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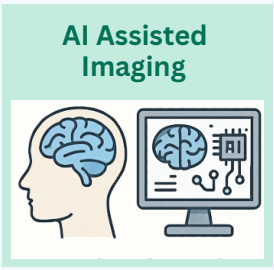
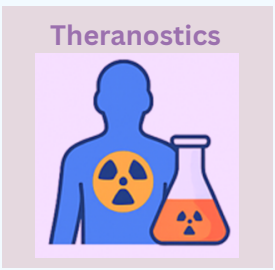
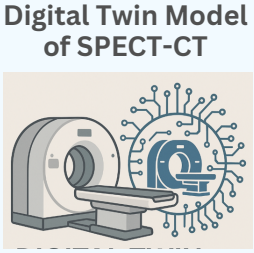
IOMP 07 November 2025

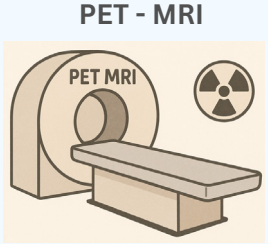
International Day of Medical Physics

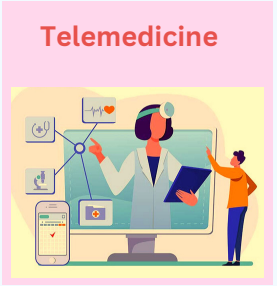
Medical Physics and Emerging Technologies: Shaping the Next Decade











Celebrating innovation and impact — Advancing healthcare through Medical Physics and Emerging Technologies.

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EDITORIAL MESSAGE

Dear Colleagues,

Warm greetings from the Bangladesh Medical Physics Society (BMPS)!

We are delighted to present this year's edition of our annual e-newsletter, "Voice of BMPS," published to commemorate the International Day of Medical Physics (IDMP), celebrated worldwide on 7th November. The 2025 IDMP theme, "Medical Physics and Emerging Technologies: Shaping the Next Decade," reflects our collective vision for the future of healthcare and innovation.

This special issue celebrates the remarkable achievements and milestones of our society and its members—dedicated professionals who continue to elevate the standards of medical physics through their commitment, research, and service. Their contributions are shaping a safer, smarter, and more patient-centered future in medical care.

As we look ahead, we embrace the exciting possibilities brought by rapid technological advancements and the expanding scope of precision medicine. These developments call for continued collaboration, innovation, and lifelong learning within our vibrant community.

We extend our heartfelt gratitude to all members, collaborators, and well-wishers for their unwavering support and dedication. Your passion and perseverance remain the foundation of BMPS's progress and success.

We hope this issue of Voice of BMPS inspires and informs you. Let us continue working together to advance the field of medical physics and create a lasting impact on global healthcare.

Let us proudly celebrate IDMP 2025—a day that honors the spirit, innovation, and dedication of every medical physicist.

Wishing you all a Happy International Medical Physics Day!

Md Akhtaruzzaman, PhD
Editor
Voice of BMPS

Message from IOMP President

Dear Colleagues and Friends of the Bangladesh Medical Physics Society,

On behalf of the International Organization for Medical Physics (IOMP), it is my great pleasure to extend warm greetings to the Bangladesh Medical Physics Society (BMPS) as you celebrate the International Day of Medical Physics (IDMP) 2025.

This year's IDMP theme, "Medical Physics and Emerging Technologies: Shaping the Next Decade" reminds us of the critical role that medical physicists play in ensuring safe, effective, and innovative healthcare for patients around the world. Your ongoing efforts in education, research, and clinical practice embody the very essence of this mission.

The contributions of Bangladeshi medical physicists continue to strengthen not only your national healthcare system but also the global medical physics community. Your dedication to advancing diagnostic imaging, radiation therapy, and patient safety is truly commendable. IOMP deeply values BMPS's active participation in international collaborations, capacity building, and advocacy for the profession.

As you come together to celebrate IDMP 2025, I encourage you to take pride in your achievements and to inspire the next generation of medical physicists in Bangladesh. Let this day renew our shared commitment to improving patient care through science, technology, and compassion.

On behalf of IOMP, I wish BMPS and all medical physicists in Bangladesh a joyful and successful celebration of IDMP 2025.

With warm regards and best wishes,
Eva Bezak
President, International Organization for Medical Physics (IOMP)

Message from AFOMP President

Dear Colleagues,

It is a great pleasure to send my warm greetings to all medical physicists in Bangladesh and around the world as we come together to celebrate the International Day of Medical Physics (IDMP) 2025. Each year, this special day marked on the birthday of the legendary scientist Marie Skłodowska-Curie reminds us of how science, compassion, and perseverance can transform human lives.

This year's theme, "Medical Physics and Emerging Technologies: Shaping the Next Decade," truly reflects where we stand today as a profession. We are entering a new era in healthcare, one driven by artificial intelligence, big data, robotics, precision radiotherapy, and molecular imaging. These technologies are not just changing machines or methods; they are redefining how we think about medicine itself. And at the center of this transformation stands medical physicists the bridge between technology and patient care.

Our responsibility has never been greater. The next decade will demand that we combine technical expertise with creativity, ethics, and empathy. We must ensure that every new innovation is applied safely, wisely, and equitably. As President of AFOMP, I feel inspired by the remarkable progress being made across our region where education, research, and professional recognition of medical physicists continue to grow through strong collaboration and shared commitment. AFOMP will continue to support these efforts through training programs, webinars, e-learning platforms, and international partnerships aimed at preparing our community for the future.

