Journal of
Biomedical Physics and Engineering

Official Journal of the Global Center for Advanced Research in Biomedical Physics and Engineering
Volume 7 , Number 3, Suppl. 1, November 2017

eISSN: 2251-7200

Table of Contents

Editorial

Message from Dr. Mohammad Amin Mosleh Shirazi, JBPE Guest Editor

Perhaps Recent years have witnessed substantial changes and improvements in medical physics in our country. Such advancements include the following: increasing interest from students in studying and working in this field, greater number of centers requiring medical physicists, emergence and implementation of new and advanced technologies that necessitate and highlight the need for the involvement of medical physics experts with deep specialized knowledge and skills, the move towards organizing the level of relevant scientific knowledge and experience of medical physics personnel in clinics, etc.

This year's motto of the International Day of Medical Physics focusses attention on the role of medical physics in improving women's health and safety, both as radiation workers and as patients. It is important that our colleagues and students in this country progress towards this aim along with their international counterparts (and even further depending on local needs and circumstances). We can pay special attention to research on the effects of radiation on embryos, fetuses and pregnant radiation workers, as well as early diagnosis and treatment of diseases common in women. Given the needs of our country in this field, medical physicists, together with their medical and engineering colleagues, can play

a very significant role, for example, in better diagnosis and treatment of breast (especially young-age) and gynecological cancers, osteoporosis, etc.

Also, on this special day, we must thank, appreciate and honor our female colleagues who have served in teaching, research, clinical diagnosis and treatment, management, etc. as great and invaluable representatives of the medical physics profession.

I would like to send my congratulations to our colleagues and students on the International Day of Medical Physics and the International Day of Radiology and wish all of them good health and great success.

Last but not the least, I wish to express my sincere thanks to my international colleagues who kindly accepted to contribute to this booklet.

Mohammad Amin Mosleh-Shirazi, PhD CSci

Introduction to Medical Physics

Perhaps Leonardo da Vinci, five centuries ago, can be considered the first medical physicist. Certainly, he was profoundly interested in the mechanics of human locomotion. The subsequent gradual development of physical tools contributed to advances in the biological sciences. One outstanding example is the microscope developed by the Dutch inventor, van Leeuwenhoek, during the 17th century. The development of electromagnetism in the 19th century enabled physicists to make contributions to medical treatment and diagnosis. D'Arsonval, a French physicist, pioneered the therapeutic use of high-frequency electric currents and showed the way towards development of electrical measuring instruments. Since then, sensitive recording voltmeters, starting with the Einthoven string galvanometer, have helped the development of electrocardiography and electroencephalography.

The discoveries of x-rays and radioactivity by Roentgen in 1895 and Becquerel in 1896 were rapidly followed by the application of ionizing radiations to the diagnosis and treatment of diseases. This was the main motivation for physicists to contribute in clinical applications. In 1913, Duane began working on radon sources for cancer treatment at a hospital in Boston and was followed in 1915 by Failla in New York. In the 1920's, there was only a handful of physicists in medicine, while today the number exceeds 4,000. The invention of powerful radiation sources to deliver interstitial and intra-cavitary radiation therapy, including Van de Graaff generators, betatrons, cobalt-60 units, linear accelerators, microtrons, and cyclotrons for external beam radiation therapy; the application of man-made radio-nuclides to medical diagnosis and the development of detection devices, such as gamma cameras and positron emission tomography (PET) scanners; the application of ionizing radiation to medical diagnosis and the invention of imaging techniques and devices, such as image intensifiers, computerized tomography (CT), and digital radiology; and, more recently, the

utilization of nuclear magnetic resonance (NMR) in medical imaging and spectroscopy have all created a distinct role for medical physicists in the practice of the healing arts. Thus the growth and contribution of medical physics is a natural consequence of the evolution of modern science and technology.

Medical Physics

An applied branch of physics concerned with the application of the concepts and methods of physics to the diagnosis and treatment of human disease. It is allied with medical electronics, bioengineering, and health physics.

What Is a Medical Physicist?

Medical physicists contribute to the effectiveness of radiological imaging procedures by assuring radiation safety and helping to develop improved imaging techniques (e.g., mammography CT, MR, ultrasound). They contribute to development of therapeutic techniques (e.g., prostate implants, stereotactic radiosurgery), collaborate with radiation oncologists to design treatment plans, and monitor equipment and procedures to insure that cancer patients receive the prescribed dose of radiation to the correct location.

