

International Organization for Medical Physics



eMPW

Volume 39 Number 1

June 2023

25th International Conference on Medical Physics - 2023



An official conference of the IOMP

6th - 9th December 2023

AMPICON 2023, AOCMP 2023 and ISEACOMP 2023 are held along with ICMP 2023

Theme: Innovations in Radiation Technology & Medical Physics for Better Healthcare

Venue: DAE Convention Centre, Anushaktinagar, Mumbai, India

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Editorial

Chai Hong Yeong, PhD

Editor of IOMP e-Medical Physics World (eMPW)



CHAI HONG YEONG

Editor of IOMP eMPW
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"ICMP is a significant event for the IOMP, hence the cover of this eMPW issue features this conference"

Dear Colleagues,

I am delighted to present to you the June 2023 issue of eMPW, which marks the Volume 39, No. 1 of our publication.

First and foremost, I would like to share an important message from the IOMP ExCOM: the **International Conference on Medical Physics (ICMP)**, an official conference of the IOMP, will take place this year in Mumbai, the capital city of the Indian State of Maharashtra. ICMP is held by IOMP every three years, with the previous ICMP being hosted in Chile in 2019. Originally scheduled for 2022, the conference was postponed to Dec 2023 due to the unstable situation caused by the COVID-19 pandemic. We are pleased to announce that ICMP 2023 will be held in conjunction with two other regional conferences: the 23rd Asia-Oceania Congress on Medical Physics (AOCMP), the International South-East Asia Congress on Medical Physics (ISEACOMP), and the 44th Annual Conference of the Association of Medical Physicists of India (AMPICON). As this is a significant event for the IOMP, hence the cover of this eMPW issue features this conference.

The current **IOMP ExCOM (2022-2025)** has been serving for 12 months since June 2022. In this issue of eMPW, the ExCOM and each Committee Chair are excited to share their contributions and achievements over the past year.

We successfully celebrated the **International Medical Physics Week (IMPW)** from 24 to 28 April 2023. Throughout the week, a series of IOMP webinars were conducted, featuring various topics and speakers. You can find detailed information and statistics about these webinars on pages [37-38](#).

eMPW Sub-Committee (June 2023 issue):

Chai Hong Yeong, Ismail Zergoug, Joerg Lehmann, Leyla Moghaddasi, Nabil Iqeillan, Niki Fitousi, Rosana Pirchio, Safayet Zaman

Editorial

Chai Hong Yeong, PhD

Editor of IOMP e-Medical Physics World (eMPW)

I would like to take this opportunity to highlight the theme of the International Day of Medical Physics (IDMP) 2023: **"IOMP's 60th Anniversary: Standing on the Shoulders of Giants."** This theme commemorates the Diamond Jubilee of the IOMP. We invite all National Member Organizations (NMOs) to celebrate this meaningful day in creative ways and share with us a brief report accompanied by multiple photos of your celebrations. We will publish these reports in the upcoming December 2023 issues of eMPW.

Congratulations to **MEFOMP** on their highly successful conference held in Muscat, Oman, from 19 to 22 May 2023. You can find the comprehensive conference report on pages 40-44.

We extend our gratitude to Rosana Pichio for submitting two articles for this issue: **"International Women's Day – Medical Physics Events"** (pages 45-49) and **"Medical Physics Programs at the Abdus Salam International Centre for Theoretical Physics (ICTP)"** (pages 65-72). The latter includes an intriguing interview session with Dr. Renato Padovani, the Coordinator of the Master's of Advanced Studies in Medical Physics at ICTP.

Our sincere thanks go to Prof. Arun Chougule, the Chair of the IOMP Accreditation Board, and all the board members for providing a detailed report on **"IOMP accreditation for continuing professional development (CPD) events."** You can read this report on pages 51-56.

We are also grateful to Dr. Ahmed Meghzifene, a consultant to the International Atomic Energy Agency (IAEA), and the team for sending us a preliminary report on the IAEA survey titled **"Advancing professional recognition in medical physics: challenges and collaborative solutions."** (pages 57-58).

Furthermore, we appreciate Patricia Mora and Susana Blanco for their informative article on **"The contribution of medical physics to the development of mammography and quality control programs in Latin America"** (pages 59-64), as well as Rosana Pirchio and Sergio Marcos Kettmayer for an interesting article on **"The use of silicone material in biomedical and healthcare applications"** (pages 73-80).

Last but not least, I would like to express my gratitude to all the ExCOM members and MPWB committee members for their valuable contributions in making this publication possible.

We look forward to seeing all of you at ICMP 2023 in Mumbai!

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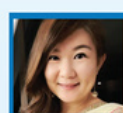
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President's Message

John Damilakis, PhD

President of IOMP



JOHN DAMILAKIS

President, IOMP

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"International cooperation can also help to address complex global challenges that require a collective effort in the area of radiation protection"

I am very happy to report that over the last 6 months the IOMP made a very good progress in all areas. Some of these activities are described in the electronic **IOMP Newsletter** that is published every 2 months and shared with about 37,000 subscribers. All IOMP ExCom colleagues worked very hard during this period for the advancement of our profession and their activities are described in this issue of MPW in their specific reports.

International cooperation among organizations has become increasingly important in today's globalized world. IOMP signed a **Memorandum of Understanding (MoU) with IRPA** on March 8, 2023. This MoU highlights the importance of joint efforts, resource sharing, and collaboration to achieve common goals.

The benefits of international cooperation are numerous. Joint events or sessions at scientific meetings can help in knowledge sharing, technology transfer, and promote scientific exchange. Inviting a designated representative of the other organization to participate in events and meetings can increase transparency, trust, and facilitate the exchange of ideas. Exploring possibilities of cooperation in projects can lead to the development of new research, the sharing of resources, and the creation of synergies, which can benefit both organizations and the wider community.

International cooperation can also help to address complex global challenges that require a collective effort in the area of radiation protection. By working together, organizations can pool their expertise, resources, and knowledge to achieve better outcomes. IOMP is planning to sign more MoUs with relevant international organizations. This is a positive step towards fulfilling our plans. These MoUs will allow us to broaden our network, increase our reach, and access new resources and opportunities.



President's Message

John Damilakis, PhD

President of IOMP

We celebrated the **International Medical Physics Week this year (IMPW 2023)** during the last week of April 2023 (24-28 April 2023). The Week was a resounding success. With webinars held every day, the event was well-attended, with an impressive number of participants joining from all over the world. This high level of attendance is a testament to the quality of the webinars and the relevance of the selected topics. The event would not have been possible without the contributions of the distinguished speakers, who shared their expertise and insights with the audience. Their presentations were engaging and informative, sparking meaningful discussions and exchange of ideas. Equally important was the audience, who actively participated in the webinars, asked thoughtful questions, and shared their experiences. Their engagement and enthusiasm created a vibrant and dynamic atmosphere that made the event memorable.

As in previous years, we will celebrate this year the **International Day of Medical Physics (IDMP)** on the 7th of November. The theme of IDMP 2023 is '**IOMP's 60th anniversary: Standing on the shoulders of giants.**' We are looking for a creative poster design for the IDMP 2023. The best design that receives the highest voting score from the IOMP ExCom will be adopted by IOMP and the winner will be announced and get acknowledged. A relevant announcement has been uploaded on IOMP's website (<https://www.iomp.org/idmp-2023/>).

The **International Conference on Medical Physics - 2023 (ICMP-2023)** is organized this year from 6th to 9th December at DAE Convention Centre, Anushaktinagar, Mumbai, India. The theme of the conference is "Innovations in Radiation Technology & Medical Physics for Better Healthcare". ICMP-2023 is the 25th International Conference of the IOMP. To submit your abstract please visit ICMP's website <https://icmp2023.org/> We are looking forward to meeting you in Mumbai!



Vice President's Message

Eva Bezak, PhD

Vice President of IOMP



EVA BEZAK

Vice President, IOMP
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"We have implemented various software rapidly and adopted online education and meetings on the go – changes that would have otherwise taken years to implement."

Dear Colleagues,

In early May, WHO declared the end of COVID-19 pandemic and perhaps after 3 trying years we can return back to pre-pandemic way of life, when most of us can travel to work and meet face-to-face and even enjoy attending conferences or indulge in international travel. We are excited that the **IOMP's International Conference on Medical Physics** will be held from 6th to 9th December 2023 at DAE Convention Centre, Anushaktinagar, Mumbai, India (<https://icmp2023.org/>). It will also incorporate the local and regional medical physics meetings, including the 44th Annual Conference of AMPI (AMPICON-2023), 23rd Asia Oceania Congress on Medical Physics (AOCMP-2023) and International South-East Asian Congress on Medical Physics 2023 (ISEACOMP 2023). IOMP and the Association of Medical Physicists of India (AMPI) have established the relevant committees and are working hard to offer you an excellent professional and educational experience. We are also planning to deliver training workshops under the umbrella of IOMP School. I hope to meet as many of you as possible at ICMP 2023 to make this conference a successful celebration of medical physics.

At the same time, the pandemic also has had some positive impacts; for example, working from home has been proven a valid and functional working modality for a number of professions and/or specific tasks (including some aspects of medical physics work related to computations, etc.). We have implemented various software rapidly and adopted online education and meetings on the go – changes that would have otherwise taken years to implement. Working from home also reduced commuting times for many and thus added to productivity and/or life-work balance.



Vice President's Message

Eva Bezak, PhD

Vice President of IOMP

In the second half of last year, IOMP conducted **medical physics workforce survey** (the results to be submitted for publication in near future) and I would like to thank all responding countries (64) for their kind participation. While there still seems to be a shortage of medical physicists in most countries, most of the respondents report having university based medical physics programs and practical training in their country. University medical physics programs are mostly at the Master's level (53%). Clinical training/residency programs are predominantly 2 year long and are delivered separately for radiation oncology, radiology and nuclear medicine in 37 (58%) responding countries, while 27 (42%) of respondents reported a combined residency program.

In April we celebrated the **International Medical Physics Week (IMPW)** with a series of daily webinars that were fantastically attended and the feedback received has been excellent. We hope that our educational offerings not only expanded the knowledge of the participants but also assisted with their continuous education requirements. Not only we revised the aspects of imaging in pregnancy, we also learnt about carbon nanotubes that have a potential to revolutionize imaging technologies (imagine a CT scanner in an ambulance) and about upright radiation therapy that may be advantageous for treatment of certain cancers with considerable organ motion during irradiation, e.g. due to breathing. The webinars offered in the second half of the year will be equally excellent.

With that I would like to again invite you to attend **ICMP 2023** and hope to see you in December in Mumbai, India.



IOMP Past President and IUPESM President's Report

Madan Rehani, PhD

Past President of IOMP and President of IUPESM



MADAN REHANI

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*"We, in IUPESM,
thought of doing a
survey to know the
status of joint
departments in large
parts of the world."*

As immediate past president, my primary role remains to provide information so as to avoid reinventing the wheel. It happens many times that such feedback does indeed prove helpful. IOMP is an active organization where almost every week, there are proposals routed through ExCom for comments and approval. The feedback thus is often needed. Further, a word of approval from a senior person helps others to save time and follow suit. With my long-standing experience of working with United Nations organizations and other international organizations, it is easy for me to judge how and when success can be achieved with them.

As President of IUPESM, with a team of Administrative Council which is similar to ExCom, we have launched some new actions. Realizing the increasing role AI is playing, we have launched a **Task Group on AI in Medicine**. The TG will aim at providing a summary to medical physicists, and BME of the progress made every few months in AI in medicine. The areas to be covered for the summary will be those that concern MP & BME. The frequency of preparing the summary shall be the TG. We will use established channels of dissemination and communication.

Realizing that specialization is taking over in all fields of medicine. While that is good for expertise in individual areas, one does need to keep the totality of the picture in mind. Just like there are numerous specialties of medicine, but internal medicine continues, and so is primary care. UK has a history of big medical physics and biomedical engineering departments with 50+ faculty members. It is believed that there are about over fifty such joint departments in UK. We, in IUPESM, thought of doing a survey to know the status of joint departments in large parts of the world. We thus created a **TG on integrated medical physics and biomedical engineering actions**.



IOMP Past President and IUPESM President's Report

Madan Rehani, PhD

Past President of IOMP and President of IUPESM

The terms of reference for this TG are:

- To conduct surveys to assess the status of integrated Medical Physics and Biomedical Engineering departments and educational programs globally.
- To contribute to the advancement of cooperation of MP & BME.
- To reflect the achievements of the joint actions

I am sure you are all aware of **World Congress on Medical Physics and Biomedical Engineering**. The next one is going to be held in Adelaide, Australia on 29 September to 4 October 2025. Please mark your calendar. This is going to be a very exciting conference full of scientific feasts and good exposure to Australian hospitality and sightseeing of the wonderful country. Please keep a watch on the [conference website](#) for upcoming announcements.

We are going to have a **IUPESM Global Town Hall** on 5th October 2023 at 12 noon GMT for one hour. Please mark your calendar. The purpose is to summarize the activities of IUPESM. Please keep a watch on the websites of IUPESM, IOMP and IFMBE for further details.



Treasurer's Report

Ibrahim Duhaini, PhD

Treasurer of IOMP



IBRAHIM DUHAINI

Treasurer, IOMP
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"The Balance Sheet shows that the Organisation's reserves continue to be robust and are held in cash deposits"

(A) Finance Subcommittee members (2022-2025):

Ibrahim Duhaini, Chair
Shigekazu Fukuda, Asia
Sanchez Palmer, Africa
Ana Maria Marques da Silva, Latin America
John Damilakis, President (Ex-Officio)
Eva Bezak, Vice President (Ex-Officio)

(B) During the last six months, the following activities have been executed:

1. Reviewing and approving ExCom expense claims, invoices, bills and other incidentals.
2. Sending membership Fees letters to all NMO.
3. Following up and processing transactions of the IOMP Company Account.
4. Performing other related duties with the ExCom members, IOMP Accountant and Administration Office.

(C) Treasurer's Report for the Year Ended 31st December 2022:

Total subscription income in 2022 has decreased slightly on previous years to \$72,477 (2021: \$77,791) partly due to the fact there was only one paying Corporate Member in 2022 (there were two in 2021). However, the overall response from NMO's this past year has been very similar with a total of 57 having paid their dues on time compared to 56 in 2021. One new NMO, the Jamaican Association for Physics in Medicine (JAPM), was approved in 2022.

Interest rates began to rise towards the end of 2022 and the interest received on the amount held in the US Dollar interest-bearing accounts has increased slightly to \$456 compared to \$326 in 2021.

Treasurer's Report

Ibrahim Duhaini, PhD

Treasurer of IOMP

Total income for 2022 is represented as \$109,109 (2021: \$80,437), which has increased mainly due to the Accreditation Board and other activities. Membership subscriptions continue to be the main source of income, accounting for approximately 66%.

Total expenditure has significantly increased to \$108,007 (2021: \$49,496) and this is to be expected because of large costs associated with the World Congress in Singapore (mainly travel & accommodation expenses) and also the rising costs of supporting the IOMP webinar series, and subsequently newsletter distribution, which continue to grow in strength and popularity.

Although the total income for 2022 was \$109,109 and the total expenditure was \$108,007, the net result will be a loss due to exchange rate fluctuations across the accounts and transfers following an unstable year for all financial markets. An average exchange rate across the whole year has been applied to transactions. Year-end debtors, creditors and bank balances are stated using year-end spot rates.

The Balance Sheet shows that the Organisation's reserves continue to be robust and are held in cash deposits, principally in US Dollars but also smaller holdings in Euros and Sterling all of which are currently deposited with Lloyds TSB PLC in the United Kingdom.

(D) Reviewing Accountant's Report to the Officers and Members of IOMP Year Ended 31st December 2022:

BHP Chartered Accountants have been appointed to review these accounts w/c 20th March 2023.

Notes to the Accounts:

1. Basis of preparation

These consolidated accounts include the results and financial position at 31 December 2022 of International Organisation for Medical Physics, an unincorporated organisation and International Organisation for Medical Physics, a private company limited by guarantee. The company is registered in England & Wales under company number 11119605. The registered office is Fairmount House, 230 Tadcaster Road, York, YO24 1ES.