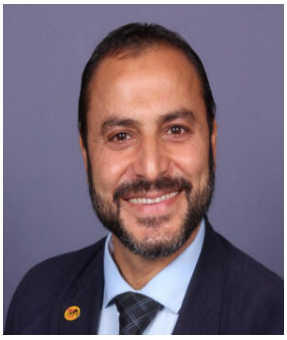
In Bangladesh, the Bangladesh Medical Physics Society (BMPS) has played a pioneering role in nurturing this vision. As its Founder President, I am deeply proud of how far we have come from building academic and clinical foundations to fostering young talent and global collaboration. The enthusiasm and dedication of our medical physicists, especially the new generation and women professionals, give me immense hope for what lies ahead.

On this IDMP, let us take a moment to celebrate our collective achievements but also to look forward with purpose. Let us embrace emerging technologies not just as innovations, but as opportunities to make healthcare safer, fairer, and more compassionate. The future of medical physics depends on how we shape it with knowledge, integrity, and heart.

Together, let us continue to lead, inspire, and shape the next decade of medical physics.

With warm regards and best wishes,
Prof. Dr. Hasin Anupama Azhari
President, AFOMP

Message from IDMP Coordinator



Dear Medical Physics Colleagues across the Globe,

The theme for IDMP 2025:

"Medical Physics and Emerging Technologies: Shaping the Next Decade,"

reflects the rapidly evolving landscape of healthcare and the critical role of medical physicists in advancing, integrating, and safeguarding the application of new technologies in medicine.

As we enter a new era defined by artificial intelligence (AI), machine learning, image- guided therapies, adaptive radiotherapy, quantitative imaging, theranostics, and personalized medicine, medical physicists are increasingly called upon to provide expert insight into the optimization, validation, and quality assurance of these innovations. We stand at the forefront of ensuring that technological advancement translates into improved patient outcomes, enhanced safety standards, and equitable access to care.

In alignment with this year's theme, I encourage medical physics societies, academic institutions, research centers, and clinical departments around the world to celebrate IDMP 2025 through impactful activities. These may include:

1.Public outreach campaigns and media engagement to educate communities about the contributions of medical physics to modern healthcare.

2.Scientific symposia or webinars highlighting innovations in imaging, radiation therapy, dosimetry, and nuclear medicine.

3.Educational programs targeting students and early-career professionals to promote careers in medical physics.

4.Collaborative events with other healthcare and scientific disciplines to foster interdisciplinary dialogue around emerging technologies.

Let us use this occasion not only to recognize the indispensable contributions of our profession but also to reaffirm our commitment to scientific excellence, patient safety, and ethical innovation. IDMP provides a global platform to unify our voices, share our achievements, and chart a strategic course for the future of medical physics.

Together, let us ensure that IDMP 2025 serves as a powerful reminder of the vital role of medical physicists in shaping the next decade of medical innovation and care delivery. With warm regards and appreciation,

Ibrahim Duhaini, PhD, FIOMP, FIUPESM, DIMPCB
IOMP Treasurer
IDMP Coordinator

Message from BMPS President

Dear Colleagues and Friends,

Greetings from the Bangladesh Medical Physics Society (BMPS).

It is a great pleasure to welcome you to the 2025 edition of the Voice of BMPS, the official e-Newsletter of our society. This publication continues to serve as a platform to share knowledge, celebrate achievements, and strengthen connections within the medical physics community in Bangladesh and beyond.

As we celebrate the International Day of Medical Physics (IDMP) on 7th November, we embrace the theme “Medical Physics and Emerging Technologies: Shaping the Next Decade.” This theme highlights the transformative potential of emerging technologies—such as artificial intelligence, radiomics, and automation—in redefining patient care, precision treatment, and the overall scope of medical physics.

BMPS remains committed to fostering innovation, capacity building, and international collaboration to empower our professionals and strengthen healthcare delivery across the country. The dedication and contributions of our members continue to inspire progress and uphold the highest standards of excellence in medical physics.

Let us work together to shape the next decade with vision, collaboration, and innovation—ensuring that medical physics continues to be a cornerstone of safe and effective healthcare.

Warm regards,
Md Akhtaruzzaman, PhD
President
Bangladesh Medical Physics Society (BMPS)

Message from BMPS General Secretary

Dear Colleagues,

Warm greetings from the Bangladesh Medical Physics Society (BMPS)!

As we celebrate the International Day of Medical Physics (IDMP) 2025 on November 7th, we honor the legacy of Marie Sklodowska-Curie, whose pioneering discoveries continue to inspire our profession. This year's theme, "Medical Physics and Emerging Technologies: Shaping the Next Decade," reflects the evolving landscape of our field and our collective responsibility to lead innovation in healthcare.

Emerging technologies such as artificial intelligence, adaptive radiotherapy, molecular imaging, and data-driven solutions are transforming the way we diagnose and treat patients. As medical physicists, we stand at the intersection of science and care — ensuring that these innovations enhance patient safety, precision, and quality.

BMPS remains committed to fostering professional excellence, research, and collaboration. We are strengthening educational programs, organizing advanced training sessions, and creating platforms for young researchers to explore emerging technologies. These initiatives aim to empower every member of our community to contribute meaningfully to the next decade of medical physics advancement.

We are proud to present the 13th issue of our e-newsletter, Voice of BMPS, highlighting inspiring stories, educational resources, and updates on our society's initiatives. It embodies our shared dedication to professional growth, innovation, and service.

As we celebrate IDMP 2025, let us renew our commitment to innovation, mentorship, and service to humanity. With unity, vision, and dedication, we will shape a decade where medical physics continues to inspire, heal, and lead the way toward a brighter future.

Warm regards,
Md. Jobairul Islam
General Secretary
Bangladesh Medical Physics Society (BMPS)

GENERAL ARTICLES

SCMPCR: A Learning Hub for Medical Physics Students and Professionals

Md. Jabidul Islam

South Asia Centre for Medical Physics & Cancer Research (SCMPCR)

In an era where healthcare technology is advancing faster than ever, continuous learning has become essential for those working in cancer treatment and radiological sciences. The South Asia Centre for Medical Physics and Cancer Research (SCMPCR) has established itself as a dynamic learning hub for students and professionals in the field of Medical Physics — bridging academic knowledge with real-world clinical practice.