What do Medical Physicists Do?

Medical physicists are concerned with three areas of activity: clinical service and consultation, research and development, and teaching. Normally, their time is distributed equally among these areas. In many non-teaching hospitals, medical physicists usually hold professional appointments in one of the clinical departments and are members of the professional staff of the hospital. Medical physicists employed in academic institutions or research centers are members of the academic staff of an academic or clinical department.

Definition of a Qualified Medical Physicist

A Qualified Medical Physicist is an individual who is competent

to practice independently one or more of the subfields of medical physics.

Therapeutic Radiological Physics
Diagnostic Radiological Physics
Medical Nuclear Physics
Medical Health Physics

Scope of Practice

The main responsibility of a Qualified Medical Physicist's clinical practice is to assure the safe and effective delivery of radiation to achieve a diagnostic or therapeutic result as prescribed. The medical physicist performs or supervises the pertinent procedures necessary to achieve this objective. The responsibilities of the medical physicist include: protection of the patient and others from potentially harmful or excessive radiation; establishment of adequate protocols to ensure accurate patient dosimetry; the measurement and characterization of radiation; the determination of delivered dose; advancement of procedures necessary to ensure image quality; development and direction of quality assurance programs; and assistance to other health care professionals in optimizing the balance between the beneficial and deleterious effects of radiation. In many non-teaching hospitals, physicists hold professional appointments in one of the clinical departments as well asmembership of the professional staff of the hospital. Some of the larger teaching hospitals employ a substantial number of medical physicists who are organized into medical physics departments. The medical physics departments are found in the larger centers and provide support to clinical departments for various academic, clinical and service tasks. There is a steadily increasing demand for appropriately trained medical physicists in all large medical centers, small hospitals and the industry producing radiation-based diagnostic and therapeutic systems.

Clinical Service and Consultation

Many medical physicists are heavily involved with responsibilities in areas of diagnosis and treatment often with specific patients. These activities take the form of consultations with physician colleagues. In radiation oncology departments, one important example is the planning of radiation treatments for cancer patients using either external radiation beams or internal radioactive sources. An indispensable service is the accurate measurement of the radiation output from radiation sources employed in cancer therapy. In nuclear medicine, physicists collaborate with physicians in procedures utilizing radionuclides for delineating internal organs and determining important physiological variables, such as metabolic rates and blood flow. Other important services are rendered through investigation of equipment perfor-mance, organization of quality control in imaging systems, design of radiation installations and control of radiation hazards. A medical physicist is called upon to provide clinical and scientific advice and resources to solve the numerous and diverse physical problems that arise continually in many specialized medical areas.

Research and Development

Medical physicists play a vital and often leading role in the medical research team. Their activities cover wide frontiers, including such key areas as cancer, heart disease, and mental illness. Regarding cancer, they work primarily on issues involving radiation, such as the basic mechanisms of biological change following irradiation, the application of new high-energy machines to patient treatment and the development of new techniques for precise measurement of radiation. Significant computer developments continue in the area of dose calculation for patient treatment and video display of this treatment information. Particle irradiation is an area of active research with promising biological advantages over traditional photon treatment. In the area of heart diseases, physicists work on the measurement of blood flow and oxygenation. Regard-

ing mental illnesses, they work on the recording, correlation, and interpretation of bioelectric potentials.

Medical physicists are also concerned with research such as the applications of digital computers in medicine and applications of information theory to diagnostic problems; processing, storing, and retrieving medical images; measuring the amount of radioactivity in the human body and foodstuffs; and studying the anatomical and temporal distribution of radioactive substances in the body.

Medical physicists are also involved in the development of new instrumentation and technology for the use in diagnostic radiology. These include the use of magnetic and electro-optical storage devices for the manipulation of x-ray images, quantitative analysis of both static and dynamic images using digital computer techniques, radiation methods for the analysis of tissue characteristics and composition, and the exciting new areas of computerized tomography and magnetic resonance imaging for displaying detailed cross-sectional images of the anatomy. Medical physicists are also engaged in research and development of imaging procedures utilizing infrared and ultrasound sources.