2. Exchange Rates

The accounts are expressed in US Dollars however transactions have taken place in both Euros and Sterling; these have been converted at the following average rates.

| | | |
|----------------|-----|------------------|
| 1 Euro = 1.106 | USD | (1.183 USD 2021) |
| 1 GBP = 1.282 | USD | (1.376 USD 2021) |

Treasurer's Report

Ibrahim Duhaini, PhD

Treasurer of IOMP

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

Year-end debtors, creditors and bank balances have been calculated using year-end rates as at 31st December 2022.

1 Euro = 1.073 USD (1.138 USD 2021)

1 GBP = 1.210 USD (1.354 USD 2021)

3. Subscriptions

Total subscriptions received from National Member Organisations in 2022 amounted to \$70,265 (\$73,058 in 2021)

| | Band A | Band B | Band C | Affiliate | Total |
|--------------------|----------------|---------------|---------------|------------------|---------------|
| | At 100% | At 50% | At 10% | Members | Number |
| Fully Paid | 42 | 10 | 3 | 2 | 57 |
| Outstanding | 9 | 3 | 2 | 0 | 14 |
| Waiver or Inactive | 10 | 1 | 6 | 0 | 17 |
| | 61 | 14 | 11 | 2 | 88 |



Science Committee's Report

M. Mahesh, PhD

Chair of IOMP Science Committee



M. MAHESH

IOMP Science Committee
Chair

MMAHESH@jhmi.edu

"Considerable work is going on towards organizing the International Conference on Medical Physics (ICMP2023) meeting"

The IOMP Science Committee is responsible for disseminating current information to medical physicists; assisting in the planning and conduct of regional meetings on medical physics; contributing to and reviewing scientific documents prepared by organizations such as the ICRP, the WHO, and the IAEA, and participating in various forums for the generation of scientific information in medical physics.

The first part of the year 2023 is going quite fast. The science committee has been active in terms of reviewing and endorsing requests on programs hosted by member societies.

Considerable work is going on towards organizing the **International Conference on Medical Physics (ICMP2023)** meeting. One of the primary responsibilities of the SC chair is to co-chair the Scientific Program Committee of the ICMP2023, to be held in Mumbai, India from December 6-9, 2023. As such, regular meetings to develop the science program for the conference and call for abstracts and proposals to organize special symposiums are underway. For details, please visit <https://www.icmp2023.org>.

On behalf of IOMP, the science committee is organizing a joint webinar with the AAPM on July 19th titled "**Open-Source Tools and Data in Medical Physics**".

The proposal submitted to organize a session during the AAPM meeting was accepted. The following session is scheduled on July 25th, 2023:

Session Title: **Data Analysis and Artificial Intelligence (AI) in relation to Medical Physics Profession: The IOMP's view**

Moderator: M Mahesh

Speakers: John Damilakis, Eva Bezak and M Mahesh



Science Committee's Report

M. Mahesh, PhD

Chair of IOMP Science Committee

SC chair on behalf of IOMP attended the following IAEA meetings:

1. IAEA Consultancy Meeting on Patient Radiation Safety in Recurrent Imaging, February 6-8, 2023 (white paper is under development).
2. IAEA Technical Meeting on Radiation Protection of Pediatric and Pregnant Patients, 27 February-1 March 2023.

The SC regularly reviews applications to the IOMP for sponsorship or support of educational and professional development conferences. Before recommending support or endorsement of a conference, the committee considers the quality of the program and proposed speakers, and the potential benefit to be derived by the intended audience.

For this period, the committee has reviewed and endorsed the following:





1. 12th Congresso Nazionale AIFM 2023 organized by AIFM – Associazione Italiana deFisica Medica e Sanitaria held from June 8-11, 2023.


The chair is immensely grateful to the members of the Science Committee for their responsiveness and thoughtful reviews of the applications and documents received by the committee.

INTERNATIONAL ORGANIZATION FOR MEDICAL PHYSICS (IOMP) AND AAPM
GLOBAL RESEARCH & SCIENTIFIC INNOVATION COMMITTEE (GRSIC) PRESENTS:

IOMP/AAPM WEBINAR | JULY 19TH 8 AM ET (12 PM GMT)


OPEN SOURCE TOOLS & DATA IN MEDICAL PHYSICS




Open source computational imaging of cellular microenvironments

KEVIN ELICEIRI, PHD
Professor of Medical Physics and Bioengineering, Director of Center for Quantitative Cell Imaging
University of Wisconsin Madison, United States



Unlocking medical imaging with *platipy*


ROBERT FINNEGAN, PHD
Medical Physicist,
North Sydney Cancer Center, Australia



Open source tools from the Medical Imaging and Data Resource Center


HEATHER WHITNEY, PHD
Research Assistant Professor, University of Chicago, United States



MODERATOR





M. MAHESH, PHD
Scientific Committee Chair of the IOMP
Professor, Johns Hopkins University
School of Medicine

REGISTER NOW!



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Education and Training Committee's Report

Arun Chougule, PhD, FIOMP, FAMS

Chair of IOMP Education and Training Committee



ARUN CHOUGULE

IOMP Education & Training
Committee Chair

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*"The IOMP
Accreditation Board
has started
accreditation of MPE
and CPD
accreditation and
efforts are put to
expand and
popularize it"*

The Education and Training Committee (ETC) of IOMP is entrusted with development of programs related to education and training of medical physics, to promote internationally sponsored education and training programs, consider application from national and regional organisation for IOMP endorsement and funding, to harmonise and standardize medical physics education program, accreditation of educational, residency and CPD program. The member of ETC and Accreditation Board are working hard to fulfilling the aims and objectives of ETC and contributing for betterment of medical physics education & training in IOMP member countries.

- With feedback received from various resources, the details about medical physics education (MPE) programs being conducted in all the regions of IOMP are published on the IOMP website however it needs regular updates. I request all the IOMP NMO's and concerned institutes running the medical physics education, training, and residency programmes to provide updates so that we upload the corrected/updated complete information. The updated information is available on IOMP website at <https://www.iomp.org/education-training-resources/>
- The IOMP Accreditation Board has started accreditation of MPE and CPD accreditation and efforts are put to expand and popularize it. As of now IOMP has accredited 5 postgraduate medical physics education programmes and one residency programme. The latest medical physics education and residency programme getting IOMP accreditation is from Fundación Médica de Río Negro y Neuquén (FMdeRNyN), and Facultad de Ciencias Médicas de la Universidad Nacional del Comahue (UNCo), Río Negro, ARGENTINA, the first from Latin America.

www.iomp.org/accreditation

Education and Training Committee's Report

Arun Chougule, PhD

Chair of IOMP Education and Training Committee

- In the continued process of popularising ETC IOMP and IOMP accreditation program during RO meetings, NMO meetings, an invited talk during MEFOMP2023 medical physics conference is scheduled.
- ETC IOMP has reviewed 8 applications received from the conference organizers/scientific activity for IOMP endorsement and/or funding and submit report to IOMP EXCOM.

ETC IOMP Endorsed Programms during January- April 2023

- 1.Brachytherapy Treatment Techniques: Procedures and Planning at Christian Medical College and Hospital, Ludhiana, India during 28 -29 April 2023.
- 2.5th Summer School in Medical Physics 2023: Data Science and Machine Learning in Radiotherapy, DKFZ, Germany during 28 August - 22 September 2023.
- 3.Scientific Workshop "Emerging Techniques in Radiotherapy" taking place on Nov. 29th – 30th, 2022 in Chile.
- 4.ICTP School on Medical Physics for Radiation Therapy,11-22 September 2023, ICTP, Trieste, Italy.
- 5.III Jornadas de actualización en radioterapia avanzada, 7-11 March 2023, Parana, Argentina.
- 6.JSMP 2023 – the 125th scientific meeting of the Japan Society of Medical Physics in conjunction with Japan Radiology Congress in Yokohama, japan in 13-16 April 2023.
- 7.MEFOMP Medical Physics Conference 2023, muscat, Oman, 19 – 22 May 2023.
- 8.Summer School in Medical Physics 2023 in Chile: The role of imaging in the radiotherapy process from October 16th to December 15th, 2023.

ETC is decimating all the publications, announcement, and activities of IOMP to its member countries so that medical physicists get benefited.

ETC is working closely with ICMP2023 organizers for sessions on Education and Training of Medical Physics. The abstract submission is on, you are requested to submit your abstracts, encourage your colleagues and students to submit abstracts and plan to participate in ICMP2023. The details about ICMP2023 can be found at <https://icmp2023.org/>

The IOMP accreditation board undertook the evaluation of IOMP accreditation application from Fundación Médica de Río Negro y Neuquén (FMdeRNYN), and Facultad de Ciencias Médicas de la Universidad Nacional del Comahue (UNCo), Río Negro, ARGENTINA for accreditation of its postgraduate medical physics education program and the residency program and completed the site visit during 3-5 April 2023. The program is now accredited for 3 years w.e.f. 1 May 2023. IOMP has received US\$ 5000 as accreditation fees.

Education and Training Committee's Report

Arun Chougule, PhD

Chair of IOMP Education and Training Committee

Further, IOMP accreditation board has evaluated two applications for CPD accreditation and awarded CME points for the following education programs:

1. SCMPCR Hands-on Workshop (HW-06): Modern Quality Assurance in Modern Radiotherapy during 15th – 18th February 2023
2. MEFOMP2023 Medical Physics conference, 19 – 22 May 2023, Muscat, Oman

IOMP has received US\$ 450 for the CPD accreditation of the two programs.

A. List of CPD accreditation by IOMP Accreditation Board

1. CPD: Dosimetry of Small Fields in External Beam Therapy: Reference and Relative Dose Determination 2nd – 4th October 2019, SCMPCR Training Room and National Institute of Cancer Research and Hospital (NICRH), Dhaka, Bangladesh
2. ICMP 2019 (ALFIM), Santiago, Chile, 8 – 11 September 2019.
3. CPD: Hands-on Workshop: Commissioning, Planning and Quality Control for the IMRT/VMAT Treatment Techniques. 25th – 27th April 2020, University of Colombo, Sri Lanka and National Cancer Institute, Maharagama, Sri Lanka
4. Universität Heidelberg (Germany) Online Teaching Course: Particle Therapy, September 2020
5. CPD: SCMPCR E-learning Program (ELP-03): Basic Principles and Advanced Clinical Applications (webinar platform) 5-26 Feb 2021
6. MEFOMP virtual conference, 5 -7 April 2021.
7. Virtual Summer School 2021: Image Guided Radiation Therapy (IGRT) and Advanced Treatment Techniques during Sept. 20th – Nov. 14th, 2021, German Cancer Research Center (DKFZ)
8. “Online Teaching Course Particle Therapy” program during 22- 26 November 2021. German cancer Research Centre (DKFZ)
9. SCMPCR E-learning Program (ELP-05): Advanced Techniques in Radiotherapy. 1 October 2021 – 22 October 2021, Dhaka, Bangladesh.
10. 4th Summer School in Medical Physics: Radiobiology and Biological Modelling for Radiotherapy, German Cancer Research Center (DKFZ) 5 – 30 Sept 2022
11. Course type 3: Online teaching course “Particle Therapy” online phase, 17 Oct – 20 Nov 2022, online phase Nov. 21 -Nov. 25, 2022, German Cancer Research Center (DKFZ)
12. SCMPCR E-learning Program (ELP-06): Clinical Medical Physics in Modern Radiotherapy, 1 – 22 July 2022
13. SCMPCR Hands-on Workshop (HW-06): Modern Quality Assurance in Modern Radiotherapy, 15 – 18 February 2023
14. MEFOMP 2023 Medical Physics conference, 19 – 22 May 2023, Muscat, Oman

Education and Training Committee's Report

Arun Chougule, PhD

Chair of IOMP Education and Training Committee

B. Master in Medical Physics Program Accredited by the IOMP Accreditation Board

1. The Catholic University of Korea – Full Accreditation
2. KAIST University – Full Accreditation
3. Yonsei University – Full Accreditation
4. ICTP & Trieste University joint Master of Advanced Studies in Medical Physics – Full Accreditation
5. Fundación Médica de Río Negro y Neuquén (FMdeRNyN), and Facultad de Ciencias Médicas de la Universidad Nacional del Comahue (UNCo), Río Negro, ARGENTINA- The postgraduate program (3 years) in Medical Physics specialized in Radiotherapy, Nuclear Medicine, and Diagnostic/Interventional Radiology- Full accreditation

C. Master in Medical Physics Program Re-accredited by the IOMP Accreditation Board

1. ICTP & Trieste University joint Master of Advanced Studies in Medical Physics, Trieste, Italy. Re-accredited for 5 years (1 August 2022 – 31 July 2027)
2. The Catholic University of Korea, Seoul Republic of Korea – Re-accredited for 5 years (1 January 2023 – 31 December 2027)
3. KAIST University, Daejeon, Republic of Korea – Re-accredited for 5 years (1 January 2023 – 31 December 2027)
4. Yonsei University, Wonju, Republic of Korea – Re-accredited for 5 years (1 January 2023 – 31 December 2027)

D. Residency Program Accredited by the IOMP Accreditation Board

1. The Residency program (1 year) in Radiotherapy Physics at Fundación Médica de Río Negro y Neuquén (FMdeRNyN), and Facultad de Ciencias Médicas de la Universidad Nacional del Comahue (UNCo), Río Negro, ARGENTINA- Full accreditation
2. The Residency program (1 year) in NM&DIR Physics at Fundación Médica de Río Negro y Neuquén (FMdeRNyN), and Facultad de Ciencias Médicas de la Universidad Nacional del Comahue (UNCo), Río Negro, ARGENTINA- Initial accreditation

The detailed information regarding accreditation board activities, the relevant manuals/forms and the accredited programs so far are available at <https://www.iomp.org/accreditation/>

I request all of you to kindly take advantage of the IOMP accreditation facility to get accredited the medical physics education programs, the residency programs, CPD accreditation of conferences/workshops/training programs and CME points. For further details or any query, please contact : ETC Chair and IOMP Accreditation Board Chair at arunchougule11@gmail.com

Awards & Honours Committee's Report

Kwan Hoong Ng, PhD

Chair of IOMP Awards & Honours Committee



KWAN HOONG NG

IOMP Awards & Honours
Committee Chair
kwanhoong.ng@gmail.com

*"Two new awards were suggested:
Roselyn Yalow Female
Lifetime Achievement
and Andrée Dutreix
Lifetime Achievement
Award for
Contribution to
Clinical Trials."*

The committee is composed of:

| Name | Position | Country | email |
|---------------------------------------|---|-----------|------------------------------|
| Kwan Hoong Ng (Chair) | Emeritus Professor | Malaysia | ngkh@ummc.edu.my |
| Erato Stylianou Markidou (Vice Chair) | Medical Physics Expert – Radiotherapy | Cyprus | eratostylmark@gmail.com |
| Jeannie Wong (Secretary) | Associate Professor | Malaysia | jeannie.wong@ummc.edu.my |
| Meshari Al Nuaimi | Radiation Physicist | Kuwait | Mesh.Alnuaimi@gmail.com |
| Wayne Beckham | Provincial Medical Physics Leader & Adjunct Professor | Canada | WBeckham@bccancer.bc.ca |
| Cynthia McCollough | Professor of Medical Physics & BME | USA | McCollough.Cynthia@mayo.edu |
| C Barbara M'Ule | Radiation Therapy Physicist | Zambia | chandamule@gmail.com |
| Roger Price | Adjunct Professor | Australia | Roger.Price@health.wa.gov.au |
| Jose Luis Rodriguez | Medical Physicist | Chile | fmjlrp@yahoo.com |

Awards & Honours Committee's Report

Kwan Hoong Ng, PhD

Chair of IOMP Awards & Honours Committee

The committee regularly meets every couple of months discussing the awards and honors and new proposed awards to submit to the Executive Board for approval. A list of the awards that were discussed is in the following table that it was proposed and finalized since the last meeting (Table 1).