Medical Physics plays a vital role in ensuring safe and effective use of radiation in diagnosis and therapy. However, across South Asia, there is still a significant shortage of qualified medical physicists and limited access to advanced training facilities. Recognizing this gap, SCMPCR was founded with the vision of nurturing skilled professionals who can contribute to improving cancer care and radiotherapy services in the region.

At its core, SCMPCR functions as a centre of excellence for training, research, and professional development. It provides a wide range of learning opportunities tailored to different levels of expertise:

For Students: SCMPCR offers introductory courses, mentorship, and exposure to modern radiotherapy technologies. These programs help students gain a strong foundation in radiation safety, imaging physics, and treatment planning — essential for building a successful career in medical physics.

For Professionals: Through advanced Hands-on Workshops (HW Series) and In-Service Clinical Training, practicing physicists and technologists get the opportunity to refine their technical skills using modern equipment and updated international guidelines.

E-Learning Programs (ELP Series): SCMPCR's online platform connects learners from multiple countries, allowing them to attend lectures and case discussions from leading international experts. This flexible, digital learning approach ensures that professionals can upgrade their skills without leaving their clinical duties.

Collaborative Learning: The centre regularly hosts international trainers and partners with organizations like the International Organization for Medical Physics (IOMP) and the European Board for Accreditation in Medical Physics (EBAMP). This gives participants access to globally recognized education and certification.

SCMPCR's philosophy of learning extends beyond textbooks and lectures. The training environment encourages interactive discussions, problem-solving, and mentorship, where young physicists learn not only the science behind radiation therapy but also the ethics, safety culture, and patient-centered values that define true professionalism.



By combining academic rigor, practical exposure, and international collaboration, SCMPCR has become a trusted platform for shaping the next generation of medical physicists in South Asia. Students and professionals who train under its programs leave not just with enhanced knowledge—but with a renewed sense of purpose: to make every patient's treatment safer, more accurate, and more compassionate.

SCMPCR publish couple of newsletter on different issues about cancer treatment each year. Ro sent your writing visit **www.scmpcr.org**

Nuclear Medicine in Bangladesh: The Role and Advancements of NINMAS

Munima Haque[1], Jannatul Ferdous[2], Nasreen Sultana[3], Sheikh Anushe[1]

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[3]Scintigraphy Division, National Institute of Nuclear Medicine & Allied Sciences (NINMAS), Bangladesh Atomic Energy Commission, Dhaka, Bangladesh

Nuclear medicine has played a vital role in Bangladesh's healthcare journey for over five decades. From its modest beginnings in the early 1960s at Dhaka Medical College Hospital's "Radioisotope Center," the field has evolved into a nationwide network of 22 centers providing cutting-edge diagnostic and therapeutic services. Today, the National Institute of Nuclear Medicine and Allied Sciences (NINMAS)—under the Bangladesh Atomic Energy Commission (BAEC) and located within the Bangladesh Medical University (BMU) campus—stands as the country's apex institution, combining advanced technology, research, and education to improve patient outcomes and support national health development.

A National Leader in Nuclear Medicine

Established in 1980, NINMAS has grown from a small facility within the Institute of Postgraduate Medicine & Research to a modern, 60,000-square-foot institute equipped with state-of-the-art diagnostic and therapeutic infrastructure. Major upgrades between 2015 and 2017 introduced two PET-CT scanners, multiple SPECT and dual-head gamma cameras, and a Cyclotron, enabling the in-house production of PET tracers such as ^{18}F-FDG. These advancements positioned NINMAS as a regional leader in nuclear imaging and therapy, capable of handling a wide range of oncological, neurological, cardiovascular, and endocrine cases.

Beyond patient services, NINMAS plays a national coordinating role—setting standards, conducting research, and training professionals in collaboration with the IAEA, BSMMU, and local universities. Its mission extends beyond medical imaging to developing radiopharmaceuticals, ensuring radiation safety, and expanding access to nuclear medicine across Bangladesh.

Diagnostic and Therapeutic Applications of Nuclear Medicine at NINMAS Diagnostic Applications

NINMAS provides comprehensive molecular and functional imaging. Brain perfusion SPECT supports the diagnosis of neurological disorders, while myocardial perfusion imaging (MPI) detects

ischemic heart disease. Renal scans (DTPA, DMSA, EC) assess kidney function and obstruction; bone scans identify metastasis and infections; and HIDA, Meckel's, and parathyroid scans assist in hepatobiliary, gastrointestinal, and endocrine evaluation.

Its ^{18}F-FDG PET/CT services allow precise staging and therapy monitoring in oncology, cardiology, and neurology, with software like eZIS and NeuroGam enhancing quantitative analysis.

On the therapeutic side, radioiodine (^{131}I) therapy remains vital for thyroid diseases, while radiofrequency and microwave ablation offer targeted treatment for selected tumors—delivering precision therapy with minimal systemic exposure.

Research, Education, and Future Directions

As a hub of academic excellence, NINMAS offers PhD, MD, and MPhil programs, supervises research, and conducts professional training for healthcare scientists. Current projects include studies on brain perfusion in lupus, ASD SPECT imaging, and vitamin D metabolism, in partnership with the IAEA and national universities.

Looking ahead, NINMAS continues to expand access to nuclear medicine across Bangladesh, integrating artificial intelligence and ensuring safe, personalized care for patients.

NINMAS stands as a national referral and research center—advancing accurate diagnosis, effective therapy, and academic excellence—cementing Bangladesh's position as a regional leader in nuclear medicine and allied sciences.