Typical examples of the various research areas currently under active investigation may be found in scientific journals dedicated to this field, e.g. the journal, Medical Physics, published by the AAPM. AAPM holds two national scientific meetings a year, one in the summer and one in the winter. During the winter meeting, the AAPM conducts scientific sessions in joint sponsorship with the Radiological Society of North America. Special summer courses, workshops, and frequent regional meetings are also held by the AAPM.

Teaching

Often medical physicists have faculty appointments at universities and colleges where they help with training future medical physicists, resident physicians, medical students, and technolo-

gists who operate the various types of equipment used for diagnosis and treatment. They also conduct courses in medical physics, biophysics and radiobiology for a variety of graduate and undergraduate students.

Definition of a Qualified Medical Physicist

A qualified medical physicist is an individual who is competent to practice independently one or more of the subfields of medical physics.

I. Therapeutic Radiological Physics

This particular field pertains to:

• The therapeutic applications of x-rays, gamma rays, electron and charged particle beams, neutrons and radiations from sealed radionuclide sources

• The equipment associated with their production, use, measurement and evaluation

• The quality of images resulting from their production and use

• Medical health physics associated with this subfield

II. Diagnostic Radiological Physics

This particular field pertains to:

• The diagnostic applications of x rays, gamma rays from sealed sources, ultrasonic radiation, radio frequency radiation and magnetic fields

• The equipment associated with their production, use, measurement and evaluation

• The quality of images resulting from their production and use

• Medical health physics associated with this subfield

Radiology is the medical specialty directing medical imaging technologies to diagnose and sometimes treat diseases. Originally, it was the aspect of medical science that deals with the medical use of electromagnetic energy emitted by X-ray machines or other such radiation devices for the purpose of obtaining visual informa-

tion as part of medical imaging. A part of radiology that involves use of x-ray is called roentgenology. Today, following extensive training, radiologists direct an array of imaging technologies (such as ultrasound, computed tomographys (CT) and magnetic resonance imaging) to diagnose or treat disease. Interventional radiology is the performance of (usually minimally invasive) medical procedures with the guidance of imaging technologies. The acquisition of medical imaging is usually carried out by the radiographer or radiologic technologist. Outside of the medical field, radiology also encompasses the examination of the inner structure of objects using X-rays or other penetrating radiation.

III. Medical Nuclear Physics

This particular field pertains to:

• The therapeutic and diagnostic applications of radionuclides (except those used in sealed sources for therapeutic purposes)

• The equipment associated with their production, use, measurement and evaluation

• The quality of images resulting form their production and use

• Medical health physics associated with this subfield

IV. Medical Health Physics

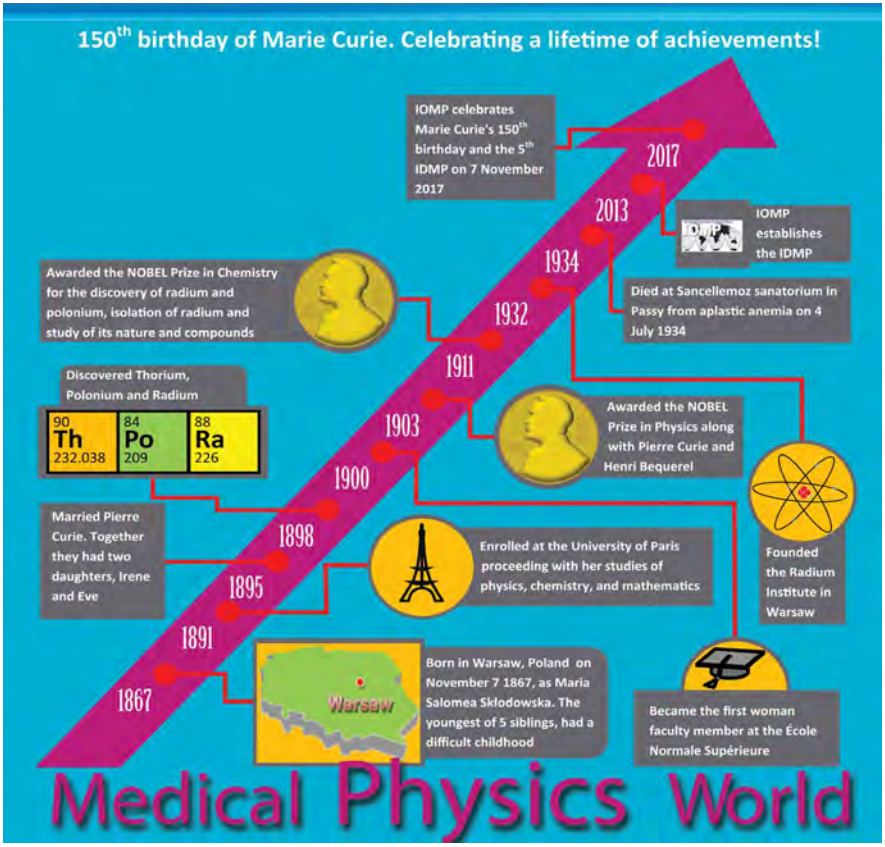
This particular field pertains to:

• The safe use of x-rays, gamma rays, electron and other charged particle beams of neutrons or radionuclides and of radiation from sealed radionuclide sources for both diagnostic and therapeutic purposes, excluding the application of radiation to patients for diagnostic or therapeutic purposes

• The instrumentation required to perform appropriate radiation surveys

It is expected that an individual will not hold himself/herself out to be qualified in a subfield for which he/she has not established competency. The American Board of Radiology

Medical Physics Timeline



Available from: http://www.iomp.org/sites/default/files/empw-2017-01.pdf, accessed in Oct, 2017.

http://www.iomp.org

INTERNATIONAL ORGANIZATION FOR MEDICAL PHYSICS

Member of the International Union of Physical and Engineering Sciences in Medicine

(Union Member of the International Council for Science)

President

Dr Slavik Tabakov, FIPEM, FIOMP, Hon. Prof.
Director MSc Programmes Clinical Sciences
King's College London, UK
Visiting Prof. Medical University Plovdiv, BG
Consultant, King's College Hospital London
Dept. Medical Engineering and Physics
London SE5 9RS, United Kingdom
Tel/Fax: +44 (0)20 3299 3536
slavik.tabakov@emerald2.co.uk

Vice President

Dr Madan M. Rehani
Professor of Medical Physics (Retd); Expert &
Ex-staff of the IAEA, Vienna; Formerly
Director of Radiation Protection, ESR
Tel: +43-676-3407850
madan.rehani@gmail.com

Secretary-General

Dr Virginia Tsapaki
Konstantopoulio General Hospital
14233 Nea Ionia, Athens, Greece
Tel/Fax: +30-2132057132
sg.iomp@gmail.com; virginia@otenet.gr

Treasurer

Dr Anchali Krisanachinda
Director, Higher Graduate Diploma
Program in Medical Physics
Director, M.Sc.in Medical Imaging
Department of Radiology,
Faculty of Medicine
Chulalongkorn University
Rama IV Road, Bangkok 10330
Thailand
Tel: +66 2 256 4283
Fax: +66 2 256 4162
anchali.kris@gmail.com

Dear Colleagues from the IAMP,

It is my pleasure to congratulate you with our special International Day of Medical Physics (IDMP) 7 November 2017, celebrating the 150th birthday of Marie Sklodowska Curie. You all know that due to this reason IOMP decided to dedicate this year's IDMP to women in medical physics.

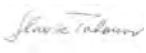
Today medical physicists have a special role in contemporary medicine, associated with the safe and effective clinical application of various medical imaging and radiotherapy equipment, as well as the research associated with them. This way it is only natural to see the growth of the number of medical physicists with the increased use of this equipment.

One can see from the statistics of the IOMP, that at its formation in mid-1960s there had been around 6000 medical physicists globally. In the following decade 1965-1975 we had a growth of about 2000 medical physicists. The same growth per decade continues in the 1975-1985 and 1985-1995. The period 1995-2005 shows double growth of 4000 medical physicists per decade. This is particularly associated with the strong emphasis on education and the introduction of e-learning in the profession. The number of medical physics courses and e-learning platforms further increased in the next decade 2005-2015, when we see a growth of 8000 medical physicists. Currently IOMP has nearly 26,000 members worldwide, but there are many low-and-middle income countries where there is a real shortage of medical physicists. We all have to take special measures for further increase the global number of medical physicists, as the predictions for the period 2015-2035 show that we shall have to almost triple in order to answer the healthcare demand for more services in Radiotherapy and Medical Imaging.

