HDF) of the University of St Joseph (HDF-USJ) dates back to the year 1925. The department operated under the directorship of Professor Paul Ponthus from 1946 till 1976.

Today, the department of radiation oncology at HDF is treating more than 700 new cases per year. It has the highest number of graduating radiation

oncology residents in the country. It participates actively in local and regional cancer conferences, and regularly publishes on retrospective and prospective clinical studies.
Treatment techniques include: 3-D, IMRT, IGRT, CBCT, SRS, SRT and TBI).
3. Mount Lebanon Hospital
Innovation has been a hallmark of the Department of Radiation Oncology's at MLH throughout its history. Established in 1995 it was the earliest pioneer in radiation therapy. This intensely dynamic department continues to grow in size, activity and stature. It is dedicated to the maintenance of clinical excellence and to the exploration and application of new techniques in the fast changing world of therapeutic oncology.
Treatment techniques include: IMRT, IGRT, CBCT, 3-D, and TBI).
4. Centre de Traitement Médical du Nord
Date Established: September 2000
Number of patients treated during that period: 400 patients per year.
Treatment techniques include: IMRT, IGRT, CBCT, and 3-D.
5. Middle East Institute of Health
The 3D Conformal Radiotherapy allows the delivery of the dose of radiation to the tumor, while sparing the Normal Healthy tissues and organs at risk. This treatment is delivered using a state-ofthe-art linear accelerator (Linac) with Multi leaf collimator coupled to a treatment planning system
that allows the merging of images from MRI or the PET-CT scan available on site.
6. Rayak Hospital
The Department opened in 2008 and it offers 3D Conformal Radiotherapy for patients.
7. Rafik Hariri University Hospital
The Department of Radiation Oncology offers state-ofthe-art treatment for cancer patients including a complete clinical evaluation, staging, individualized radiation therapy and follow-up care.
Opened in 2004, the Department was the first governmental hospital that offers treatment for free. Now the Department is renovated with new upgrades in the Linac and TPS. It is due to re-open on June 2016.
8. Nabih Berry University Hospital
The Radiotherapy Department opened in 2014 with the collaboration of the American University Medical Center and operated by Radiation Expert Group Professionals. It is the second governmental hospital with Radiotherapy Treatment. It is in an area in the South covering more than 2 million populations. Treatment techniques include: IMRT, CBCT, and 3-D.
9. Clemenceau Medical Center
The Radiotherapy Department at CMC opened in February 2016 as a new comprehensive Cancer Center with a specialized state-of-the-art Radiation Therapy unit. The department offers advanced treatment procedures such as: Stereotactic Body Radiation Therapy (SBRT), Stereotactic Radiosurgery (SRS), Stereotactic Radiation Therapy (SRT), and Intensity-Modulated Radiation Therapy (IMRT).