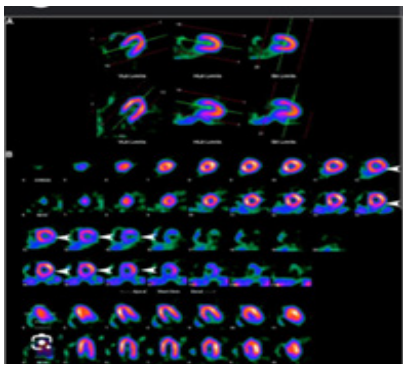


Figure 1. Myocardial perfusion SPECT images showing short-axis, vertical long-axis, and horizontal long-axis sections of the left ventricle under stress and rest conditions.

Figure 2. A CT Scanner at NINMAS

Figure 3. Students from the Department of Biotechnology, BRAC University, during an academic visit to the National Institute of Nuclear Medicine and Allied Sciences (NINMAS), BSMMU.

A new Era in Cancer Care: Bangladesh Commences Treatment with its first Tomotherapy System

Md. Fajle Rabby, TMSS Cancer Center

On August 8, 2025, the TMSS Cancer Center in Bogura, Bangladesh, achieved a significant milestone in cancer care by inaugurating its Tomotherapy RADIXACT System. This event coincided with the TCC Cancer Congress 2025, a premier oncology conference held at the Momo Inn Hotel in Bogura. The dual-purpose ceremony underscored TMSS's commitment to advancing cancer treatment and fostering knowledge exchange in the field of oncology.

The inauguration ceremony commenced with the unveiling of the first Tomotherapy RADIXACT System in Bangladesh. Following the inauguration, the TCC Cancer Congress 2025 brought together oncologists, radiologists, medical physicists, and researchers to discuss the latest advancements in cancer treatment and research. The Tomotherapy RADIXACT System capable of precision targeting which utilizes advanced imaging techniques to accurately locate and treat tumors. Adaptive Treatment is also possible by adjusting treatment plans in real-time to accommodate tumor movement and changes in patient anatomy. It is also capable of treating a wide range of cancers, including complex, pediatric cases and total body irradiation (TBI).

In the TCC Cancer Congress 2025, several keynote speeches are delivered by renowned experts in oncology and other fields related to oncology focusing on innovations in cancer treatment and research. Dr. M.A. Salam, Professor of Urology, Dr. Parvin Akhter Banu, Sr. Consultant of Oncology, Dr. Arman Reza Chowdhury, Senior Consultant of Radiation Oncology, Dr Habibullah Talukdar Raskin, Professor of Cancer Epidemiology and Preventive Oncology delivered their valuable speeches on different topics. Beside these, panel discussions were held on various topics such as precision medicine, radiotherapy advancements, and cancer prevention strategies. The congress served as a platform for knowledge exchange and collaboration among healthcare professionals, aiming to enhance cancer care standards in Bangladesh.

The inaugural ceremony was honored by the presence of Professor Dr. Omar Faruque Yusuf, the Vice Chancellor of Chattogram Medical University and Prof. Dr. Md. Abul Kalam Azad, Pro Vice-Chancellor (Administration), Bangladesh Medical University. It was also witnessed the presence of several distinguished dignitaries who added grandeur to the event. Prof. Dr. Moudud Hossain Alamgir, Executive Consultant, TMSS Health Sector; Rtn. Dr. Md. Matiur Rahman, Deputy Executive Director, TMSS; Mr. TM Ali Haider, Managing Director, Building Construction Limited; Prof. Dr. Md. Zakir Hossain, Principal, TMSS Medical College; Prof. Dr. AKM Ahsan Habib, Director, TMSS Cancer Center; and Md. Motiur Rahman (Mithu), Chief Medical Physicist and Assistant Project Director, TMSS Cancer Center, attended the program.

The inauguration of the Tomotherapy RADIXACT System, coupled with the TCC Cancer Congress 2025, marks a significant step forward in cancer care in Bangladesh. This event highlights TMSS's dedication to providing cutting-edge treatment options and fostering a collaborative environment for medical professionals to share knowledge and expertise. With the support of esteemed leaders, TMSS continues to pave the way for innovative treatments and collaborative efforts in the fight against cancer.

SCIENTIFIC ARTICLES

Green Radiotherapy: Towards a Sustainable Future

Md. Abu Kausar

Department of Medical Physics, Delta Hospital Limited, Dhaka, Bangladesh

Climate change is one of the most pressing global health challenges, with serious implications for human well-being and health equity. Although healthcare is essential for improving health outcomes, it contributes significantly to environmental degradation accounting for nearly 5% of carbon emissions and producing around 4 million tonnes of waste annually worldwide. Clinical radiology and radiotherapy generate nearly 10% of this burden, driven by energy-intensive equipment, large-scale data storage, treatment delivery, travel-related emissions, and single-use consumables. In addition, persistent residues from contrast media and radiopharmaceuticals pose growing ecological risks in aquatic systems.

Global initiatives, including COP27 and WHO strategies, call for climate-resilient health systems and net-zero emissions by 2050, with the UK's National Health Service (NHS) advancing this goal by committing to carbon net zero by 2040. Within this agenda, radiation oncology in particular faces a unyielding responsibility.