This future challenge is in front of us - the significant increase of the number of medical physicists in the next two decades will need special attention and actions – especially in the development of new and effective education methodologies and e-learning materials.

Wishing you good celebrations of the IDMP, I also want to encourage you to discuss possible ways for the future increase of our workforce.

With best wishes Prof. Slavik Tabakov, President IOMP



Message from Prof. John Damilakis, Coordinator of IDMP activities

Dear Colleagues,

This year we celebrate the 150th birthday of Marie Sklodowska-Curie. Marie Curie is remembered for her work on radioactivity and her huge contribution to the fight against cancer. Her work continues to inspire our mission to support people living with illness, including cancer.

The theme for IDMP 2017 focuses on our approach to women patients and women staff safety in radiation medicine. There are health problems that are more prevalent in women than in men such as breast cancer and osteoporosis. It is well known that medical physicists have developed imaging and radiotherapy methods that have increased women's length of life and have improved quality of life, for example X-ray mammography for the early diagnosis of breast cancer, dual-energy X-ray absorptiometry for the diagnosis of osteoporosis and brachytherapy methods for gynecologic cancer. Medical physicists not only developed these methods but also play a fundamental role in their application ensuring the quality of procedures while minimizing radiation risks to women patients.

Colleagues around the world: please celebrate the Day this year in many different ways:

• Translate the IDMP poster in your language. We have already uploaded on IDMP website the poster translated in 15 languages

• Use the internet, newspapers and other communication vehicles to create awareness

• Organize an event and invite people to promote the role of

medical physicists in the worldwide medical scene.

And let us know how you celebrated the Day!

This year the IOMP organizes 3 events in Jaipur, Kuala Lumpur and Vienna in cooperation with the IAEA, the WHO, the Asian Conference of Medical Physics and the University of Malaya. We will invite you all to attend online so that we can celebrate the Day together. Please stay tuned to this website, we will provide more information soon.

Happy International Day of Medical Physics!

Prof. John Damilakis, MSc, PhD, FIOMP
IOMP Education and Training Committee Chair

Message from Prof. Azam Niroomand-Rad

Dear Iranian Colleagues,

It is great pleasure to welcome you to the 5th International Day of Medical Physics (IDMP) - commemorating this exceptional occasion honoring the 150th Birthday of Marie Curie.

Today is a special (personal) day for me – celebrating achievements and contributions of a great woman scientist who has always been my role model growing up in Iran. In fact, she was the reason I became interested in Math & Physics in high school, in undergraduate / graduate schools and eventually in Medical Physic. Inspired by Marie's tragedies in her personal and professional life, I decided to become a volunteer in social / professional issues and got involved with international activities of AAPM and IOMP in particular

education and training of Medical Physicists in every corner of the world especially in developing countries. In this professional journey, several Medical Physics Associations / Societies were formed and were helped to join IOMP. Several Honors and Awards were established for IOMP – in particular Marie Sklodowska-Curie Award that was created as highest award in our Organization (1999). After 15 years of challenges, International Labor Organi-

Prof. Helene Langevin-Joliot-Curie (L) and Prof. Azam Niroomand-Rad (R) in 2002 at Georgetown University, Washington DC

zation, eventually recognized and enlisted Medical Physics Profession (2008) as a branch of Physics which requires additional education / training and certification. After several years of efforts, IDMP was established at the IOMP 50th Anniversary (2013) to be an annual event in honor of Marie Curie's Birthday and I was invited to celebrate it (Nov. 7, 2013) with my colleagues in Warsaw, Poland, where Marie was born (1867).

This year Marie Curie is remembered for her work for discovery of Radium and Polonium for which she received two Nobel Prizes. Her contributions in treatment of human diseases such as cancer are well established. Marie's oldest daughter, Irene Joliot, who was 9 years old when her father, Pierre Curie, died in a tragic accident (1906), continued her mother's work and studied radioactive materials. This led to discovery of artificial radioactivity for which Irene and her husband, Frédéric Joliot, an assistant to Marie Curie, received Nobel Prize (1935) - few months before Marie's death from aplastic anemia (1934). A few years ago when I interviewed Irene's daughter, Prof. Helene Langevin-Joliot-Curie and visited her in her home in Paris, she told me that Marie was aware of Irene's discovery and knew of its valuable application in cancer treatments and in nuclear medicine where artificially induced radionuclei are used. Helene showed me various parts of their house in which her parents (Irene and Frédéric) and grandmother, Marie, lived when she was sick.