Table 1: List of IOMP awards.

| Award | Award Frequency | Date of Announcement |
|--|---------------------|---------------------------|
| Marie Sklodowska-Curie | Triennially at WC | Sunday, December 08, 2024 |
| Harold Johns Medal | Triennially at WC | Sunday, December 08, 2024 |
| IUPESM Awards of Merit IFMBE | Triennially at WC | Sunday, December 08, 2024 |
| IUPESM Awards of Merit IOMP | Triennially at WC | Sunday, December 08, 2024 |
| Best Presentation Award | Triennially at WC | Sunday, December 08, 2024 |
| Honorary Members of IOMP | Triennially at WC | Sunday, December 08, 2024 |
| Fellow of IOMP | Triennially at WC | Sunday, December 08, 2024 |
| Rosalyn Yalow Female Lifetime Achievement* | Triennially at WC | Sunday, December 08, 2024 |
| Andrée Dutreix Lifetime Achievement Award for Contribution to Clinical Trials* | Triennially at WC | Sunday, December 08, 2024 |
| John Mallard | Triennially at ICMP | Sunday, February 12, 2023 |
| Best Presentation Award | Triennially at ICMP | Sunday, February 12, 2023 |
| Honorary Members of IOMP | Triennially at ICMP | Sunday, February 12, 2023 |
| Fellow of IOMP | Triennially at ICMP | Sunday, February 12, 2023 |
| IDMP Award | Annually | Sunday, March 12, 2023 |
| IUPAP Young Scientist in Medical Physics | Annually | Thursday, April 13, 2023 |

*Unofficial names

Awards & Honours Committee's Report

Kwan Hoong Ng, PhD

Chair of IOMP Awards & Honours Committee

Two new awards were suggested: Rosalyn Yalow Female Lifetime Achievement and Andrée Dutreix Lifetime Achievement Award for Contribution to Clinical Trials.

| a) Rosalyn Yalow Female MP Lifetime Achievement Award | |
|--|--|
| Purpose: to honor female scientists who have distinguished themselves by their contributions in: <ol style="list-style-type: none"> 1. Education and research of medical physics 2. Advancement of medical physics knowledge and development in national /international level 3. Lifetime contribution to medical physics science | |
| Call for nominations: | Mid-year before the IOMP WC |
| Frequency: | Every three years at the IOMP World Congresses |
| Award: | Medal with Yalow's saying 'We must believe in ourselves, or no one will believe in us' |

| b) Andrée Dutreix Lifetime Achievement Award for Contribution to Clinical Trials | |
|--|--|
| Purpose: to honor medical physicists involved in the conduct of clinical trials who have distinguished themselves by their contributions in one or more of the following: <ol style="list-style-type: none"> 1. Significant achievements with national or international clinical trials organizations 2. Development of quality assurance infrastructure that helps enable multi-center clinical trials 3. Major physics contributions to clinical trials that have resulted in international medical practice change | |
| Call for nominations: | Mid-year before the IOMP WC |
| Frequency: | Every three years at the IOMP World Congresses |
| Award: | IOMP Plaque and a short Biography of the Awardee will be published in the IOMP Newsletter and eMPW |

Awards & Honours Committee's Report

Kwan Hoong Ng, PhD

Chair of IOMP Awards & Honours Committee

The discussion of the latest meeting was focused on the two awards that needed to be presented at the ExCOM by the Chair of the committee. Those are the following:

1. **Fellow of IOMP (FIOMP) – 2023**
2. **2023 IOMP Honorary Membership Award**

These awards have been approved by the ExCOM and are recently announced on the IOMP website: <https://www.iomp.org/call-for-nominations/>

We invite all NMOs to submit nominations for those who fulfill the criteria.

IOMP Awards Calls:

[John Mallard Award 2023 Nomination](#) (Deadline: 12 July 2023)

[Fellow of IOMP FIOMP 2023 Nomination](#) (Deadline: 12 July 2023)

[2023 IOMP Honorary Membership Award Nomination](#) (Deadline: 12 July 2023)

For more details please visit <https://www.iomp.org/call-for-nominations/>

Professional Relation Committee's Report

Simone K Renha, PhD

Chair of IOMP Professional Relation Committee



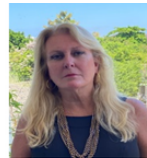
SIMONE K RENHA

IOMP Professional Relation
Committee Chair

simonekodlulovich@gmail.com

"the committee has been working to encourage the establishment of new medical physics societies and how they can become members of the IOMP"

IOMP PRC MEMBERS (2022-25):



Simone K Renha
(Brazil)



Ishmael Parsai
(USA)



Stephanie Parker
(USA)



Cecilia Haddad
(Brazil)



Huda AlNaemi
(Qatar)



Jacob Van Dyk
(Canada)



Nathaly Barbosa
(Colombia)



Taofeeq Ige
(Nigeria)



Sotiris Economides
(Greece)



Tomas Kron
(Australia)



Michelle Wells
(USA)



Vijitha Ramanathan
(Sri Lanka)



Alexandre Bacelar
(Brazil)



Freddy Haryanto
(Indonesia)



Weigang Hu
(China)

Over the past few months, the committee has been working to encourage the establishment of new medical physics societies and how they can become members of the IOMP. In addition, the committee is working on initiatives to provide information to medical physicists on relevant topics in our field. Here are some of the main activities that the committee has undertaken over the last six months:

1. Promoting the creation of new medical physics societies:

The benefit to medical physicists having a national medical physics society is incontestable. This society can provide support for medical physicists in each stage of their careers, even in clinical practices or academics. Furthermore, as a source of knowledge, this society can contribute so that medical physicists are well-trained and updated as required for this profession. However, many countries did not have established medical physics societies. The main reasons included the limited number of medical physicists, the need for more resources, and the information.

Professional Relation Committee's Report

Simone K Renha, PhD

Chair of IOMP Professional Relation Committee

Considering these barriers, the PRC committee prepared a guidance document describing the main steps necessary to establish a medical physics society. The committee expects that this guidance document could help solve our community's most frequent concerns.

The next action will be the distribution of a questionnaire (google form) to get information about the country's status, identify the countries that still need assistance to create a medical physics society, verify their potential, and evaluate the best way to support them.

2. Encouraging applications for National Member Organizations (NMO) of IOMP:

As the world's largest professional organization in medical physics, IOMP offers members a variety of educational and training opportunities, scientific events, international collaborations, research, and professional affairs. IOMP represents over 27,000 medical physicists worldwide and 87 adhering national member organizations and two affiliate organizations.

The PRC is excited about the recent new applications and seeing our medical physics community continually grow.

3. Bringing information related to the medical physics professional:

The committee is organizing a series of webinars to address significant topics in the field of medical physics. Colin Orton presented the first webinar entitled "Leadership in Medical Physics" on April 27, 2023, attended by around 900 medical physicists. The PRC is working with the Education and Training Committee and Scientific Committee to plan a series of webinars for 2023. Furthermore, the committee aims to offer up-to-date, expert information on the IOMP website. The PRC committee will gladly receive suggestions and ideas from all medical physicists to help us improve our professional assistance.

[Click to view our NMOs](#)



National Member Organizations

Sample Constitution

Information requested of countries that wish to become members of the IOMP Application Form for Affiliate National Memb...

 International Organization for Medical Physics / Mar 28, 2018

Medical Physics World Board (MPWB) Committee's Report

Chai Hong Yeong, PhD

Chair of IOMP Medical Physics World Board (MPWB)



CHAI HONG YEONG

IOMP MPWB Committee
Chair

yeongchaihong@gmail.com

"Currently, we have more than 37,000 members subscribed to the IOMP Newsletter. If you wish to subscribe to our Newsletter, please visit www.iomp.org"

From January to June 2023, the MPWB committee has published three issues of the IOMP Newsletter:

[IOMP Newsletter, Vol. 5, No. 3, June 2023](#)

[IOMP Newsletter, Vol. 5, No. 2, April 2023](#)

[IOMP Newsletter, Vol. 5, No. 1, February 2023](#)

The Newsletter's objective is to disseminate the latest activities and information from the IOMP, as well as to share useful articles/guidelines from international organizations on a bimonthly basis. Currently, we have more than 37,000 members subscribed to the Newsletter. If you wish to subscribe to our Newsletter, please visit our website (<https://www.iomp.org/>) and complete the subscription form located at the end of the Home page.

The committee has also been working closely to produce this new issue of eMPW. The committee has agreed to meet online every two months and delegate various tasks among the members. The committee's responsibilities include:

- (1) publishing the IOMP Newsletter bi-monthly;
- (2) publishing eMPW semi-annually;
- (3) managing and maintaining regular updates on the IOMP website;
- (4) managing and maintaining the IOMP social media accounts; and
- (5) assisting the IOMP ExCOM in disseminating important medical physics information to its members worldwide.

Over the past few months, the Web sub-committee has focused on renovating the current IOMP website (www.iomp.org). Development is still in progress and is expected to be finalized in the third quarter of 2023. While the committee is working on the website design, we welcome comments and feedback from all of our members to help improve the website's content. If you have any suggestions, please email them to the Chair of MPWB, Dr. Chai Hong Yeong (yeongchaihong@gmail.com).

Medical Physics World Board (MPWB) Committee's Report

Chai Hong Yeong, PhD

Chair of IOMP Medical Physics World Board (MPWB)

We would also like to invite all of you to follow/subscribe to our social media pages:

Instagram (<https://www.instagram.com/iomp.official/>)

Facebook (<https://www.facebook.com/InternationalOrganizationforMedicalPhysics>)

Linkedin ([linkedin.com/in/iomp-international-organization-for-medical-physics-a402b824b](https://www.linkedin.com/in/iomp-international-organization-for-medical-physics-a402b824b))

Twitter (https://twitter.com/IOMP_Official)

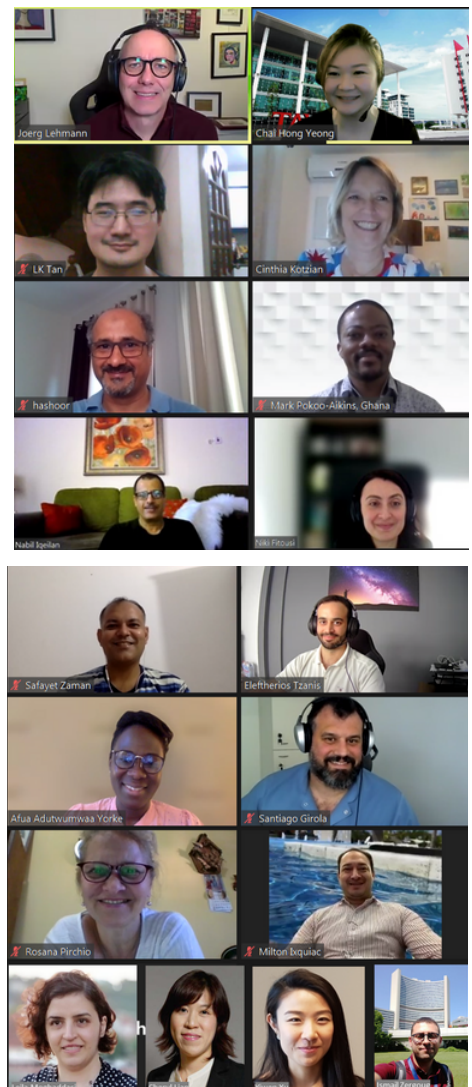
YouTube (<https://www.youtube.com/@IOMPOfficial>)

IOMP MPWB COMMITTEE MEMBERS (2022-25):

1. Chai Hong Yeong, Malaysia – Chair
2. Rosana Pirchio, Argentina - Secretary
3. Afua Yorke, United States
4. Cheryl Lian, Singapore
5. Habib Ashoor, Bahrain
6. Ismail Zergoug, Algeria
7. Joerg Lehmann, Australia
8. Milton Estuardo Ixquiac Cabrera, Guatemala
9. Niki Fitousi, Belgium
10. Safayet Zaman, Bangladesh

IOMP WEB SUB-COMMITTEE MEMBERS (2022-25):

1. Chai Hong Yeong, Malaysia – Chair
2. Cinthia Kotzian Pereira Benavides, Brazil
3. Eleftherios Tzanis, Greece
4. Leyla Moghaddasi, Australia
5. Li Kuo Tan, Malaysia
6. Mark Pokoo-Aikins, Ghana
7. Nabil Iqeilan, Qatar
8. Santiago Girola, Argentina
9. Yiwen Xu, Canada



www.iomp.org



Publication Committee's Report

Francis Hasford, PhD

Chair of IOMP Publication Committee



FRANCIS HASFORD

IOMP Publication Committee
Chair

haspee@yahoo.co.uk

""In the first half of 2023, the PC's activities have largely been on diversifying IOMP's relations with publishers of the IOMP Book Series and on the July 2023 publication of the MPI""

The Publication Committee (PC) has in the past year undertaken a number of activities including developing guidelines from appointment of Editorial Board members for Medical Physics International (MPI) journal; Initiating steps for appointment of new Editors-in-Chief (EiCs) for MPI; and Selection of candidates for free subscription of the American Association of Physicists in Medicine (AAPM) Medical Physics journal. In the first half of 2023, the PC's activities have largely been on diversifying IOMP's relations with publishers of the IOMP Book Series and on the July 2023 publication of the MPI.

Publishers for IOMP Book Series

The process for diversification and renewal of relations with publishers for the IOMP Book Series on Medical Physics and Biomedical Engineering is ongoing. A special Task Group of the Publications Committee has been constituted and is reviewing proposals from three candidate publishing firms. The IOMP is set to sign a contract with the publisher that presents the best offer.

Medical Physics International (MPI) Journal

The July 2023 edition of the MPI journal will feature book of abstracts from the First Regional Conference of FAMPO held in Marrakech, Morocco, from 10 – 12 November 2022, and the MEFOMP 2023 Medical conference held in Muscat, Oman, from 19 – 22 May 2023. December edition will publish book of abstracts from the International Conference on Medical Physics (ICMP 2023) to be held in Mumbai, India, 06 – 09 December 2023.



Publications

Publications

iomp.org

Publication Committee's Report

Francis Hasford, PhD

Chair of IOMP Publication Committee

IOMP PUBLICATIONS COMMITTEE 2022-2025:

Francis Hasford, Ghana – Chair
Bamidele Awojoyogbe, Nigeria
Gustavo Daniel Sanchez, Argentina
Hafiz Mohd Zin, Malaysia
Hasan Kharita, Syria
Lorenzo Brualla, Germany
Marina Sala, USA
Michael Lee, Hong Kong
Mohamed Metwaly, UK
John Damilakis (Ex-Officio), Greece
Eva Bezak (Ex-Officio), Australia
Magdalena Stoeva (Health and Technology)
Kang-Ping Lin (Health and Technology)
Jamie Trapp (Physical and Engineering Sciences in Medicine)
Jong Min Park (Progress in Medical Physics)
Ambika Pradhan (Journal of Medical Physics)
Chai Hong Yeong (e-Medical Physics World)
John M. Boone (Medical Physics)
Katia Parodi (Physics in Medicine and Biology)
Michael David Mills (Journal of Applied Clinical Medical Physics)
Simone K. Renha (Revista Latinoamericana de Física Médica)
Nobuyuki Kanematsu (Radiological Physics and Technology)
Iuliana Toma-Dasu (Physica Medica)
Slavik Tabakov (MPI History Edition)
Perry Sprawls (MPI History Edition)
Sameer Tipnis (Editor, Medical Physics International)

Official Publications of IOMP:

Medical Physics International (Official Journal of the IOMP)

Physics in Medicine and Biology

Physiological Measurement

Medical Physics

Journal of Applied Clinical Medical Physics – an open access journal

Physica Medica – European Journal of Medical Physics

Journal of Medical Physics (JMP) – an open access journal

Radiological Physics and Technology

Physical and Engineering Sciences in Medicine (PESM)

History Sub-Committee's Report

Slavik Tabakov, PhD

Chair of IOMP History Sub-Committee, IOMP Past President



SLAVIK TABAKOV

IOMP History Sub-Committee
Chair

slavik.tabakov@emerald2.co.uk

"HSC expresses gratitude to all colleagues who contribute to the Committee and to the collection and preservation the history of the profession"

Several significant activities, related to IOMP History and History Sub-Committee (HSC) were initiated during the past year.

In January 2023, the MPI Journal included a Report about the re-naming of the MPI Special Issues on History as MPI History Edition. These Medical Physics History issues started in 2018 and so far 8 issues have been published with over 1000 pages. The Editors of the MPI History Editions remain S Tabakov, P Sprawls and G Ibbott.