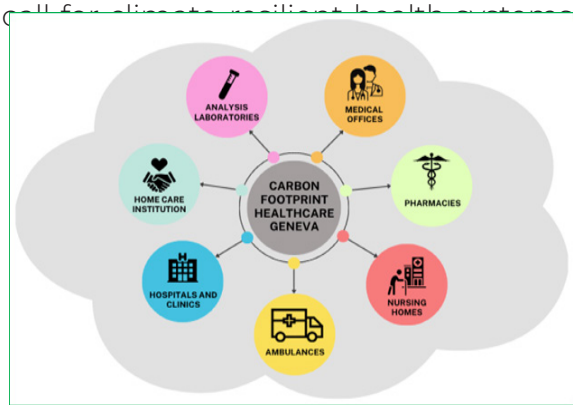


Fig: GHG emissions in the healthcare system (Source: Int. J. Environ. Res. Public Health 2024)

Why Sustainability Matters in Radiotherapy

Patients receiving oncology and radiotherapy care are particularly vulnerable to the impacts of climate change and environmental crises. Timely diagnosis and treatment are critical, yet climate-related events can disrupt healthcare services, compromising outcomes. For instance, a 2024 analysis reported that 61% of radiation oncology clinics in California were affected by wildfires over the preceding five years, while Atlantic hurricanes disrupted radiotherapy delivery for over one-third of patients in another study. Beyond service interruptions, cancer patients' physiological and psychological vulnerability heightens their sensitivity to environmental stressors.

Radiotherapy (RT) is a cornerstone of modern cancer care, curing or controlling disease in nearly half of all patients. Advances such as image-guided therapy, adaptive planning, proton therapy, and MR-Linac systems have improved precision and outcomes, but these innovations increase energy use and resource consumption. With global demand for RT rising particularly in low- and middle-income countries (LMICs) facing a growing cancer burden the environmental footprint of radiotherapy is set to expand. Green Radiotherapy has therefore emerged to balance high-quality, life-saving treatment with sustainability, promoting practices that reduce carbon emissions, minimize waste, and maintain effective patient care.

Drivers of Carbon Burden in Healthcare

The carbon burden of healthcare, and radiotherapy in particular, arises from multiple interconnected sources. Estimation of carbon footprints has shown that the operation of radiotherapy accelerators, imaging scanners, and their associated maintenance represent major contributors due to high electricity demand and reliance on energy-intensive cooling systems. Patient and staff transport further adding to emissions, particularly in regions where cancer centers are geographically centralized, requiring long-distance travel. The consumption of materials, such as single-use plastics, immobilization devices, gowns, gloves, and radiopharmaceuticals, contributes both to waste generation and upstream emissions from manufacturing and supply chains.

The infrastructure itself, including buildings and radiation bunkers, carries a significant embedded carbon cost through construction, heating, ventilation, and air-conditioning demands. In addition, hospitalization of patients undergoing combined modality treatments or extended radiotherapy courses leads to further emissions from inpatient care, food services, and hospital energy use. Mapping these sources provides a foundation for identifying areas with the greatest potential for carbon reduction while maintaining high standards of cancer care.

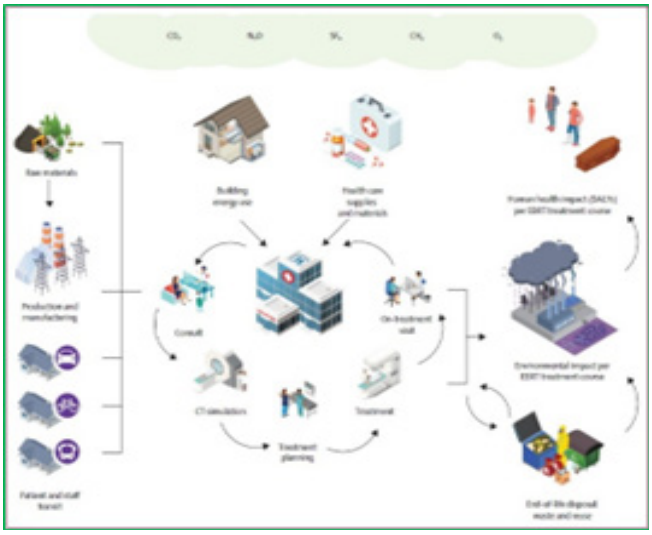


Fig: Life Cycle of external beam radiotherapy (Source: Lancet Oncol 2024; 25: 790–801)

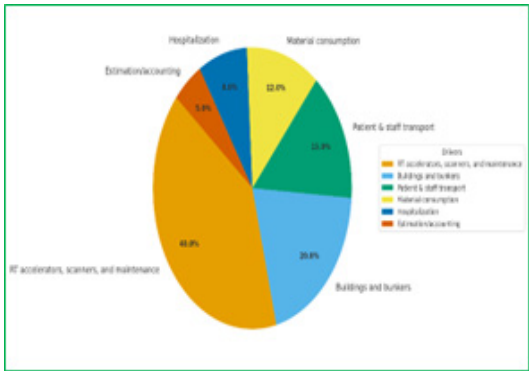
Pathway to Greener Radiotherapy

The transition toward greener radiotherapy requires a multifaceted approach that balances clinical effectiveness with environmental responsibility. Key approaches include adopting hypofractionation can make a substantial impact: it can save around 300 $kgCO_2e$ per patient, while still delivering effective treatment. Transport-related emissions can also be reduced for example: one staff member travelling 10 miles by bus instead of by car can save 10 $kgCO_2e$ in just 5 working day.

Technology and equipment use contribute as well: capturing SF_6 achieves ~3 $kgCO_2e$ reduction per patient, and a 50% reduction in linac energy use translates to ~0.4% (≈2 $kgCO_2e$) reduction per patient. Even small everyday actions matter—a PC and monitor turned off for just three nights over a weekend can save ~1 $kgCO_2e$ a month.

Together, these strategies show that through mindful choices in treatment schedules, travel, equipment, and daily operations, radiotherapy can become significantly more sustainable.

In conclusion, cancer care is about saving lives, but it must also safeguard the health of our planet. Green Radiotherapy is a vital responsibility. By adopting sustainable practices, radiation oncology teams can ensure that the fight against cancer does not compromise the environment. As we move toward a sustainable future, radiotherapy can lead by example: delivering life-saving treatment while protecting the world we all share.