CALENDAR OF EVENTS - Ibrahim Duhaini, Calendar Editor

- 22nd Annual Meeting of the German Association for Radiation Oncology (DEGRO)
Jun 16 – 19, 2016
Mannheim, Germany
www.degro.org/degro2016
- IWDM 2016 – 13th Int'l Workshop on Breast Imaging -- Sweden
Jun 19 – 22, 2016
Malmö, Sweden
www.iwdm.org
- 18th Int'l Conference on the Use of Computers in Radiation Therapy
Jun 27 – 30, 2016
London, UK
www.iccr2016.org
- World Congress of Brachytherapy
Jun 27 – 29, 2016
Francisco, CA, USA
www.americanbrachytherapy.org/meetings/annual2016/registration/index.cfm
- ICBMP Conference on Biophysics and Medical Physics - Stockholm
Jul 11 – 12, 2016
Stockholm, Sweden
www.waset.org/conference/2016/07/stockholm/ICBMP
- Canadian Organization of Medical Physicists (COMP) Annual Scientific Meeting
Jul 20 – 23, 2016
St. John's, NL, Canada
www.comp-ocpm.ca/2016-asm-english
- AAPM 58th Annual Meeting & Exhibition
Jul 31 – Aug 4, 2016
Washington, DC, USA
www.aapm.org
- GI-CoRE Summer School for Medical Physics
Aug 22 – 26, 2016
Hokkaido University, Japan
gi-core.oia.hokudai.ac.jp/gsq/news/666
- 10th Int'l Seminar on Medical Physics (ISMP)
Aug 26 – 28, 2016
Penang, Malaysia
www.iosismp2016.net
- Workshop on Quality Assurance and Radiation Protection In Radiology
Aug 26 – 28, 2016
S.M.S. Medical College, Auditorium, India
www.ampi.org.in
- MEFOMP Workshop on Education and Training of Radiation Protection Officers
Aug 27 – 31, 2016
HMC Doha, Qatar
www.hamad.qa
- 1st European Congress of Medical Physics -- Athens
Sep 1 – 4, 2016
Athens, Greece
www.ecmp2016.org
- Joint Argentine and Latin American Congresses on Medical Physics
Sep 4 – 7, 2016
Villa Carlos Paz, Cordoba, Argentina
www.alfim2016.com/en
- 47th Annual Meeting of the German Society of Medical Physics (DGMP)
Sep 7 – 10, 2016
Würzburg, Germany
www.dgmp-kongress.de
- Course on Monte Carlo Techniques in Radiation Therapy
Oct 5 – 7, 2016
Maastricht, Netherlands
montecarlo-techniques-course.weebly.com
- MICCAI: Int'l Conference on Medical Image Computing and Computer Assisted Intervention
Oct 17 – 21, 2016
Athens, Greece
www.miccai2016.org/en
- IEEE Nuclear Science Symposium and Medical Imaging Conference 2016
Oct 29 – Nov 6, 2016
Strasbourg, France
www.nss-mic.org/2016
- International Day Of Medical Physics
November 7, 2016
All over the World
www.iomp.org
- 9th Int'l Conference on 3D Radiation Dosimetry (IC3DDose)
Nov 7 – 10, 2016
Galveston, TX, USA
www. ic3ddose.org
- The Annual Scientific Meeting, EPSM 2016
6 – 10 November 2016
Sydney, Australia
www.epsm.org.au
- 2nd Vietnam Conference for Medical Physics
November 7, 2016
Vietman Organizer: VAMP
- 2nd Int'l Conference and Exhibition on Medical Physics and Biophysics
Nov 10 – 11, 2016
Istanbul, İstanbul, Turkey
www.medicalphysics.conferenceseries.com/
- 5th Annual Conference of Bangladesh Medical Physics Society (ACBMPS-2016)
22nd-23rd November 2016
Dhaka, Bangladesh Organizer: Bangladesh Medical Physics Society (BMPS)
www.bmps-bd.org
- 22nd Int'l Conference on Medical Physics (ICMP 2016) - Bangkok
Dec 9 – 12, 2016
Bangkok, Thailand
www.icmp2016.org

1ST EUROPEAN CONGRESS OF MEDICAL PHYSICS

SEPTEMBER 1-4, 2016

Eugenides Foundation
Athens-Greece

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Welcome Message from Thai Medical Physicist Society

ICMP
9-12 DECEMBER
Bangkok, Thailand 2016

On the behalf of Thai Medical Physicist Society and the local organizing committee, I am pleased to extend our warm welcome to the 22nd International Conference on Medical Physics 2016 held on December 9-12, 2016 at the Shangri-La Hotel, Bangkok, Thailand.

The Theme of the Conference is

"Medical physics propelling global health"

The Conference is hosted by the cooperation of:

- International Organization of Medical Physics (IOMP)
- Asia- Oceania Federation of Organizations for Medical Physics (AFOMP)
- European Federation of Organizations for Medical Physics (EFOMP)
- Middle East Federation of Organizations for Medical Physics (MEFOMP)
- South-East Asian Federation of Organizations for Medical Physics (SEAFOMP)
- Japanese Society of Radiological Technology (JSRT)
- Thai Medical Physicist Society of Medical Physics (TMPS)
- Thailand Convention & Exhibition Bureau (TCEB)

It is the first time that Thailand hosts the International Conference on Medical Physics(ICMP) in Bangkok, the 'City of Angels' and the 'Venice of the East' which you can enjoy the Asian culture of the gorgeous temples and Grand Palace along the Chao Phraya River with the fantastic world famous Thai food.

The Scientific and Commercial Exhibition Committee are preparing for the highest scientific and educational quality through lectures, symposium, workshop, proffered papers, e-posters together with the radiological products of advanced technology from every corners of the world.

I wish you participate the coming conference arranged with the Welcome Reception, Lunch Symposium, Scientific and Exhibition sessions with several social programs in December 9-12, 2016 Bangkok, Thailand.

Thank you,

Anchali Krisanachinda, Ph.D.
President, TMPS
November 12, 2015

www.icmp2016.org