The April 2022 issue was dedicated to IOMP History, associated with its 60th Anniversary: <http://www.mpijournal.org/pdf/2022-SI-07/MPI-2022-SI-07.pdf>.

The MPI History Edition from July 2022 included papers about History of Fractionation in External-Beam Radiotherapy; the Evolution of Physics Classroom Learning and Teaching, the Monument to the X-Ray and Radium Martyrs and the Historical Medical Physics book by John Draper, 1885: <http://www.mpijournal.org/pdf/2022-SI-08/MPI-2022-SI-08.pdf>

At the moment the 9th issue of MPI History Edition is in preparation. One of the papers in this new issue will include a history-material about pioneering women in medical physics.

The HSC also updated 16 new History Tables and a new one was added (the 36th Tables) – related to the Medical Physics World Board - <https://www.iomp.org/iomp-history/>

The IOMP HSC continues its activities in keeping the record of the history of the Organisation and recognising all colleagues who have contributed to IOMP.

HSC expresses gratitude to all colleagues who contribute to the Committee and to the collection and preservation the history of the profession.

Medical Physics International (MPI) Journal Report

Francis Hasford and Sameer Tipnis

co-Editors-in-Chief



FRANCIS HASFORD

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SAMEER TIPNIS

tipnis@musc.edu

Dear colleagues and friends,

We are delighted to address you as the newly appointed co-Editors-in-Chief (EiCs) of the Medical Physics International (MPI) journal. It is with great pleasure and enthusiasm that we have embraced the responsibility of leading this esteemed journal towards new heights. We extend sincere gratitude to the IOMP ExCom, led by President John Damilakis and the MPI editorial board members for the support we have received since assuming duty in January 2023. A big heartfelt appreciation to our predecessors and founding co-EiCs, Slavik Tabakov and Perry Sprawls, for their dedicated service and for laying a strong foundation for the journal's success.

The MPI journal has established a focus on e-learning, educational methods and resources, reviews of innovations and the development of the medical physics profession and organizations around the world. The journal publishes non-peer-reviewed open resource research reports, technical papers, conference abstracts, etc. This trend will be continued under our tenure as co-EiCs by upholding MPI's reputation for publishing high-quality, original, and innovative research that contributes to the advancement of knowledge, and practical ideas that can be implemented and used in everyday clinical practice by colleagues all over the world. We envision MPI to be at the forefront of scholarly publishing, fostering impactful research and knowledge dissemination.

Our first major assignment as co-editors of MPI is publication of the July 2023 edition. This edition will feature two books of abstracts; one from the First Regional Conference of the Federation of African Medical Physics Organizations (FAMPO) held in Marrakech, Morocco, from November 10 – 12, 2022, and the other from the Middle East Federation of Organizations of Medical Physics (MEFOMP) 2023 Medical Conference held in Muscat, Oman, from May 19 – 22, 2023.

Medical Physics International (MPI) Journal Report

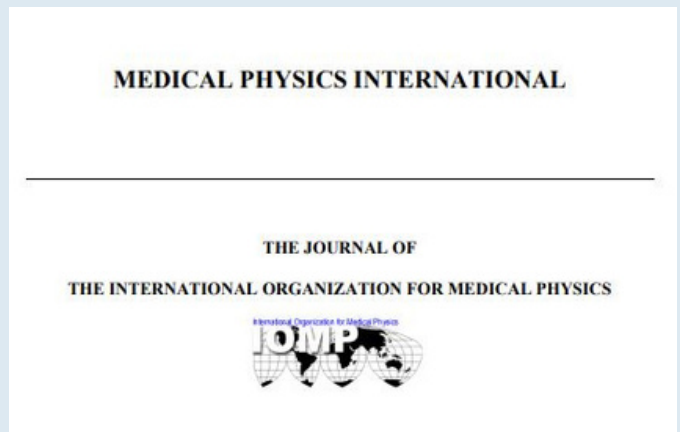
Francis Hasford and Sameer Tipnis

co-Editors-in-Chief

The publication will present full articles and abstracts on educational topics, professional issues, scientific research and technology innovation. The december edition of the journal will publish abstracts from the International Conference on Medical Physics (ICMP 2023) in Mumbai, India, 06 – 09 December 2023.

We firmly believe that collaboration, transparency, and innovation are the cornerstones of successful scholarly publishing. With the collective efforts of the editorial board, authors, and readers, we are confident that we can achieve new milestones and propel MPI as the leading journal in the field of medical physics. We invite all medical physics researchers, scholars, and experts to contribute their valuable research to MPI and be part of our exciting journey. Together, let us advance knowledge, shape the future, and make a meaningful impact on society. Thank you for your support, and we look forward to working with everyone to advance our profession.

Visit www.mpijournal.org/index.aspx for latest MPI publications and enjoy reading the exciting articles.



Aims and Coverage:

Medical Physics International (MPI) is the official IOMP journal. The journal provides a new platform for medical physicists to share their experience, ideas and new information generated from their work of scientific, educational and professional nature. The e- journal is available free of charge to IOMP members.

IOMP Women Sub-Committee's Report

Loredana Marcu, PhD

Chair of IOMP Women Sub-Committee



LOREDANA MARCU

IOMP Women Sub-Committee
Chair

loredana@marcunet.com

"the IOMP Women Subcommittee is focused on a number of activities aimed to attract more women to medical physics and to assist women MPs with their continuous professional development"

The objective of the IOMP Women Subcommittee is aligned with the key IOMP mission, namely, to advance medical physics practice worldwide by disseminating scientific and technical information, fostering the educational and professional development of medical physicists, and promoting the highest quality medical services for patients.

In view of the above, the IOMP Women Subcommittee is focused on a number of activities aimed to attract more women to medical physics and to assist women MPs with their continuous professional development.

To fulfil the aforementioned goals, the IOMP Women subcommittee has set a number of action plans:

- To develop, implement and coordinate activities and projects related to the role of females in the scientific and professional advancement of medical physics.
- To promote the role of the women in medical physics and encourage female medical physicist to advance in the profession.
- To support the contribution of female medical physicists at major scientific conferences and congresses.
- To disseminate the work undertaken by the subcommittee through scientific publications and conference presentations.
- To provide regular status/progress updates to the IOMP on all tasks and projects related to the IOMP Women subcommittee.



Visit
IOMP-Women website:
www.iomp.org/iomp-w

IOMP Women Sub-Committee's Report

Loredana Marcu, PhD

Chair of IOMP Women Sub-Committee

IOMP Women subcommittee major activities during Jan-June 2023:

During the past half a year the IOMP Women Subcommittee was involved in a number of tasks/activities:

(1) While a number of international activities were dedicated to Women's Day (8th March 2023), a special webinar was organized by IOMP to highlight the role of women MPs in various tasks, both professional as well as scientific. The webinar was initiated by the former chair of the Women Subcommittee, Magdalena Stoeva and by Eva Bezak, moderated by Loredana Marcu. In this regard, the webinar had three MP women as speakers: Virginia Tsapaki (IAEA), Huda Al Naemi (Weil Cornell Medicine, Qatar) and Iuliana Toma-Dasu (Stockholm University / Karolinska Institutet). The webinar was very well received, being attended by nearly 1000 participants.

(2) This year IOMP celebrates its 60th birthday, thus the Women Subcommittee is currently preparing a special paper on Women in medical physics and contributions that shaped the profession which will be submitted within a month and published in the MPI Journal History Edition.

(3) Collaboration with IUPESM WiMPBME group: owing to the great success of the last year's special symposia on women MPs organized within the World Congress (Singapore 2022) a new article was initiated discussing the topic of science diplomacy in medical physics. Currently the paper is under review in the journal of Health and Technology.

IOMP WOMEN SUBCOMMITTEE MEMBERS (2022-25):

- Loredana Marcu, Romania – Chair
- Huda Al-Naemi, Qatar
- Zakiya Al-Rahbi, Oman
- Hanan Aldousari, Kuwait
- Hasin Anupama Azhari, Bangladesh
- Laurentcia Arlany, Singapore
- Eva Bezak, Australia
- Kathleen Hintenlang, USA
- Simone Kodlulovich, Brazil
- Anchali Krisanachinda, Thailand
- Savanna Nyarko, Ghana
- Nadia Octave, Canada
- Elina Samara, Switzerland
- Magdalena Stoeva, Bulgaria
- Rajni Verma, India
- Rafida Zainon, Malaysia



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INTERNATIONAL MEDICAL PHYSICS WEEK (IMPW)

| | |
|---|---------------------------|
| M | Meetings with authorities |
| T | Training program |
| W | Write about achievements |
| T | Teleconference |
| F | Facing challenges plan |
| S | Safety of patient |
| S | Sum up |

IMPW Celebration Report

Magdalena Stoeva, PhD

IMPW 2023 Webinars Coordinator

The third edition of the International Medical Physics Week (IMPW) gathered medical physicists from all over the world for a week of webinars organized by the IOMP.

It is difficult to look beyond pure statistics and describe IMPW in a few words. Therefore, allow me to present my point of view for this dynamic week:

- focused on organizational, educational, scientific and clinical aspects of medical physics;
- presents classical subjects like radiation protection in parallel to the latest trends in radiotherapy physics;
- an excellent example of contribution between the IOMP and its partner organizations;
- collaboration between the generations – emeritus globally recognized medical physicists and young strongly motivated professionals;
- open for everyone to share ideas, ask questions, or just socialize with friends and colleagues from all over the world;
- with direct contribution to the individual professional development of medical physicists worldwide.

And finally let me get to the statistics. An actual global event which in terms of numbers can only be compared to a world congress – 5740 participants (non-unique) from 124 countries.

The table below presents the IMPW stats and extended information on a daily basis.

| | |
|-------------------|--|
| IMPW Day 1 | 24 April 2023 |
| Organizer | Prof. John Damilakis |
| Moderator | Prof. John Damilakis |
| Speaker(s) | Kimberly Applegate |
| Topic | Radiation Protection When Imaging Pregnant Patients: An ICRP Perspective |
| Attendees | 1659 |
| Recording | https://youtu.be/Okh5tKB8Pmg |
| | |
| IMPW Day 2 | 25 April 2023 |
| Organizer | Prof. Eva Bezak |
| Moderator | Prof. Eva Bezak |
| Speaker(s) | Brian Gonzales |
| Topic | Micro-X CNT emitters, x-ray tubes, and unique Imaging applications |
| Attendees | 1075 |
| Recording | https://youtu.be/pruQwpuRsaY |

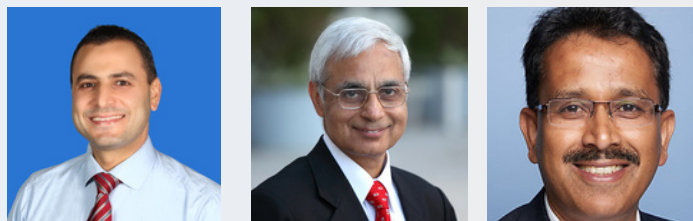
IMPW Celebration Report

Magdalena Stoeva, PhD

IMPW 2023 Webinars Coordinator

| | |
|-------------------|---|
| IMPW Day 3 | 26 April 2023 |
| Organizer | Prof. John Damilakis |
| Moderator | Prof. John Damilakis |
| Speaker(s) | Prof. Madan Rehani |
| Topic | Cumulative Dose: What, Why, When, How, and How Much? |
| Attendees | 1266 |
| Recording | https://youtu.be/gLhKHe5xdPQ |
| | |
| IMPW Day 4 | 27 April 2023 |
| Organizer | Prof. Eva Bezak & Prof. Simone Kodlulovich Renha |
| Moderator | Prof. Simone Kodlulovich Renha |
| Speaker(s) | Prof. Colin Orton |
| Topic | Leadership in Medical Physics |
| Attendees | 945 |
| Recording | https://youtu.be/Zzy6ZNpFMCg |
| | |
| IMPW Day 5 | 28 April 2023 |
| Organizer | Prof. Eva Bezak |
| Moderator | Prof. M. Mahesh |
| Speaker(s) | Tracy Underwood |
| Topic | Upright Radiotherapy: Challenges and Opportunities |
| Attendees | 795 |
| Recording | https://youtu.be/j7tmlQWFysU |





The theme of IDMP 2023:

IOMP's 60th Anniversary:
Standing on the Shoulders of Giants



**International Organization
for Medical Physics**

MEFOMP 2023 Conference Report



MEFOMP CONFERENCE 2023

Muscat, Oman | 19 -22 May 2023

MEFOMP 2023 Conference Report

Introduction:

The Middle East Conference for Medical Physics took place in the Sultanate of Oman. The conference brought together 40 international speakers in the fields of radiotherapy, nuclear medicine, and diagnostic radiology, as well as experts in radiation protection from the International Atomic Energy Agency. Over 1,360 participants from different countries registered for the conference activities.

Conference Objectives:

The conference aimed to facilitate discussions on the latest developments and exchange experiences in medical imaging and radiotherapy. The focus was on modern technologies, including the applications of artificial intelligence. The primary goal was to improve the quality of healthcare and enhance the process of diagnosis and treatment, particularly in predicting diseases like cancer more effectively. Medical physicists played a vital role in analyzing, evaluating, and ensuring the accuracy of these techniques.

Conference Activities:

The conference program encompassed a wide array of working papers and lectures, totaling approximately 50 presentations over three days. These sessions focused on the latest international technologies and protocols in the field of medical physics. Furthermore, the conference received over 100 scientific papers spanning various areas of medical physics, which were presented during the event. To encourage and recognize academic excellence, an award was designated for the best research conducted by a student, aimed at inspiring and sharing the latest scientific discoveries and technologies in the field.

Target Audience:

The target audience for the conference included medical physicists, radiologists, oncologists, clinical scientists, radiation safety professionals, regulatory authorities, biomedical engineers, radiation therapists, radiology technologists, radiochemists, researchers, nurses, and students in related fields.

Importance for the Omani Medical Cadre:

1. Opportunity for networking and knowledge exchange with international experts and academics
2. Expansion of knowledge and enhancement of job performance for the Omani medical cadre
3. Establishment of a network to raise the level of medical staff's work
4. Opportunity for Omani cadre to present their research and receive feedback from experts and attendees
5. Potential for future collaborations and linking with professionals in the same field

MEFOMP 2023 Conference Report

Workshops:

Workshop 1: Enhancing Quality Control and Performance Measurement in Nuclear Medicine

- Focus on PET and SPECT Imaging
- Understanding Quality Control Fundamentals and Performance Measurement
- Implementation of Best Practices in Nuclear Medicine Facilities

Workshop 2: Radiological Treatment Planning with the Latest Technologies

- Improvement of Planners' Understanding and Skills
- Sharing of Best Practices and Discussion of Planning Tips and Strategies
- Promotion of Communication and Exchange Between Treatment Planners and Specialists

Workshop 3: Safety in Magnetic Resonance Imaging

- In-Depth Understanding of Safety in the MRI Environment
- Identification and Mitigation of Risks Associated with MRI
- Overview of the Risk Assessment Process

Workshop 4: CT Protocols for Clinical Signs: Basic and Advanced Options

- Justification and Construction of Indication-Based CT Protocols
- Review of Recent Advancements in CT and Their Impact on Dose and Quality Improvement

Workshop 5: Virtual Course on Dosimetric Audits in Radiotherapy with the International Atomic Energy Agency

- Comprehensive Understanding of Dosimetric Audits in Radiotherapy
- Presentation by Experts from the IAEA Dosimetry Laboratory
- Importance and Requirements of Audits for Ensuring Accurate and Safe Radiotherapy Procedures

Conclusion:

In conclusion, the Middle East Conference for Medical Physics played a crucial role in advancing knowledge and fostering collaboration among professionals in the field. It provided a platform for discussing the latest developments and exchanging experiences in medical imaging and radiotherapy. The conference had a significant impact on the Omani medical cadre, facilitating networking opportunities and expanding their knowledge base.

The workshops preceding the conference offered in-depth insights into specific topics, enabling participants to enhance their skills and apply best practices in their respective fields.

MEFOMP 2023 Conference Report

Capturing Moments from the Middle East Conference for Medical Physics:



MEFOMP Launched the “Dr Huda Al Naemi Award”



MEFOMP has recently launched the “Dr Huda Al Naemi” Award which is intended to be give honor and acknowledgement to the best research student in the field of medical physics for the year. Launching of the new award was done during the 2nd MEFOMP Conference held on 22 May 2023 at the Sultanate of Oman.