The IDMP-2017 focuses on approaches to women's health and safety in radiation medicine. Some health problems are more prevalent in women than men such as breast cancer and osteoporosis. Medical Physicists have developed imaging devices, methods and quality assurance techniques in radiotherapy, radiology and nuclear medicine and have improved women's heath, minimized radiation risks and have increased quality of life.

Wishing You Happy International Day of Medical Physics!

Azam Niroomand-Rad, PhD, DSc, FAAPM, FIOMP, FACMP, ABR Dip., Emeritus Prof., IOMP Past President

Message from Prof. Fridtjof Nuesslin

Dear members of the Iranian Medical Physics Association,

Dear friends of the Medical Physics community of the Islamic Republic of Iran,

As one of the Past Presidents of the International Organization for Medical Physics (IOMP) I am pleased to follow the kind invitation of Dr. Bahman Tahayori to send you greetings for the celebration of the International Day of Medical Physics (IDMP) 2017. This year we are remembering of the 150th birthday of the patron of the IDMP, Marie Sklodowska-Curie, and this, as the President of the IOMP Prof.Slavik Tabakov and the Coordinator of the IDMP-activities, Prof. John Damilakis, emphasized, is a good reason to focus as professionals particularly on the women, both from the Medical Physicsts and the patient perspective. From early beginning of medical application of radiation there are a number of developments and daily routine work medical physicists are involved in women health care, specifically in diagnosis and treatment of women cancer. In the western world, the 3 top women cancers are breast, lung and endometrial cancer. Thanks to the progress in imaging technology with significant contributions from medical physics prevention became increasingly effective. In the case of breast cancer caught in early stage the survival rates

raise by means of regular mammography screening up to nearly 100%. In many regions however, early detection of cancer may be an issue of access to imaging facilities rather than further technical advancement. This is the point where women medical physicists beyond their job as clinical professionals may seek opportunities to draw the attention of the women patients, hospital administration up to the health care providers for a continuous improvement of prevention of cancer. However, for sure prevention of cancer is not only limited to access to modern facilities, it is far more the availability of resources, particularly staffing. This brings me to an essential point, although as I have learned from friends in your country, the Islamic Republic of Iran made good progress in the education and training of women medical physicists: the medical physics profession needs more women medical physicists what by the way is true worldwide. Isn´t medical physics with its inherent mixture of intellectual capacity and emotional compassionateness a perfect match to just the female character (apologies to my male colleagues for this very personal statement)? Anyway, find a way to assist women medical physicists and seek for potential candidates to choose a career in this wonderful, exciting and satisfying profession. Why not bringing this mission already to the girls in school and to beginners at universities, giving talks about how your life as women medical physicist in a hospital looks like, try to attempt establishing mentoring and partnerships at all levels of the educational system. When campaigning for women medical physics keep in mind Marie Sklodowska-Curie´s lifelong motto:

"Life is not easy for us. But what of that? We must have perseverance, and above all, confidence in ourselves. We must believe that we are gifted for something, and that this thing, at whatever cost, must be attained." [Marie SKlodowska-Curie]

Prof Fridtjof Nuesslin, past president IOMP,
Munich, October 2017

Message from Prof. Parham Alaei

To the participants of the International Day of Medical Physics event at Shiraz University of Medical Sciences:

Dear Colleagues,

On the occasion of the International Day of Medical Physics I would like to convey my best wishes to you for a productive meeting. Since the introduction of the International Day of Medical Physics by IOMP in 2013, medical physicists around the globe have used this occasion to foster greater collaboration with each other, irrespective of borders. The theme of this year's celebration, on the 150th birthday of Marie Curie, a pioneer in the use of radioactivity to heal cancer patients, focuses on women patients and staff and their safety. Medical physicists, many of them women, have been instrumental in developing new devices and techniques to help diagnose and treat cancers prevalent in women. They also provide a vital role in these devices' proper operation and in minimizing the radiation risks to patients and staff.