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Synergy of Care: Inside the Radiotherapy Ecosystem

Meher Nigar Sharmin
Khwaja Yunus Ali Medical College and Hospital (KYAMCH Cancer Center), Enayetpur, Sirajganj, Bangladesh

Exploring the Seven Pillars of Radiotherapy Excellence

Radiotherapy represents far more than advanced machinery or clinical protocols; it is a dynamic and deeply human enterprise built on expertise, empathy, and coordinated effort. Each patient's experience unfolds through the commitment of professionals who bridge the divide between science and compassion, ensuring that every beam of radiation is guided not only by precision but also by care.In this issue, we highlight seven foundational roles within the radiotherapy landscape,individuals whose collaboration transforms complex technology into meaningful treatment. From the oncologist's strategic clinical oversight to the physicist's meticulous dosimetric calculations, from the technologist's calming presence to the nurse's attentive vigilance, each professional contributes uniquely to a shared mission: to treat, to support, and ultimately, to restore.

1. Radiation Oncologist — Architect of the Therapeutic Path:

Central to the delivery of radiotherapy is the radiation oncologist, whose role extends beyond prescription to encompass the conceptualization and orchestration of individualized treatment strategies. Informed by a robust understanding of tumor histopathology, radiobiological response, and patient-specific variables, the radiation oncologist delineates treatment objectives—curative, palliative, or disease-stabilizing with precision. Treatment planning is conducted in accordance with internationally endorsed guidelines, including those from ESTRO, ASTRO, and the ICRU, ensuring adherence to best practices and consistency across clinical settings. Through multidisciplinary collaboration with medical physicists and radiation technologists, the oncologist ensures that therapeutic plans are both dosimetrically rigorous and contextually appropriate. From simulation to follow-up, their clinical stewardship integrates technical accuracy with an ongoing commitment to patient-centered care.

2. Medical Physicist — The Mind of Precision, The Engineer Behind Every Beam:

If the radiation oncologist determines the therapeutic objective, the medical physicist defines how that objective is realized—with rigor, safety, and scientific precision. Every treatment plan originates from their quantitative analyses, and every radiation beam depends on their meticulous calibrations. Employing advanced modalities such as 3D conformal radiotherapy (3DCRT), intensitymodulated radiotherapy (IMRT), volumetricmodulated arc therapy (VMAT), imageguided radiotherapy (IGRT), simultaneous integrated boost (SIB), craniospinal irradiation (CSI), stereotactic radiosurgery (SRS), and stereotactic radiotherapy (SRT or SBRT), medical physicists sculpt radiation delivery to align with individual anatomical and dosimetric parameters. Their work is continuously benchmarked against international quality assurance frameworks, including those established by the International Atomic Energy Agency (IAEA) and the American Association of Physicists in Medicine (AAPM). Through systematic verification and daily quality control, they translate complex physical principles into consistent, reliable clinical practice quietly ensuring that technology remains a trustworthy extension of therapeutic intent.

3. Radiation Therapy Technologist (RTT) — Precision Meets Presence

Often serving as the most familiar presence throughout the treatment course, the Radiation Therapist (RTT) translates complex planning into precise clinical execution. Operating sophisticated linear accelerators, RTTs ensure sub-millimetric patient alignment and verify positioning through real-time imaging and adaptive protocols. Their technical proficiency is indispensable to maintaining treatment accuracy and reproducibility. Yet, beyond the realm of precision and process, RTTs embody the human continuity of radiotherapy. They provide reassurance in moments of uncertainty, foster trust within the clinical environment, and transform technologically intensive procedures into experiences grounded in empathy and care. Each treatment session unfolds under their steady guidance, reflecting a seamless integration of technical mastery and patient-centered compassion.

4. Radiotherapy Nurse — The Human Touch in High-Tech Care

From initial consultation through to post-treatment follow-up, the radiotherapy nurse constitutes a continuous and stabilizing presence within the care continuum. Their responsibilities encompass the proactive management of treatment-related toxicities, ongoing monitoring of physiological parameters, and the facilitation of communication between patients and the multidisciplinary care team. Beyond clinical duties, they play a pivotal role in patient education, psychosocial support, and advocacy—ensuring that individuals are not only medically safeguarded but also emotionally sustained throughout the radiotherapy process. In many respects, the radiotherapy nurse functions as the integrative thread that binds the technical, clinical, and human dimensions of oncologic care.

5. Patient Attendant — Foundational Support in the Therapeutic Encounter

Long before the initiation of radiation delivery, a more immediate and often understated form of care takes place. Patient attendants serve as the first point of contact within the radiotherapy environment, facilitating physical transfers, providing orientation within clinical spaces, and guiding patients through unfamiliar procedural norms. Their presence, marked by consistency and attentiveness, restores a sense of dignity through small but deeply human interactions. Though their role may unfold largely in the background, the psychological and emotional reassurance they provide constitutes an essential component of the patient experience.

6. Biomedical Engineer — Custodian of Technological Integrity

The precision of radiotherapy is fundamentally dependent on the reliability of its technological infrastructure. Biomedical engineers occupy a critical yet often invisible role in maintaining this integrity. Their responsibilities encompass the calibration, maintenance, and operational troubleshooting of key systems such as linear accelerators, imaging simulators, and ancillary equipment. Through proactive vigilance and adherence to safety protocols, biomedical engineers sustain treatment continuity and uphold technical accuracy—both of which are foundational to therapeutic efficacy.

7. Industry Vendor — Strategic Partner in Clinical Advancement

Vendors in the radiotherapy domain extend far beyond the function of equipment provision. They serve as long-term collaborators, facilitating the integration of novel technologies, offering training and technical support, and ensuring the clinical team remains abreast of system updates and innovations. By maintaining a responsive interface between manufacturers and medical institutions, vendors contribute to operational sustainability while upholding ethical and regulatory standards. Their engagement is instrumental in enabling departments to evolve in step with the pace of scientific and technological progress.