Dr. Al Naemi headed MEFOMP from the year 2018 up to 2022. During which time, the federation has gained several achievements under her leadership.

More than 20 years ago, Dr. Al Naemi established the Department of Medical Physics at Hamad Medical Corporation (HMC), Qatar, which is now categorically at par with several organizations globally from the same field, as far as achievement and adherence to international standards as set by the International Atomic Energy Agency (IAEA) is concerned.

Dr. Al Naemi had a key role in laying the foundation stone for the success of MEFOMP through her steadfast effort and personal contributions from her precious time, making the federation as the major contributor in the upliftment of medical physics within the Middle east region.

MEFOMP congratulates the first recipient of the Dr Huda Al Naemi Award, Miss. Mather Al-Kalbani, a medical physics student from the Sultanate of Oman.

International Women Day - 8th March 2023

- Medical Physics Events

Rosana Pirchio

MSc Medical Physics – CNEA; Committee Member of IOMP MPWB
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International Women's Day (IWD) is commemorated annually on March 8th to celebrate and advocate for the accomplishments and rights of women, including gender equality, reproductive rights, and particularly, the cessation of violence and abuse in all settings. This significant day, which signifies a pivotal moment, has been officially recognized by the United Nations as a day dedicated to women's rights and global peace since 1975.



The theme for IWD 2023 was “**DigitALL: Innovation and technology for gender equality**”, which coincides with the priority theme for the 67th Session of the Commission on the Status of Women, “Innovation and technological change, and education in the digital age for achieving gender equality and the empowerment of all women and girls”. UNESCO, member states and other international institutions participated in this session.

The IOMP organised a special webinar on the occasion of IWD to feature 3 prominent women in medical physicists:

[IOMP webinar: Women in Medical Physics](#)

Date & Time: 8th March 2023 at 12 pm GMT; Duration 1 hour

Organizer: IOMP Women Subcommittee

Moderator: Loredana Marcu

Speakers:



Virginia Tsapaki, PhD



Huda Al Naemi, PhD



Iuliana Toma-Dasu, PhD

International Women Day - 8th March 2023

- Medical Physics Events

Rosana Pirchio

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Speakers:

Virginia Tsapaki, PhD, delivered a presentation titled "Enhancing Women's Health: Addressing the Needs of Medical Imaging from the IAEA Perspective." The discussion highlighted various activities aimed at supporting the IAEA's efforts in improving women's health, including the development of guidance documents, training and professional initiatives, coordinated research activities, the creation of training resources, and clinical audit programs.

Huda Al Naemi, PhD, shared insights on "Trailblazing Women in Medical Physics from the Middle East," shedding light on her personal experiences and challenges faced as a woman throughout her professional journey in Qatar.

Iuliana Toma-Dasu, PhD, delivered a talk titled "Juggling multiple roles: a new trend for women in medical physics?" The session explored the criteria for measuring success in medical physics and the qualifications necessary to attain leadership positions. Accomplished women in the field shared their experiences to inspire others and assist policymakers in developing effective strategies to ensure equal opportunities for all genders in the field of medical physics.

Recording of the webinar is available at <https://www.youtube.com/watch?v=ba37Hpo-X40>

Other events carried out by international organizations:

1. The **United Nations** organized an event aimed at raising awareness and discussing ways to enhance women's access to digital tools and technologies. Shockingly, around 30% of women still lack internet access, leading to economic and social inequalities. The event emphasized the significance of safeguarding the rights of women and girls in digital spaces and stressed the need for inclusive and transformative technology. Digital education was recognized as a crucial factor in building a sustainable future. It was also highlighted that while the digital revolution poses risks of perpetuating gender inequality, digital technology tools can be harnessed to raise societal awareness and develop new strategies for promoting gender equality.

2. The **Pan American Health Organization (PAHO)** invited experts to serve as speakers at an event that focused on the role of digital health in improving the lives of women and girls. Panelists explored the impact of the digital gender gap, emphasized the importance of digital access and knowledge, and discussed women's empowerment in the context of digital transformation in the health sector. Dr. Jarbas Barbosa, the Director of PAHO/WHO, commended the commitment to making digital transformation a reality in empowering women and encouraged reflection on the fight against all forms of violence targeting women in the Americas and worldwide.

International Women Day - 8th March 2023

- Medical Physics Events

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3. The IAEA Launched its New Professional Development Programme to Boost Women's Careers in the Nuclear Field: the IAEA Lise Meitner Programme (LMP)

Building on the success of the IAEA Marie Skłodowska-Curie Fellowship Programme (MSCFP), which offers scholarships for Master's programs in nuclear-related studies and facilitates internship opportunities, the Leadership Management Programme (LMP) focuses specifically on enhancing women's technical and managerial skills through a comprehensive multi-week professional program.

Dr. Grossi, the Director General of the IAEA, emphasized the criticality of bridging the gender gap in the nuclear field and increasing the representation of women in leadership roles. He highlighted that nuclear technology plays a vital role in addressing pressing global challenges such as climate change, energy security, and food security. Therefore, it is imperative not to overlook the valuable contributions of women.

4. Peruvian Institute of Nuclear Energy (IPEN) launched English Booklet on "Women in Medical Physics"

The Peruvian Women in Medical Physics have edited their first booklet in English to highlight the achievements and contributions of women professionals to the development and publicity of medical physics:

<https://www.calameo.com/books/007376453911e995e2e46>

This publication features female professionals who currently work as Medical Physicists, whose contribution is extremely important to improve the quality and safety of patients who are subjected to ionizing radiation.



International Women Day - 8th March 2023

- Medical Physics Events

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Furthermore, an intriguing article titled "Women in Medical Physics and Biomedical Engineering: Past, Present, and Future," by Frize et al. (2022) in Health and Technology, provides a comprehensive analysis of the representation of women in the fields of medical physics and biomedical engineering. The authors delve deep into the historical context, present-day landscape, and offer valuable recommendations for the future. It is highly recommended to pay special attention to the following paragraphs:

"WiMPBME will continue to raise awareness and educate on issues of gender inequality. It is essential for people of power to lead by example and realize that their behaviors may carry biases unintentionally. Only if we acknowledge our biases can we make progress toward real change. WiMPBME will strive to create awareness about the impact these issues have on women in science and engineering. Education about gender bias, in all areas, needs to begin in the early stages of childhood. It is also essential, especially when it comes to STEM, to normalize men and women with similar interests, careers, and hobbies outside societal norms. Students and young adults commonly feel as if they have to choose careers based on their gender, which should not be the case. Statistical data has shown that fewer women make up the engineering field than men. Representation is vital if we want those numbers to increase. Without female representation, young girls will grow up believing there is not a place for them in STEM. It is crucial for them to feel inspired to work toward their goals in science and engineering careers."

"According to the UN Scientific Education and Cultural Organization (UNESCO) data, fewer than 30% of researchers worldwide are women, and only 30% of female students select STEM-related fields in higher education. Globally, female students' enrollment is particularly low in Information and Communications Technology (3%), natural science, mathematics and statistics (5%), and engineering, manufacturing and construction (8%). Thus, one of the projects to be started in the near future by WiMPBME is targeting gender equity in research, leadership, and academia. Our Task Group is planning to gather information on women scientist participation in research grants, both in terms of grant applications as a Principal Investigator and successful grant awards. We would like to investigate and analyze the male-female ratio of applicants and grant winners, as well as the gendered ratio in leadership positions in both clinical and academic environments within our professions."

Note: Women in Medical Physics and Biomedical Engineering (WiMPBME) is a Task Group established in 2014 under the International Union of Physical and Engineering Scientists in Medicine (IUPESM). The paper summarizes the goals and activities undertaken or planned by the Task Group to motivate, nurture and support women throughout their professional careers. It includes the historical pathway followed by various women's groups and subcommittees from 2004 up to the present day and depicts future aims to further these professions in a gender-balanced manner.

STEM: science, technology, engineering, and mathematics

International Women Day - 8th March 2023

- Medical Physics Events

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Lastly, we must acknowledge the dedicated individuals who tirelessly work towards achieving gender equality in the fields of medical physics and biomedical engineering. Although progress has been made, it is crucial to recognize that women remain underrepresented compared to other areas within the field of physics.

Women's Day goes beyond a single day; it is a continuous effort that requires unity among scientists of all ages, from various institutions, regardless of their experience or position. The sharing of successful women's experiences in medical physics is vital to inspire others and aid policymakers in developing effective strategies that ensure equal training opportunities and resources for all genders in the field.

Therefore, I extend an invitation to all of you to continue commemorating and celebrating this significant day, as we collectively strive for a more inclusive future.





25th INTERNATIONAL CONFERENCE ON MEDICAL PHYSICS

ICMP 2023

6th – 9th DECEMBER 2023

23RD ASIA-OCEANIA CONGRESS ON MEDICAL PHYSICS (AOCMP 2023)

21ST SOUTH-EAST ASIA CONGRESS ON MEDICAL PHYSICS (SEACOMP 2023)

44TH ANNUAL CONFERENCE OF ASSOCIATION OF MEDICAL PHYSICISTS OF INDIA (AMPICON 2023)

CONTACT US -

Dr. Sunil Dutt Sharma

Mail: icmp2023@gmail.com



Dear Colleagues,

Greetings from Organizing Committee of ICMP 2023!

We are delighted to announce that the Association of Medical Physicists of India (AMPI) is organizing the “International Conference on Medical Physics 2023 (ICMP 2023)” during 6th to 9th December 2023 in Mumbai, India. ICMP 2023 is the 25th Conference of International Organization for Medical Physics (IOMP). Further, ICMP 2023 will also be the 44th Annual Conference of AMPI (AMPICON 2023), the 23rd Asia Oceania Congress on Medical Physics (AOCMP 2023) of Asia-Oceania Federation of Organizations for Medical Physics (AFOMP) and 2023 International South-East Asian Congress on Medical Physics (ISEACOMP 2023) of South-East Asian Federation of Organizations of Medical Physics (SEAFOMP). In fact, ICMP 2023 is jointly organized by AMPI, IOMP, AFOMP and SEAFOMP.

The scientific program of the conference will include all types of sessions and deliberations such as plenary sessions, special sessions, sessions on education & training and professional development, review talks on topics of recent interests and presentations on recent innovations in the discipline.

We welcome you all to the megapolitan city Mumbai which is the commercial capital of India. Mumbai is also known as the city that never sleeps and it is the perfect blend of culture, customs and lifestyles. Mumbai is dotted with plenty of architectural landmarks and it is the center of Indian film (Hindi Movie) and fashion industry. December is the perfect month for excursion in Mumbai and other parts of India.

All the information related to participation in the conference is being uploaded/updated at the conference website <https://www.icmp2023.org>

Please feel free to contact the conference organizing team through the email icmp2023@gmail.com

Sunil Dutt Sharma

President, Association of Medical Physicists of India (AMPI)

on behalf of Congress Organizing Committee and the Organizing Board

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IOMP Accreditation of Continuing Professional Development (CPD) Events

Arun Chougule, PhD

Chairman, IOMP Accreditation Board
arunchougule11@gmail.com

As per the IOMP Policy Statement 1, medical physicists working in healthcare environment are health professionals and need to be certified as Clinically Qualified Medical Physicists (CQMP) according to the IAEA HHS 25 guidelines endorsed by the IOMP. Further the education and training of medical physicists should be recognized by a national or international accreditation body. To maintain and enhance the professional competence, and the ability to work independently, practising medical physicists should undertake a continuing professional development (CPD) programme which should include attendance at national and/or international conferences and courses on topics related to their field of specialization. They should also regularly consult relevant scientific journals and literature. To maintain the certification/licence as CQMP, medical physicists need to acquire certain CPD points by attending/participating in educational/training programmes.

CPD is one of the essential measures in maintaining professional competency, particularly for certified CQMPs. Its goal is to keep professional knowledge and skills up to date. The concept of CPD varies from country to country, but, in general, includes participation in educational and scientific activities such as conferences, symposia, courses and workshops, and education and training duties of medical physicists and other clinical professionals. The educational/training programmes awarding CPD points need to be accredited by an authorised/recognised accreditation board.

Formal CPD programmes should include an evaluation mechanism, such as a credit-based system, where CQMPs are awarded CPD points for each activity they participate in. These should form part of the criteria for re-certification as CQMP. To encourage CQMPs to acquire CPD/CME points, IOMP has started in 2019 the accreditation of CPD events provided by educational institutions, professional and scientific associations, hospital departments, units or divisions, research organizations and other scientific organizations. IOMP does not accredit CPD events organized by the industry.

IOMP has set standard guidelines for accreditation of CPD events such as:

1. **Target audience** - There should be a clearly defined target audience.
2. **Learning objectives of the programme** - There should be clearly defined learning objectives and a clear statement of what a participant is expected to learn. The learning objectives must be specifically defined to indicate what knowledge, skills, and competences the participants are expected to obtain.
3. **Programme content and structure** - There should be a detailed statement outlining the content and structure of the program and the expected outcome.

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4. **Teaching methodology** - There should be a clear statement about what teaching methodology will be used (lectures, presentations, discussions, technical demonstration, hands-on training, etc.).
5. **Supporting information** - Supporting information should be sufficient to support the learning outcomes and material should be accessible and up to date at the time of event.
6. **Teaching staff** - Organizers of the activity should demonstrate that the teaching staff is qualified to deliver the educational programme and meet the learning objectives.
7. **Evaluation and quality assurance** - There should be a clear statement outlining how the organizer will conduct an evaluation of the activity.
8. **Commercial interest** - Education providers have to guarantee that non-biased education is given.
9. **Administrative arrangements and verification of attendance** - Organizers of the activity should describe the mechanism in place to record and verify participation (attendance list, badges, etc.).

The details about the CPD accreditation programmes are available at <https://www.iomp.org/accreditation/>

Since 2019, the IOMP Accreditation Board has accredited 12 scientific/teaching events and awarded CPD points based on the aforementioned evaluation criteria.

List of CPD accreditation by the IOMP Accreditation Board

1. Dosimetry of Small Fields in External Beam Therapy: Reference and Relative Dose determination, 2–4 October 2019, SCMPCR Training Room and National Institute of Cancer Research and Hospital (NICRH), Dhaka, Bangladesh.
2. International conference of Medical Physics (ICMP) 2019, 8-11 September 2019, Santiago, Chile.
3. Hands-on Workshop: Commissioning, Planning and Quality Control for the IMRT/VMAT Treatment Techniques, 25 – 27 April 2020, University of Colombo, Sri Lanka and National Cancer Institute, Maharagama, Sri Lanka.

IOMP Accreditation of Continuing Professional Development (CPD) Events

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4. Universität Heidelberg (Germany)- Online Teaching Course: Particle Therapy, 23- 28 November 2020.
5. SCMPCR E-learning Program (ELP-03): Basic Principles and Advanced Clinical Applications (Webinar platform) 5 – 26 February 2021.
6. MEFOMP virtual Medical Physics conference, “Expanding knowledge and meeting challenges”, 5 – 7 April 2021.
7. Virtual Summer School 2021: Image Guided Radiation Therapy (IGRT) and Advanced Treatment Techniques, 20 September to 19 November 2021, German Cancer Research Center (DKFZ), Heidelberg, Germany.
8. “Online Teaching Course Particle Therapy” program during 22 – 26 November 2021, German Cancer Research Center (DKFZ), Heidelberg, Germany.
9. SCMPCR E-learning Program (ELP-05): Advanced Techniques in Radiotherapy 1 – 22 October 2021, Dhaka, Bangladesh.
10. SCMPCR E-learning Program (ELP-06): Virtual “SCMPCR E-learning Program: Clinical Medical Physics in Modern Radiotherapy, 1 – 22 July 2022.
11. 4th Summer School in Medical Physics: Radiobiology and Biological Modelling for Radiotherapy, German Cancer Research Center (DKFZ) 5 – 30 Sept 2022.
12. Online Teaching Course “Particle Therapy”, 17 October 2022 – 25 November 2022, German Cancer Research Centre (DKFZ), Heidelberg, Germany.
13. SCMPCR Hands-on Workshop (HW-06): Modern Quality Assurance in Modern Radiotherapy during 15th–18th February 2023, Labaid Cancer Hospital and Super Speciality Center Dhaka, Bangladesh.
14. MEFOMP2023 Medical Physics conference, 19 – 22 May 2023, Muscat, Oman.