Because of recent technological advances, both in imaging and therapy, medical physics is a rapidly evolving field which requires dedication of resources, both financially and in human terms, to provide the best, and safest, care to the patients. There is unfortunately a gap between different countries, and often between different regions within the same country, when it comes to availability of resources. This requires further promotion of a culture of sharing of knowledge and expertise. So on this day I stress the need for such a culture as all of us are working to reach a common goal: providing the best diagnostic and therapeutic tools for our patients while minimizing the risk of adverse effects.

Again, I wish you a successful meeting and congratulate all the awardees.

Parham Alaei, PhD, DABR
Chair, AAPM Middle East Affairs Subcommittee
Professor and Director of Medical Physics
Department of Radiation Oncology
University of Minnesota, Minneapolis, MN USA

Message from Prof. Bijan Arjomandi

It is my great honor to address my fellow Iranian Medical Physicists on the International Day of Medical Physics. Iranian Medical Physicists have overcome many difficulties over past few decades due to economic and political adversity which were imposed upon the country. They have achieved and come a long way to reach to a point that have made it possible to practice radiation oncology in Iran at a level that is comparable to the most modern countries in the world. Because of their dedications in high quality of care, it is my anticipation that in the next few years, Iranian Medical Physicists transpire the practice of radiation oncology at much higher level such that it is recognized and demanded internationally.

Bijan Arjomandy, Ph.D., DABR.
Lead Senior Proton Medical Physicist, Karmanos Cancer Institute at McLaren- Flint,
McLaren Proton Therapy Center

پیام آقای دکتر محمد امین مصلح شیرازی

سال های اخیر شاهد تغییرات و پیشرفت های قابل توجهی در فیزیک پزشکی کشور بوده است. از جمله این تحولات، می توان به موارد زیر اشاره کرد: علاقه و توجه روزافزون دانشجویان به تحصیل و کار در فیزیک پزشکی، افزایش تعداد مراکزی که نیاز به متخصصین فیزیک پزشکی دارند، راه اندازی فناوری های جدید و پیشرفته که لزوم وجود متخصصین فیزیک پزشکی با دانش عمیق و تخصصی و مهارت بالا را نمایان تر می کند، حرکت در راستای سامان دهی سطح علمی و تجربه مرتبط و مفید کادر فیزیک پزشکی مراکز بالینی و موارد دیگر.

امسال توجه ویژه روز جهانی فیزیک پزشکی به نقش این علم در ارتقاء سطح ایمنی و سلامت بانوان پرتوکار و همچنین زنانی که به عنوان بیمار مورد پرتوگیری قرار می گیرند، معطوف شده است. شایسته است که همکاران و دانشجویان محترم ما در کشور همگام با کشورهای پیشرفته در این زمینه (و حتی فراتر از آنها با توجه به نیازهای خاص منطقه ای) علم فیزیک پزشکی و کاربرد آن در این راستا را به پیش ببرند. می توانیم به تحقیقات در مورد اثرات پرتوها بر جنین و بانوان باردار پرتوکار و روش های تشخیص زودهنگام و درمان بیماری های شایع در زنان توجه بیشتری داشته باشیم. با توجه به نیازهای کشور ما در این زمینه، متخصصین فیزیک پزشکی در کنار همکارانشان در حیطه های پزشکی و مهندسی می توانند نقش بسیار پررنگی را ایفا کنند، به عنوان مثال در تشخیص و درمان بهتر سرطان های سینه (به ویژه در زنان سنین پایین) و ژینوکولوژیک، پوکی استخوان و غیره.

همچنین، در چنین سالروزی، باید از بانوان محترمی که در عرصه های مختلف آموزش، پژوهش، تشخیص و درمان ، مدیریت و غیره نمایندگان بسیار ارزشمند حرفه فیزیک پزشکی بوده و هستند بی نهایت سپاسگزاری و قدردانی نمود.

اینجانب روز جهانی فیزیک پزشکی و روز جهانی رادیولوژی را به همکاران و دانشجویان عزیز و گرامی تبریک عرض نموده و از خداوند متعال برای همگی سلامت و موفقیت روز افزون آرزومندم.

با احترام،
دکتر محمد امین مصلح شیرازی