Together, They Form the Radiotherapy Care Ecosystem

While each role within the radiotherapy continuum carries its own domain of expertise, none operates in isolation. It is through interdependence—clinical, technical, and emotional—that a fully integrated care ecosystem emerges. Within this framework, precision is inseparable from compassion, and innovation is aligned with patient-centered values. Radiotherapy, then, is not merely the delivery of treatment; it becomes an orchestrated process of healing—sustained by trust, collaboration, and shared purpose.

Theranostics: Integrating Diagnostics and Therapeutic Interventions Growing Relevance of Medical Physics

Md Akhtaruzzaman, PhD

Evercare Hospital Chattogram, Bangladesh

Introduction

The science of oncology is undergoing a quiet revolution, one where a union of the diagnostic know-how and precision of therapeutic intervention takes place. Also known as theranostics, this concept represents a blending of both diagnostic imaging and targeted radionuclide therapy based on a shared molecular target. This approach is recasting how cancers are identified, characterized, and treated, opening a new era of personalized cancer therapy.

The science of theranostics

The term "theranostics" is coined by deriving "therapy" and "diagnostics" from it. It denotes a conjoint strategy whereby a diagnostic radiopharmaceutical, initially, is used for the identification of cancer-selective molecular targets by utilizing imaging procedures, including PET or SPECT scanning. A therapeutic analogue of an identical molecule or closely related molecule, marked by a therapeutic radioisotope, is introduced for delivering localized radiation to the same molecular targets. This "see and treat" model allows for clinicians to assess extent of disease, identify whether the tumor expresses the target receptor, and predict therapeutic outcome before actually treating it.

Even though theranostics have their roots in the administration of iodine-131 for the management of thyroid cancer, the field has greatly evolved based on advances in molecular imaging, radiochemistry, and hybrid imaging technologies such as PET/CT and PET/MRI. Today, theranostics stands among the greatest pillars of precision cancer treatment.

Precision and customizing

As compared to classical chemotherapy or external beam radiation therapy, which tends to involve both diseased and normal tissue, theranostics provides for extremely precise delivery of radiation to cancer cells directly. The method achieves improved tumor control with a decrease in toxicities.

Among some of its best theranostic products are:

The neuroendocrine tumors (NETs) employ the combination of 68Ga-DOTATATE and 177Lu-DOTATATE.

- Prostate cancer targeted by 68Ga-PSMA-11 / 177Lu-PSMA-617 against the prostate.
- New uses of fibroblast activating protein (FAP), HER2, and CXCR4 for new kinds of solid tumors.

Molecular target imaging also allows doctors to identify appropriate patients, forecast outcome, and tailor administered dose on the basis of quantitative imaging supplemented by dosimetric information.

The definitive role of the medical physicist

The field of theranostics, largely directed by experts of nuclear medicine and oncology, is ultimately reliant upon the expertise of medical physicists. Their role includes their involvement in planning, delivery, and evaluation of each step of the theranostic continuum.

1. Calibration and Quantitative Imaging

Medical physicists also ensure quantitative accuracy of PET and SPECT systems for purposes of diagnostic imaging. Cross-validation, standardization, and calibration are critical for obtaining useful uptake values (SUVs) for purposes of therapy eligibility and dosimetry guiding.

2. Dosimetry and Personalized Treatment Plan

Among their contributions, perhaps the most important is their work on patient-specific dosimetry, where they approximate radiation absorbed dose delivered to tumors and normal organs. Through the employment of time–activity curves, image data, and biokinetic models,

physicists assist clinicians in adjusting administered activity for delivery of their best therapeutic outcome by minimizing toxicities to kidneys, bone marrow, and other essential organs. With the field's transition away from a fixed-dose paradigm to an adapt, dosimetry-guided therapeutic paradigm, the work of the medical physicists is going to grow substantially, analogous to their current work for external beam radiotherapy planning.

3. Quality and Safety Assurance

Use of both therapeutic and diagnostic radioisotopes demands stringent radiation protection, instrumentation quality control, and regulation. Physicists also are accountable for surveillance of shielding, dose rates, and evaluation of safety to keep patients and workers below acceptable exposure limits. They also provide for standard operating procedures, equipment acceptance testing, and performance audit to uphold consistent theranostic practice of high quality.

4. Integration of Data and Inquiry

Increasing utilization of quantitative imaging and of artificial intelligence tools places the medical physicist center stage in efforts aimed at data analysis, image processing, and modeling of treatment outcomes. Their research output is instrumental in perfecting imaging procedures, simplifying dosimetry work flows, and implementing radiomics into clinical decision-making arenas.

Problems and Prospects

Despite notable clinical outcomes attained, several challenges remain inhibiting for far-reaching theranostics implementation. They include limited access to radiopharmaceutical production and supply related to short-lived radiopharmaceutical sources, a need for dedicated multidiscipline teams, mainly for less developed regions, a lack of harmonized dosimetry procedures across different centers, as well as financial and regulatory inhibitions related to new agents.

Resolution of these challenges demands effective co-operation among physicists, clinicians, radiochemists, and policy-makers. Development of specialized theranostic centres and capacity-building of physicists and professionals in nuclear medicine will be critical for sustainable development.

The future of theranostics and the physicist's role

The future also holds new advances. New drugs against fibroblast activation protein (FAP) and HER2 are experiencing initial clinical success. Alpha-emitting radionuclides, such as Actinium-225, are being explored for beta-emitter refractory tumors. Artificial intelligence is being employed to automate image quantification, dosimetry, and prediction of response, enhancing precision even more.

As theranostics becomes increasingly quantitative and image-based, the function of the medical physicist will move forward of merely assuring quality to being actively involved in clinical decisions, just as their current involvement in radiotherapy planning.