IOMP Accreditation of Continuing Professional Development (CPD) Events

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It is mandatory for the organizers of the IOMP CPD accredited activity to provide the activity report. I am providing the report and feedback of two IOMP CPD accredited events.

1. SCMPCR E-learning Program (ELP-06): Clinical Medical Physics in Modern Radiotherapy , 1 July – 22 July 2022

South Asia Centre for Medical Physics and Cancer Research (SCMPCR) was established in 2018 and constantly trying to create skilled manpower for cancer treatment through different categories of programs along with national and international collaborative approaches. SCMPCR arranges meetings, seminars, workshops, hands-on training, in-service training, e-learning, and awareness programmes with the involvement of national and international experts.

To meet the challenge of the next industrial revolution and digitalization of health care technologies SCMPCR has introduced an e-learning program (ELP) since the COVID-19 pandemic in June 2020, for the first time in Bangladesh for medical physicists. These ELPs usually cover all the branches of Medical Physics.

SCMPCR applied for the IOMP CPD accreditation and provided the draft program with the topics, lecture hours and relevant details for ELP-6 titled “Clinical Medical Physics in Modern Radiotherapy” being organized from 1 - 22 July 2022. The IOMP Accreditation Board evaluated the application and approved 20 CPD points for the program.

The organizers advertised the program through circulars and social media, and received an overwhelming response of 103 applications. Finally, 92 participants attended all the lectures and examinations in this e-learning program. There were participants from 23 different nations, including Bangladesh, Botswana, Bulgaria, China, Egypt, France, Hong Kong, India, Indonesia, Israel, Kosovo, Malaysia, Mexico, Morocco, Nepal, Palestine, Philippines, Romania, Slovakia, Sudan, and United Arab Emirates.

The course consisted of eight lectures by international well-known experts. After every lecture session, 15 minutes were allotted for answering the questions from participants. All the study material related to the lecture and the recording of the lecture were sent to the participants after each lecture session for preparation for the examination. After all the lectures of the course, there was a group discussion session where most of the speakers were present and answered the questions from the participants. The group discussion session was very interactive whereby participants sent their questions about the previous lectures in the chat box. The moderator then presented the questions to the lecturers. This session was very informative and helpful.

IOMP Accreditation of Continuing Professional Development (CPD) Events

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Pre-exam Activities:

- All the recorded sessions of ELP-06 were collected and sent to participants by SCMPCR ELP-06 Team.
- Each speaker sent relevant materials to the organizer.
- All the course materials were sent to participants for exam preparation.

Online Examination:

After 4 days of lectures, on July 22, 2022, the online examination of SCMPCR ELP-06 was held using Class marker platform. There were 40 MCQ-type questions received from all the speakers of the course. The participants confirmed that the questions were useful, and the platform was easy to switch between the questions on screen without wasting time. At the end of the examination, the result was shown to the participants instantly. Out of 92 participants, 81 participants have attended the examination. The average score achieved by the participants was 63.7% and minimum score for passing the examination was 50%. Those who have attended the examination and achieved more than 50% received a certificate with 20 CPD points. The rest of the participants have received a certificate of attendance only.

Strengths of the Activity:

- National and international collaboration with hospitals and institute.
- Experienced event team with medical physics degree.
- Expert trainer from developed country with excellent teaching skills and courteous personality.
- Audience can ask questions, clarify & challenge.
- Strong focus on practical skills as well as theoretical lectures.
- Well-furnished training center with modern technological and other facilities.

Limitation of the Activity:

- Small budget.
- The training program cannot take place more frequently due to lack of funds.

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Arun Chougule, PhD

Chairman, IOMP Accreditation Board

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2. Online Teaching Course “Particle Therapy”, 17 October 2022 – 25 November 2022, German Cancer Research Centre (DKFZ), Heidelberg, Germany

The organizers of Online Teaching Course on Particle Therapy, DKFZ applied for CPD accreditation of program to the IOMP Accreditation Board. The Chairman constituted the assessment team (AT) to evaluate the application and submit the report. The AT recommended 52 CPD points for the program.

The IOMP Accreditation Board has received the post activity report from the organizers after the program. As per the report a total of 23 participants from 15 countries participated in the online course. The course ran without technical problems during the online phase, as well as during several live online sessions that were hosted via Zoom. The online phase was successfully completed by all participants.

All participants were allowed to continue with Live-Online-Phase from 21 – 23 Nov 2022 and on 25 Nov 2022. During the first live online session the participants intensively discussed and worked with the trainers. E.g. during one interactive case-study based session the participants presented different clinical cases and how they would treat them (Prof. Oliver Jäkel & Dr. Semi Harrabi). The discussions of their own results with the experts from Heidelberg were a very useful and interesting part of the course because different treatment approaches could be critically reviewed and discussed.

During the virtual internship on 23 Nov 2022 all students were able to download and work with matRad, an open-source software for radiation treatment planning of intensity modulated photon, proton, and carbon ion therapy, developed at DKFZ (<https://e0404.github.io/matRad/>). The remaining lectures mainly focused on clinical indication for particle therapy as well as radiobiology and current technical standards in particle therapy. All participants except one (due to clinical duty) have successfully passed the 2nd online test and received 52 CPD points in Category 1 of IOMP. In summary, organizers were very glad to host such virtual course to participants from around the globe for the third time. The virtual setting of the course allowed them to accept international participants to initiate interesting discussions with the teaching experts.

IOMP encourages all readers to take advantages of IOMP CPD Accreditation Program by getting their educational programmes, training activities, conferences, workshops, etc. For any additional information one can contact the Chairman of the IOMP Accreditation Board at arunchougule11@gmail.com.

Advancing Professional Recognition in Medical Physics: Challenges and Collaborative Solutions

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3 Middle East Federation of Organizations for Medical Physics (MEFOMP)

4 Federation of African Medical Physics Organizations (FAMPO)

5 Latin American Association of Medical Physics (ALFIM)

Introduction

The field of medical physics plays a critical role in ensuring the safe and effective use of radiation in healthcare. However, professional recognition remains a significant challenge, particularly in low- and middle-income countries. This report examines the importance of professional recognition in medical physics, highlights the obstacles faced by the profession, and explores the role of professional societies and the International Atomic Energy Agency (IAEA) in supporting recognition efforts, with insights derived from a survey conducted by the IAEA in collaboration with the Federation of African Medical Physics Organizations (FAMPO), South East Asia Federation of Organizations for Medical Physics (SEAFOMP), Latin American Association of Medical Physics (ALFIM), and Middle East Federation of Organizations for Medical Physics (MEFOMP).

Historical Background

The IAEA has been a key supporter of medical physics since the 1960s, initially focusing on supporting radiotherapy in low-and-middle income countries. Over the years, the IAEA expanded its activities in support to X-ray diagnostic radiology and nuclear medicine, providing guidelines, training courses, and technical support. However, despite these efforts, challenges persist, and professional recognition remains elusive for many medical physicists in many countries.

Challenges in Professional Recognition

Through a survey conducted by the IAEA in collaboration with the above-mentioned regional professional organizations, the identification of obstacles to professional recognition helped to identify the current issues faced by medical physicists in the regions. The lack of professional recognition hinders the development of the profession, with challenges such as a shortage of clinically qualified medical physicists, inadequate education and training programs, limited enforcement of regulations, bureaucratic processes, and limited advocacy efforts.

Role of Professional Organizations and the IAEA

Professional organizations and the IAEA, play a crucial role in advocating for the recognition of medical physicists. The results of the survey provide valuable insights into the specific challenges faced by medical physicists and inform the strategies for improvement. Professional organizations raise awareness among policymakers, establish registration systems, support professional development, and facilitate international certification. The IAEA complements these efforts by

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providing technical assistance, scientific and technical advice, and collaborating with national counterparts and authorities, and the World Health Organization (WHO) to promote engagement and inclusion of medical physicists in healthcare systems and policies.

Strategies for Improvement

The strategies for improving professional recognition in medical physics are derived from the analysis of the survey results conducted by the IAEA and regional professional organizations. These collaborative solutions emphasize the importance of strengthening academic education and clinical training programs, emphasizing the significance of certification, establishing training hubs, and promoting the role of medical physicists in healthcare systems. By addressing the identified obstacles, professional organizations and the IAEA can advocate for recognition, engage national authorities, and organize forums with relevant health authorities, for example during their regional or national meetings, to highlight the importance of professional recognition.

Collaborative Solutions and the Way Forward

Collaboration between professional organizations, the IAEA, and relevant stakeholders is essential for advancing professional recognition in medical physics. The insights gained from the survey provide a valuable foundation for addressing the identified challenges. Continued support for academic education, clinical training, and certification programs is crucial. The IAEA, drawing on its technical expertise and resources, can provide assistance in establishing and reviewing training programs. Professional organizations should leverage the survey insights to advocate for recognition, engage national authorities, and organize forums to emphasize the significance of professional recognition. Through these collaborative efforts, the medical physics profession can achieve the recognition it deserves, ensuring quality patient care and radiation safety.

Conclusion

The recognition of medical physicist as a health professional is essential for the development and growth of the field. The insights derived from the survey conducted by the IAEA in collaboration with regional professional organizations shed light on the specific obstacles faced by medical physicists, guiding the strategies for improvement. By addressing these challenges through collaborative efforts between professional organizations, the IAEA, and stakeholders, the path to professional recognition in medical physics can be paved. Together, these entities can strengthen education, training, and certification programs while advocating for recognition at national and international levels.

The Contribution of Medical Physics to the Development of Mammography and Quality Control Programs in Latin America

Patricia Mora

ALFIM President, Costa Rica

Susana Blanco

INC-CONICET, Argentina



Cancer is becoming the main overhang global public health; its rates are increasing in low- and middle-income countries. The specific situation of breast cancer is worrisome worldwide as well as in Latin America. Breast cancer is the most common type of cancer in Latin American women. The age-standardized incidence and mortality rates per 100,000 women according to Globocan 2020[1] for Central America are 39.5 and 10.4, for South America 56.4 and 14, and for the Caribbean 50.9 and 18.9 respectively. It is interesting to compare it with North America where the incidence is 89.4 and the mortality is 12.5.

According to the International Agency for Research on Cancer [2] the Latin American and Caribbean countries with the highest age-adjusted incidence rates of breast cancer (per 100,000 women) are: Uruguay - 71.1 cases, Barbados - 70.7 cases, Argentina - 65.5 cases, Chile - 63.4 and Cuba - 57.5 cases.

The incidence of breast cancer can vary based on age, race, and additional factors over time such as population aging and improved early detection techniques. Mortality rates (per 100,000 women) on the other hand are higher for the following countries: Barbados - 23.6 deaths, Uruguay - 19.9 deaths, Trinidad and Tobago - 18.5 deaths, Cuba - 16.4 deaths and Puerto Rico - 15.9 deaths. Breast cancer mortality can also vary by the same factors than incidence.

Early detection and access to effective treatments are the only factors that can reduce mortality in Latin America. Early detection of breast cancer in the European Union is 90%, while the Latin American average is between 60% and 70%. In countries like Peru, Colombia or Mexico, approximately 50% of detected breast cancers are in advanced stages [3]. Late detection has an impact on patient survival and will unfortunately increase healthcare costs. Timely access to health services for the diagnosis and treatment varies significantly in the countries of the region. Even within the same country, there are very marked differences if the health system is public or private and they also depend on the geographical location within each country.

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Organized screening programs for breast cancer aim at early detection and are known to have reduced mortality over time. However, most of the Latin American countries only develop opportunistic screening programs or, if they are organized, they are limited to small regions, not covering the total population.

In Latin America, the specific legislation on mammography QA programs varies from country to country. However, the regulations have adopted the recommendations based on international guidelines to ensure the quality of mammography services. Some examples of these regulatory frameworks are, Mexico: The National Health Council (CONASA) has developed a quality control program for mammography, which establishes the technical and quality requirements that must be met by the teams and health professionals who perform this type of examination. Brazil: The National Agency for Sanitary Surveillance (ANVISA) establishes the standards and technical requirements for the operation of mammography equipment, as well as for the maintenance of records and documentation necessary for quality control. Argentina: The National Ministry of Health has established a national mammography quality program, which includes the training of health professionals, the supervision of mammography equipment, and the periodic evaluation of the results of tests. Chile: The Ministry of Health has developed a manual of procedures and protocols for quality control in mammography, which establishes the quality criteria and technical procedures that must be followed in carrying out this type of examination.

Mammography protocols in the region

In general, mammography quality control programs in Latin America are based on the guidelines and recommendations of international organizations, such as the World Health Organization (WHO), International Atomic Energy Agency (IAEA), the International Society of Breast Radiology (ISMRM) among others, and are focused on guaranteeing the quality and accuracy of breast cancer screening tests.

In Latin America, as a result of the initiatives of international organizations such as the IAEA and the ICRP, which respectively published documents such as the Basic Safety Standards and the ICRP 60 in the 1990s, the following countries (Brazil, Colombia, Cuba, Chile, México and Perú) begin the execution of the regional project ARCAL-XLIX (RLA9/035), entitled "**Implementation of the BSS in medical practices**" with the general objective to join efforts to improve the radiological

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protection of patients. It could be identified by the end of the 1990s, that most x-ray facilities and equipment were outdated technology and maintenance programs were quite meager. Those responsible for the project also identified that at the regional level the doses that patients were receiving in x-ray diagnostic procedures were unknown and therefore, patient safety and diagnostic quality were compromised. Most of the countries claimed to have few qualified medical physicists in radiodiagnosis, and even more worrisome was the fact that there was a lack of guidelines and protocols for both radiological protection and quality control in Spanish generated in the region. The identification of these problems generates the conformation of a group of experts that by the year 2001 publishes the document "Quality Control Protocol in Radiodiagnostic"[4]. This publication marked the beginning in the implementation of quality control programs in LA. The document covered the areas of general radiology, dental radiology, mammography, fluoroscopy, and computed tomography. As well as the tests for dark rooms, intensifying screens and view boxes. All tests were designed for analog equipment.

Later, the execution of another regional project, ARCAL LV (RLA6/043): "Quality Control in Mammography", begins with the participation of Bolivia, Colombia, Costa Rica, and Cuba, El Salvador, Guatemala, Nicaragua, Panama, Paraguay, Peru, Dominican Republic and Venezuela. This project raised the need to work on a specific protocol for mammography taking as inputs the recommendations of the World Health Organization (WHO), the American College of Radiology (ACR), the Spanish Quality Control Protocol and several European guidelines. In 2006, TECDOC-1517: Quality Control in Mammography was published [5]. As this protocol was dedicated exclusively to mammography, it was much more comprehensive and detailed than the previous one and had the advantage that an associated software was developed that allowed the user to enter the data and all calculations were done automatically and compliance of the findings against tolerances were also indicated in the software for user ease. This protocol only included analog equipment.

In October 2016, PAHO published the manual Quality Assurance of Mammography Services: Basic Standards for Latin America and the Caribbean [6]. Its objective is to guide public health professionals, health authorities and radiology personnel who work in both breast cancer screening and mammography services. The manual has been conceived as a complement to the WHO Position Paper on Mammography Screening [7]. It is not in itself a manual on quality control procedures in mammography.

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After almost more than a decade, in 2018 the update of the 2001 protocol began in the framework of the regional project RLA9075: "Strengthening of the national infrastructure for compliance with regulations and requirements regarding radiation protection for End Users". During this period, new technologies in x-ray equipment are rapidly introduced to LA. The transition from analogue to digital equipment grows exponentially in all our countries, imposing the need to have updated protocols for all areas of modern radiology. The new protocol had to update the content of the previous one, incorporate digital equipment and new technologies such as MSCT, dental CBCT, monitors, etc. It had to be user friendly with simple steps to follow and with illustrations for easy execution. Finally, in June 2021, TECDOC-1958: "Quality Control Protocols for Radiodiagnosis in Latin America and the Caribbean" is published [8].

Regional efforts to optimize mammography



Parallel to the work on drafting the protocols, through the IAEA projects the countries implemented joint efforts to optimize radiology and mammography. The first of them produces in 2010, another document that explains the methodology to obtain guideline dose levels, TECDOC 1646: Establishment of Guideline Levels in General Radiography and Mammography [9].

At the Latin American level, three very important scientific publications are achieved. Although at the country level, there are many very valuable and relevant publications, these three were the product of the joint work of many LA countries.

Although simple documents, the processes of formulation of the methodology, the data collection in all the countries, the analysis and conclusions as a whole give an important value to these regional publications.

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The following papers are published in prestigious journals: a) Determination of Diagnostic Reference Levels (DRLs) in General Radiography in Latin America (2013). [10] b) Latin American dose survey results in mammography studies under IAEA Program: Radiological Protection of Patients in Medical Exposures TSA3 (2015), [11] and c) Latin American image quality survey in digital mammography studies, Radiation (2016). [12]

Present and future work in mammography

Parallel to the formal establishment of quality assurance programs in mammography, currently the world trend is moving towards the use of remote and automated tools for QC. The IAEA developed a new methodology designed to be easy to implement, to support initiation of remote/automated QC programmes. It is based on simple, inexpensive test objects and promotes collection of data in a uniform, harmonized manner allowing for intercomparison and benchmarking. IAEA Human Health Series No. 39: Implementation of a Remote and Automated Quality Control Program for Radiography and Mammography Equipment presents this methodology to member countries. [13]. Currently, 3 Latin American countries (Mexico, Argentina and Brazil) participate in an IAEA Coordinated Research Project on "Advanced Tools for Quality and Dosimetry of Digital Imaging in Radiology", where this methodology applicable to mammography is being investigated and validated.



The Latin American Association of Medical Physics (ALFIM) brings together 16 countries from Central and South America as well as from the Caribbean. From within ALFIM [14] cooperation between member countries is promoted. The continuous training of the medical physicist is a priority in ALFIM and the training in mammography to achieve more effective diagnoses and the protection of the patient, also occupies a preponderant place. Our medical physicists play a key role in assuring the quality of diagnostic imaging tests used for the early detection of breast cancer. As a region, we are also working on the transition from analog equipment to digital equipment, as well as training the technical staff in charge of obtaining mammograms.

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ALFIM seeks to implement the figure of the Clinically Qualified Medical Physicist (CQMP) and having this professional with specific knowledge in mammography is vital. This training is articulated by promoting clinical residencies in parallel with the medical physics academic programs offered in the region. Latin America now has a document generated within the framework of the ARCAL programs for the establishment of clinical residencies: Academic Training Guides and Clinical Training for Medical Physicists in Latin America [15], this document was published in 2021 and was endorsed by ALFIM. It is being used as the basis for the implementation of residencies in our countries.

ALFIM brings together professionals from the region through its triennial congress. For our next congress, which will be held from March 9 to 12, 2025 in the City of Antigua Guatemala, pre-congress courses on current mammography topics are already being planned, including workshops on QC of equipment with tomosynthesis, optimization of mammography images and technological advances of the detectors used. We expect a broad participation of colleagues where new mammography research papers are presented and national experiences are shared to continue improving mammography studies performed on Latin American women.

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Medical Physics Programmes at the Abdus Salam International Centre For Theoretical Physics (ICTP)

Change your life forever - Your return as a valuable physicist

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This article aims to provide a unique perspective rather than adding to the multitude of existing articles on the subject. It also serves as a platform to share my personal experience at the ICTP facilities. However, before delving into that, let's begin with a concise overview.

Established in 1964 by Abdus Salam, the Abdus Salam International Centre for Theoretical Physics (ICTP) is a distinguished UNESCO institute that has gained global recognition for its contributions to scientific advancement. As an institution, the ICTP fosters scientific cooperation among developing countries through a wide range of research and educational programs. These programs cover various fields of study, including high energy physics, cosmology and astroparticle physics, condensed matter and statistical physics, mathematics, earth system physics, quantitative life sciences, and science, technology, and innovation.

The Centre's initiatives include providing support for scientific meetings organized in developing countries and facilitating a program for visiting scholars and consultants. In line with its commitment to science outreach, the ICTP's support for meetings and visiting scholars is initiated by regional scientists and takes place at external locations within the same region.

Annually, the ICTP attracts over 6,000 students and scientists from more than 150 countries worldwide, who actively participate in workshops, conferences, colleges, and associated programs. Additionally, the institution extends its educational programs beyond Italy, collaborating with esteemed institutions such as the International School for Advanced Studies

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(SISSA), Elettra synchrotron facility, University of Trieste, Italian hospitals, cancer centers, nuclear institutes, and more.

By nurturing a vast network of partnerships, the ICTP empowers scholars and researchers to engage in cutting-edge research programs and collaborate with prestigious institutions, enriching the scientific landscape on a global scale.

The following section focuses specifically on the ICTP's contribution to Medical Physics:

"Due to the rapid evolution of medical imaging equipment, the need of medical physicists is constantly growing. In the future, this demand will further increase as the recent reports of WHO, IAEA and IOMP show that by 2035 there will be a need of almost three times more medical physicists globally. Medical Imaging equipment is complex and its proper and safe function requires medical physicists trained in imaging procedures and applications. Building capacity in developing countries on this subject is essential for the complete delivery of healthcare in these countries", said Dr Padovani.

Medical physicists play a vital role in various aspects, including calibration, dosimetry, quality assurance, acceptance and commissioning of medical equipment, radiotherapy treatment planning, radiation protection of patients and workers, as well as other tasks within nuclear medicine, radiotherapy, and diagnostic radiology. Each year, the ICTP offers a range of educational and research programs specifically designed for the medical physics community. Notably, the College on Medical Physics, which has been running for the past 30 years, covers an extensive curriculum and has trained over a thousand medical physicists. Additionally, the Master's in Medical Physics (MMP) program was launched in 2014 in collaboration with the University of Trieste and is co-sponsored by the International Atomic Energy Agency (IAEA).

The MMP program provides intensive theoretical studies for one year, followed by a second year of professional clinical training at one of the 24 medical physics departments in Italian hospitals. Graduates of the program emerge as highly trained medical physicists, well-prepared for their roles in the field.

The program also receives support from esteemed organizations such as the IOMP, EFOMP, and the Italian Association of Medical Physics (AIFM). Collaboration with the Trieste University and hospital further enhances the program's offerings. It is worth mentioning that the Master's Program adheres to the recommendations of the IAEA and is accredited by the IOMP. Financial support for eligible candidates are provided by the IAEA, TWAS, KFAS, IOMP, EFOMP, and ICTP.

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My experience in ICTP institution

Now, let's delve into my personal experience without losing anyone's interest.

Back in 2002, I applied to the College of Medical Physics, joining the ranks of many colleagues who shared the same aspiration. At the time, I was a physicist working in nuclear medicine dosimetry at CNEA in Argentina. Fortunately, I was among the fortunate ones selected for this opportunity. It marked my first journey to Europe and an opportunity to pursue my passion. The faculty comprised the finest researchers whose scientific articles I had already acquainted myself with. As I set foot in the library and student departments, it felt as though I had reached for the sky. I received a regular student scholarship, enabling me to partake in numerous courses, visits, and encounters with experts and like-minded individuals. It was truly a magnificent experience.

"The rich intellectual atmosphere is further enriched by our resources, such as the Marie Curie Library – one of Europe's most distinguished research libraries – high-performance computing facilities, as well as residential and community amenities that foster informal social and intellectual exchanges where ideas are shared over meals or a cup of coffee" (excerpt from ICTP web page).

I want to emphasize the humility and tremendous efforts made by many of us who had limited means but were aided by this remarkable institution. There are no words but gratitude. Some fathers and mothers left their babies at home, while others brought their infants along, all seeking a better future and personal growth. Sadly, many also had the added burden of economic considerations, hoping to bring home some euros, or struggling with basic necessities such as photocopies—a poignant reminder of the inequalities faced by scientists depending on their geographical location.

During one of my trips, I had the pleasure of meeting Dr. Luciano Bertocci, whose charm and genuine passion shone through. He devoted his life to designing courses, seeking resources, and meticulously planning the master's degree program in medical physics. Years later, his dream became a reality. I had the privilege of getting to know other esteemed individuals like Dr. Padovani, Dr. Bregnant, and Dr. Trianni. My scientific journey as a medical physicist was truly remarkable. It allowed me to engage in extensive reading, studying, and writing papers, while also becoming a better academic student. Ultimately, I returned to my home country equipped with a fresh perspective, fully aware of our limitations, yet aspiring to do the best we can in diagnostic and therapeutic studies.

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Dr. Renato Padovani's Interview



Rosana:

"Dr. Padovani, with your esteemed background as the Chief Medical Physicist of the Medical Physics Department at the Misericordia University Hospital in Udine, Italy, and nearly a decade of dedicated service at the ICTP, your expertise is truly remarkable. You bring a wealth of experience as the Coordinator of the Master of Advanced Studies in Medical Physics (MMP), in addition to your role as an organizer of numerous workshops and courses at the ICTP. Notably, you have been honored with the International Day of Medical Physics (IDMP) Award by the IOMP. Congratulations!"

We highly appreciate your contribution in nurturing and training young medical physicists, preparing them to deliver enhanced medical physics services. As the demand for medical physicists continues to rise globally, particularly in low-to-middle-income (LMI) countries experiencing rapid healthcare development alongside population growth and increased life expectancy, your efforts play a crucial role. The ICTP plays a pivotal role in this regard by offering fellowships to medical physicists from developing countries, enabling their participation in workshops, STEP and associated programs, colleges, as well as the MMP program.

1. The reputation of ICTP courses is widely recognized, owing to their exceptional content and the expertise of the instructors involved. Having had the privilege of personally participating in these courses, I am well aware of their quality. In light of this, and considering the surveys conducted at the conclusion of the courses, we are curious to know your expectations for participants both at the outset and upon completion of the course."

Dr Padovani:

Thanks to the large number of applications from all over the world, we are able to select very motivated participants with specific interest or experience in the topic of the activity. This selection process ensures a high level of preparedness and fosters engaging and interactive sessions. Another success factor is the quality of our instructors. As you mentioned, ICTP enjoys a stellar reputation, attracting some of the brightest minds to graciously share their knowledge here. Through post-course surveys, we consistently receive excellent evaluations, and participants greatly appreciate receiving teaching materials that they can utilize in their hospitals and countries. ICTP's mission is to train the trainers, aiming to enhance medical physics practices in their respective nations. Additionally, participants recognize the value of being part of an international network that they continue to maintain for years to come.

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Rosana:

2. Some students may face different problems when they arrive in Trieste, which could be personal or financial issues. When I was there, I had to share a bedroom with women from different countries, however it turned out to be a very good experience. Do you have any special experience or story to share with us?

Dr Padovani:

I learned a lot and I admired the strong motivations and the sacrifices of many students of the MMP. For example, many ladies are leaving children at home for the whole two years of the programme. And, I cannot forget a student from Latin America delivering a baby in Trieste, flying home after two weeks leaving the baby with her mother and in another two weeks coming back to Trieste and successfully completing the first and the second year of the programme.

Rosana:

3. We know the time, effort and dedication that you put into organizing the programs. How do you know which are the subjects that interest the MP students? how do you choose these subjects?

Dr Padovani:

You mentioned my clinical work in Udine Hospital. In the hospital, for more than 20 years, we hosted many IAEA fellows and I also made several IAEA visits in LMI countries. This experience gave me a quite deep knowledge of the status of medical physics in those countries and of the needs in terms of education and training. This knowledge was essential for me when the ICTP Director prof. Fernando Quevedo in 2013 asked prof. Luciano Bertocchi and myself to develop a Joint Master of Advanced Studies in Medical Physics between the ICTP and the University of Trieste, represented by prof. Renata Longo, and to enlarge the medical physics education offer. Then, the everyday work, in contact with Master students and participants in the activities, allowed us to identify needs and changes for developing countries' progress and improvement of their health services. As an example, the College of medical physics, directed for many years by prof. Slavik Tabakov, has been a pillar since the Nineties for medical physics education at the ICTP, training medical physicists in diagnostic imaging and radiation protection. Looking at this long experience, in 2012 I proposed to develop a similar school on radiation oncology, a clinical practice with a high demand of education and training (more than 300 applications for each edition). We are now preparing the 5th edition for this September with the support of the IOMP, EFOMP, FAMPO and AIFM.

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Rosana:

4. ICTP is making great efforts to match the level of MP students/workers around the world. The ICTP contribution for theoretical aspects is great, but do you think that MP students need more practice?

Dr Padovani:

I agree, a clinical medical physicist necessitates sufficient clinical training. We know IAEA and IOMP are requesting at least two years of clinical training per each sub-specialty. In designing the MMP we decided to give the students (with a MSc in physics or equivalent) a solid theoretical medical physics background in the first year while the second year is devoted to a full-time supervised clinical training in one of the 25 medical physics departments of the Italian hospitals in our network. When designing the programme we followed the AFRA (African Regional Co-Operative Agreement for Research, Development and Training Related to Nuclear Science and Technology) recommendations that requires 1 year of clinical training in radiation therapy or 6+6 months for diagnostic and nuclear medicine. Of course, our students know and understand that their training must be continued with additional training or on-the-job training as the clinical practice and technology develop. Alternatively, for students who have previous clinical experience, the second year represents a completion of the minimum required clinical training that, for example, allows them to be 1 year of clinical training in radiation exam.

Rosana:

5. This year you have added a new workshop about machine learning in MP field, which, in my opinion, is a success. Do you think that MP students or maybe researchers, technicians, physicists have already familiarized with those new tools? What do you expect at the end of the workshop?

Dr Padovani:

In the last few years, we have been including elements of AI in the MMP and in the activities with IAEA. We know AI is now an integral part of clinical practice. To optimize its use, it's crucial for medical physicists to understand AI methods, assess performance, and conduct proper quality assurance. We're committed to bridging the knowledge gap and empowering physicists to leverage AI effectively for improved patient care and advancements in the field.

Medical Physics Programmes at the Abdus Salam International Centre For Theoretical Physics (ICTP)

Change your life forever - Your return as a valuable physicist

Rosana Pirchio

National Atomic Energy Commission (CNEA) Argentina; Committee Member of IOMP MPWB
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Rosana:

6. The theoretical phase of the MMP program is very intensive, fostering strong bonds among students who spend extensive hours together. Following this phase, students have the opportunity to choose their practical training institution and field. It is observed that a majority of students opt for radiotherapy, nuclear medicine, and a smaller number choose diagnostic radiology. In my opinion they select these fields because they will have a guaranteed job opportunity with a good salary. What do you think?

Dr Padovani:

As you know, IAEA is giving a great support to the MMP with a number of fellowships every year but it has a role also in the selection of the students. After a pre-selection made by the ICTP evaluation committee on the basis of the curricula and study results, the IAEA investigates the needs of the countries. In the first cycles of the Master, 90% of students were trained in radiotherapy, but in the last 3 cycles 30-40% of the students asked for training in nuclear medicine and diagnostic radiology, representing new needs in LMI countries. We have a combined clinical training on diagnostic and nuclear medicine, called diagnostic imaging, and graduates have a training on both practices, majored more frequently in nuclear medicine.

Rosana:

7. Is there anything you like to improve or change for the MP courses/programs?

Dr Padovani:

ICTP wants to expand the medical physics programmes, not only on education and training, but also on research and PhD programmes. This year we will have, for the first time, a medical physicist in staff with the aim to expand these activities. ICTP Associates and PhD students of the STEP programme will benefit of this evolution. Then, other education and training programmes may be developed, also outside the ICTP campus.

Rosana:

8. Based on what you have already done for MP students, is there anything else that you are still considering or planning to do in the future?

Dr Padovani:

We worked in the past 4 years to expand MP activities and now I'm very happy of the first results and I'd like to thank prof. Atish Dabholkar, the ICTP Director, for the decision to expand medical physics at the ICTP. I think we have great potential, thinking for example of the Italian medical

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physicists, represented by the Italian Association of Medical Physics (AIFM) and its President Dr. Carlo Cavedon, supporting all our activities. In particular, the MMP training network consists of 25 universities and oncology centres, and a community of more than 200 clinical medical physicists who are currently supporting the clinical training, is ready to enhance collaborations in research, teaching and training.

Rosana:

9. *Is there anything that you would like to add or tell the MP community?*

Dr Padovani:

If I could, I just want to say that I'm very grateful to the ICTP and, in particular to Prof. Luciano Bertocchi and the ICTP Directors, for the opportunity they gave me for a second and further professional life, with the aim to support the development of medical physics in the developing countries, in agreement with the mandate of the Abdus Salam ICTP.

The worldwide medical physics community appreciates the effort that ICTP is making, as demonstrated by the large number of application and the appreciation of the different programmes, but it is now necessary to enlarge the ICTP programmes in medical physics and this can be achieved with the proposals, the stimuli and the support of our international organizations, who believe in what we do and how we do it.

Finally, I would like to thank you, Rosana for this opportunity to discuss with you on the ICTP medical physics programmes.

Rosana:

I hope that in the future there will be more institutions like this in the world, providing possibilities and knowledge to students and scientists from resource-limited countries. Such initiatives, specifically for medical physicists globally, foster the creation of research and professional networks, albeit challenging. Ultimately, patients stand to benefit from these efforts through the availability of efficient and reliable treatments and equipment. This aspiration may sound like a mere statement, but it holds true significance in transforming healthcare on a tangible level.

Use of Silicone Material in Biomedical and Healthcare Applications

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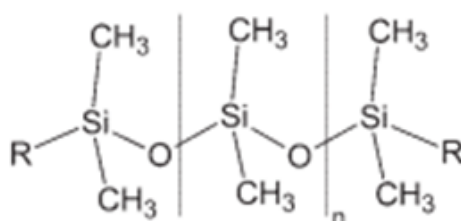
This article intends to show a vision of the silicone used for many years in different environments. Maybe it could help you to choose the materials to use in your next research.



Courtesy of Marcos Keetmayer

What are silicones?

Silicones are synthetic polymers made of repeating silicon to oxygen bonds, where the silicon atoms are bonded to organic groups (e.g., methyl, phenyl, vinyl, and trifluoropropyl). This is the basis for the name “silicones”. The basic repeating unit is known as “siloxane” and the most common silicone is polydimethylsiloxane, PDMS.



Polydimethylsiloxane

The simultaneous presence of organic groups gives silicone distinctive properties, making their use possible as fluids, emulsions, compounds, resins, and elastomers.

Silicone polymers can easily be transformed into a three-dimensional network by way of a cross-linking reaction, which allows formation of chemical bonds between adjacent chains.

The cross-linking of siloxane polymers can be achieved by three chemical reactions:

With free radicals: Silicone polymers can also be cross-linked by free radicals formed at high temperatures from various azo or peroxide initiators.

By condensation: The reaction requires the presence of a linear polymer functionalized with silanol or another hydrolyzable group and a multifunctional cross-linking agent containing reactive groups such as alkoxysilane, acetoxysilane, oxime, or others. In most cases, various tin or titanium compounds are required.

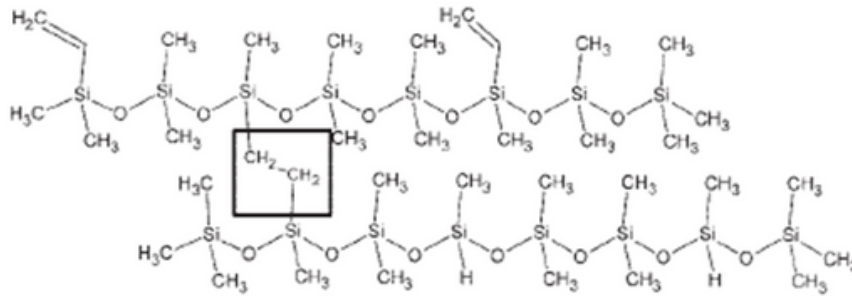
By addition to double bonds: It is based on the hydrosilylation reaction of silicone oligomers and polymers containing vinyl or allyl groups with Si-H functional cross-linkers. This reaction requires catalysis via expensive metal complexes such as the Karstedt platinum complex or various organometallic complexes of iridium, rhodium, or platinum II. (Mizerska et al)

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Hydrosilylation reaction of silicone

Which are the major differences between silicone of platinum catalyst cured by addition and silicone of tin catalyst cured by condensation?

- The chemical difference between tin-cure and platinum-cure silicone mold making rubbers lies mainly in the metal used to catalyze or cure the base rubber. The metal tin is used to catalyze or cure tin silicone, and platinum is used to cure platinum silicone rubber.
- A major difference between these two systems is shrinkage of the cured rubber over the short and long term. Tin-cure silicone rubber molds generally exhibit higher shrinkage over time depending on the type of mold rubber being used, material being cast into the rubber mold, mold configuration, and other variables.
- Some tin-cure silicone rubbers have a relatively long library life (stay without touching and using it) at a minimum of 5 years. At the end, the mold will tear easily and become unusable. Some Platinum-cure silicone has a relatively long library life that is measured in decades.
- Accordingly, tin-cure silicone rubbers are usually significantly less expensive than platinum-cure ones. (Smooth On Inc.)

WHAT ARE THE MAIN USES OF SILICONE?

| |
|--|
| In the aerospace industry. |
| In the electronics field, silicone are used as electrical insulation, potting compounds, and other applications specific to semiconductor manufacture. |
| In the construction industry as sealants, adhesives, and waterproof coatings common place. |

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| |
|--|
| Fabrication of displays used in theme parks, zoos, aquariums |
| To restore old or create new architectural elements. |
| Urethane and silicone mold rubber is used for candle making. |
| To make concrete molds for wet casting, form liners, concrete stamps, decorative structures, and panels. |
| For cosplay applications. |
| Create display for retail, theatrical, or even home usage as well as tutorial for solar cell encapsulation. |
| Variety of flame rated materials in the industry. |
| Food safe mold making: make a custom candy or ice mold, personalized chocolate, fondant or cake molds. |
| Home crafts-hobbies: projects for school, home repairs. |
| Large scale applications: using machinery or spray systems for making molds for concrete casting, architectural restoration. |
| Lifecasting: capture and reproduce detail from the human body safely and accurately. |
| Makeup: techniques for professional quality makeup effects for film, TV, theater. |
| Taxidermy: rubbers, plastic, foams, pigments for realistically reproducing wildlife. |
| Sculpture-Art casting. Create or make accurate reproductions of original sculpture and part displays. |



Image courtesy of Smooth-on Inc. (www.smooth-on.com)

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Healthcare Applications

Orthotics and prosthetics: make medical training aids or variety of custom and stock prosthetics and orthotics.

Fabrication of custom urethane wrist hand, ankle foot orthoses, prosthetic socket refinement with renew silicone replicator, injection molded silicone liners, silicone partial foot prosthesis.

Catheters, drains and shunts, as components in kidney dialysis, blood oxygenators, and heart bypass machines, heart valves, and aesthetic implants.

In dentistry, for silicone impression materials, implants.

Silicone gels include breast, testicular, and other soft-tissue implants for tissue augmentation or to help restore one's appearance after cancer surgery. Application in skin-contacting sheet goods in wound and scar care. Silicone suture pad for training.



Images courtesy of Smooth-on Inc. (www.smooth-on.com)

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Processing of Silicone Elastomers

(more details will be explained about Platinum silicone, which is the most used in medical physics research)

Silicone is an important biomaterial in many different biomedical and healthcare applications. Successful utilization requires properties such as strength, elasticity, biocompatibility and biodurability, which can be expressed in terms of other material properties such as hydrophobicity, low surface tension, and chemical and thermal stability. These specific properties are achieved in part by designing the molecular architecture of silicone. (Curtis and Colas)

Silicone gel is often supplied in a two-part fluid system and cures via a platinum-catalyzed addition reaction, an initiator or cross-linker plus catalyst. To avoid premature cure, these ingredients are generally supplied as two components or two-part kits, for example, a base and a peroxide paste, or a kit made of Part A containing polymer and catalyst, and Part B containing polymer and cross-linker. These two components are mixed at a fixed ratio at the point of use and formed into the desired shape before cure. Almost always is recommended de-airing. A cured silicone elastomer part cannot be reprocessed. It is possible to add pigments to give color, thixotropic, silicone thickener, oil silicone to further lower the viscosity. (Lambert)

| Platinum silicone properties* | Values |
|-------------------------------|----------------------|
| Pot life | 1 min - 45 min |
| Mixed Viscosity | 3000 cps - 23000 cps |
| Shore hardness | 000-30 – 30A |
| Specific gravity /Density | 1.04 - 1.08 g cm-3 |
| Cured time | 5 min – 16 h |

*From Smooth On Inc.

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Silicone Applications in Medical Physics Field

A great number of works have been published during the last years. Let's mention some of them.

Aldosary et al. analyzed the dosimetric properties of silicone in radiotherapy beams and the suitability for bolus and phantom construction. It is important to characterize a particular silicone's properties in each beam quality prior to clinical use. Because silicone compositions vary between manufacturers and differ from water/solid water, accurate dosimetry using these materials requires consideration of the reported differences.

Ahn et al. evaluated whether topical use of a film-forming silicone gel (StrataXRT[®]) could reduce radiation dermatitis compared to a moisturizing cream (X-derm[®]) in patients receiving whole breast radiotherapy. The use of StrataXRT can reduce radiation dermatitis with respect to objectively measured physiological skin parameters. The results of their study will support the feasibility of conducting a larger randomized controlled trial.

Hatamikia et al investigated the radiological properties of 3D printed phantoms made of silicone in CT imaging. A scaled down anatomical model derived from an abdominal CT was also fabricated. The reproducibility results showed good agreement between the HU values of the replicas compared to the original test phantoms, confirming the duplicability of the printed materials.

Osteoarthritis of the knee with meniscal pathologies is a severe meniscal pathology suffered by the aging population worldwide. Luis E et al. developed a 3D silicone meniscus implant which is cytocompatible, resistant to cyclic loading and mechanically like native meniscus, and 3D printable. The study consisted of 3D printed samples of Eco30 and Eco50. Both samples showed good results and Eco50 silicone meniscus implants consistently displayed higher stiffness and modulus as compared to Eco30 samples. Finally, cytotoxicity tests proved that both Eco30 and Eco50 silicone implants are biocompatible.

Ayyildiz et al. worked in Tactile imaging (TI), a new technique to support screening based on tactile imaging, one of the emerging noninvasive medical imaging techniques that are used to detect tumors inside the breast tissue. TI involves applying compression to the breast tissue with a probe having an array of pressure sensors to measure the pressure distribution at the contact area. TI can estimate the shape, size, and location of a tumor by comparing its stiffness with the surrounding healthy tissue. They developed a low-cost TI system to detect tumors in breast tissue, a prototype system that could perform as well as manual palpation while providing quantitative and objective data to the user. Commercial-grade silicon (0010) was used to construct tissue-like cylindrical samples. The tumor-like spherical silicon inclusions were prepared in two different stiffness levels using Smooth-Sil 910 commercial silicon. The experiments performed with silicon samples showed that the proposed system performed better in detecting deep inclusions than manual palpation.

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Rana S. et al, worked with TI systems, the model probe was constructed using a visual layer of IR support and four sensors. TI sensors were scanned over the breast in a noninvasive manner, producing a real time feed of the pressure profile under the sensor. For the breast model, 00-10 shore hardness silicone with 20% thinner is used to simulate the elasticity of a typical breast. The skin is made-up with the very soft 000-35 shore hardness silicone to simulate the skin stretching. The vein pattern is created using a mixture of silicone and IR absorb material (graphite powder) and placed in between the breast tissue and skin.

The reliability of quantitative chest CT should be evaluated by using patient- and disease-specific imaging phantom. Hong et al. fabricated a chest CT imaging phantom that reflects the CT intensity of various lung lesions using 3D-printing technology and silicone casting, to evaluate its quantification accuracy. To produce a CT imaging phantom using 3D printing, studies on Hounsfield unit (HU) values have used various silicone materials as 3D-printing materials. An anonymous patient, various silicone samples for fabricating phantoms, and 3D-printed chest phantoms were scanned using a dual-source CT. To implement the pattern of the alveoli of the lung parenchyma in detail, CT was performed using some silicone materials to confirm its HU value. The silicone materials are expandable and durable. Therefore, the silicone to be used for the phantom was selected based on the CT intensity and pattern of each silicone. CT intensity was based on the HU for the human body, and the silicone pattern was selected by referring to the basic pattern corresponding to each lung lesion. Therefore, to induce emphysema, it was used in the lower right lobe of the lung, and to simulate normal lung parenchyma, to induce pulmonary fibrosis, lung parenchyma containing solid nodule, several types of the same expandible silicone were used (foam). The fat and muscle surrounding the chest, gel wax and Ecofex0020 silicone were used. Ecofex 0020 silicone was used after mixing the main agent and curing agent in a 1:1 ratio, and air bubbles were removed using a deaerator. In addition, silicone of Dragon Skin FX Pro was used to model the skin.

Phantom development, including characterization of the materials, is a research area for studies in PET/MRI (Lennie E et al.) and only PET (Black et al.) In-house manufactured anthropomorphic and tissue equivalent phantoms publications describe the phantom design and manufacture or demonstrate its properties as a suitable PET/MRI phantom. Silicone reproduced adipose tissue, heart, lung, and other tissues. For example, inflatable silicone lung inserts, and a silicone cardiac insert were created. Both sets of inserts are piston driven to induce motion. A double silicone membrane is used for the cardiac insert to create an outer layer that can be filled to represent the myocardium. Lung inflation is controlled from the base of the lungs by a rubber membrane to simulate the diaphragm. Models of the heart and lungs were 3D printed to create moulds on which to shape the silicone (Lennie E et al.).

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To summarize, be careful to choose the most adequate branch and type of silicone, considering some parameters such as hardness, density, pot life, cure life, quality of material. The repeatability of your work depends on all these parameters.

Some countries have more availability of different silicone types, other countries have access to a limited number of brands and types.

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Calendar of Events (June - December 2023)

Ibrahim Duhainii

Calendar Editor, IOMP Treasurer

ISMRM & ISMRT Annual Meeting & Exhibition

When: Jun 3 – 8, 2023
Where: Toronto, ON, Canada

CARO-COMP Joint Scientific Meeting

When: Sep 20 – 23, 2023
Where: Montreal, QC, Canada

AAMD 48th Annual Meeting

When: Jun 4 – 8, 2023
Where: New Orleans, LA, USA

ASTRO's Annual Meeting

When: Oct 1 – 4, 2023
Where: San Diego, CA, USA

14th International Conference on Monte Carlo Methods and Applications

When: Jun 26 – 30, 2023
Where: Sorbonne, 75005 Paris, France

SROA 40th Annual Meeting

When: Oct 1 – 4, 2023
Where: San Diego, CA, USA

AAPM 65th Annual Meeting & Exhibition

When: Jul 23 – 27, 2023
Where: Houston, TX, USA

ESMRMB 2023 Congress

When: Oct 4 – 7, 2023
Where: Basel, Switzerland

HPS 68th Annual Meeting

When: Jul 23 – 27, 2023
Where: Gaylord, National Harbor, MD, USA

RSNA Annual Meeting

When: Nov 26 – 30, 2023
Where: Chicago, IL, USA

International Society of Computed Tomography 23rd Annual Symposium

When: Sep 6 – 8, 2023
Where: San Diego, CA, USA

3rd Flash Radiotherapy and Particle Therapy Conference (FRPT 2023)

When: Dec 5 – 7, 2023
Where: Toronto, ON, Canada

16th Annual Meeting of the Korean Society of Medical Oncology & 2023 International Conference (KSMO 2023)

When: Sep 7 – 8, 2023
Where: Seoul, South Korea

International Conference on Medical Physics - 2023 (ICMP-2023)

When: Dec 6 – 9, 2023
Where: Mumbai, India

EANM'23 – 36th Annual Congress of the European Association of Nuclear Medicine

When: Sep 9 – 13, 2023
Where: Vienna, Austria



International Organization for Medical Physics



International Conference on Medical Physics - 2023



AMPICON 2023 AOCMP 2023 ISEACOMP 2023

Theme: Innovations in Radiation Technology & Medical Physics for Better Healthcare

December 6th - 9th 2023, DAE Convention Centre, Anushaktinagar, Mumbai, India

See you in Mumbai!