Future theranostic therapy will also involve potentially adaptative radionuclide therapy, for which dosimetry evaluations after every treatment cycle feed into simultaneous adjustments of the dose. This method will greatly rely on physicists' knowledge.

Conclusion

Theranostics is a paradigmatic integration of molecular imaging, radiopharmacy, and targeted therapeutic approaches, representing a quintessential model of precision medicine. Its promise extends even further than being a method of unmatched specificity for cancer detection and treatment, but also a transformation of how patients are treated by way of data-driven approaches, empirical methodologies, and individualized methodologies.

As a vital part of this transformation medical physicists, maintain the accuracy, safety, and quality assurance. Their analysis, quantitative thinking, and technical stewardship ensure theranostics showcases not just innovations but also assures reliability and patient protection. As we enter into this new world, integration of science, technology, and physics will continually redefine our comprehension and cancer management, taking on one molecule, one image, and one patient at a time.

Deep Learning Based 3D CT Image Segmentation of Pelvic Organs-at-Risk for VMAT Treatment Planning Using U-Net Architecture

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Introduction

In the fight against pelvic cancers, radiotherapy remains a key tool for saving lives. Volumetric Modulated Arc Therapy (VMAT) is a modern radiotherapy technique that delivers high precision radiation while sparing healthy tissues. However, in pelvic cancer treatment, certain crucial body structures known as organs-at-risk (OARs), such as the bladder, rectum, prostate, and femoral heads must be protected from unnecessary radiation. Precisely outlining these OARs on CT images is vital to ensuring effective and safe treatment.

Traditionally, expert oncologist segment or “contour” these organs manually, but this process is slow, tedious, and prone to human differences. Manual segmentation can vary from one doctor to another and consumes valuable clinic time. Today, the demand for faster and more consistent approaches has fueled the search for automated solutions based on artificial intelligence (AI).

Objective

This research aims to develop a deep learning based 3D segmentation model using the U-Net architecture to automatically and accurately segment pelvic OARs on CT scans. The main goal is to improve the speed and consistency of VMAT treatment planning, ultimately supporting better patient outcomes.

Methodology

The AI system was trained on a specialized dataset of anonymized pelvic CT scans with detailed expert annotations for organs-at-risk. The process began with careful data preparation: images were standardized, slices irrelevant to the pelvic region were removed, and datasets were split into training, validation, and testing sets to ensure fair performance evaluation.

At the heart of the solution is the 3D U-Net architecture. Unlike traditional models, 3D U-Net works with entire volumetric data blocks rather than single slices. Its unique design features paired “encoder” and “decoder” paths with skip connections, helping the model both understand the structure of each organ and capture fine details along their edges. During training, the 3D U-Net learned to recognize and segment OARs by comparing its predictions to expert drawn outlines and minimizing errors using advanced loss functions.

Performance was measured with several key metrics: the Dice Similarity Coefficient (DSC) for overlap accuracy, the Hausdorff Distance to evaluate how closely predicted boundaries matched manual contours, and additional metrics like Precision and Recall to assess reliability across different OARs.

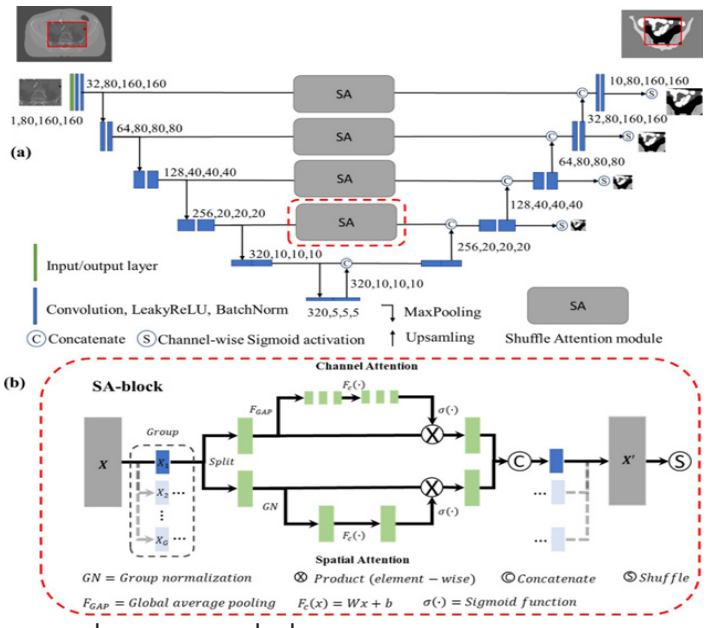

Fig 1: Proposed, deeply supervised Pelvic U-Net architecture for organs at risk (OAR) segmentation in the pelvic region (a). 3D patches with a size of 1× 80 × 160 × 160 pixels are extracted from computed tomography (CT) image volumes and used as the encoder input. A series of convolutional and max pooling operations is then applied to the input patch for feature extraction purposes. Feature map upscaling in the decoder part is performed using trilinear interpolation. High level features from the encoder are copied and concatenated with low level features using skip connections. In addition, shuffle attention (SA) blocks are incorporated into the skip connections, combining spatial and channel attention (b)

Results

The deep learning model achieved strong performance in segmenting pelvic organs. For the bladder and femoral heads, the Dice coefficients exceeded 0.93, closely matching expert manual contours. The rectum, a more challenging organ due to variable shape and indistinct boundaries, still saw high accuracy with a Dice score of around 0.89. Hausdorff distances were low for all organs, showing that predicted boundaries remained close to expert outlines.

When compared to manual segmentation, the automated method reduced workflow time dramatically from nearly an hour per patient to just minutes while maintaining highly consistent results. This shift means radiotherapy teams can plan treatments faster and with greater confidence in the reproducibility of organ outlines.

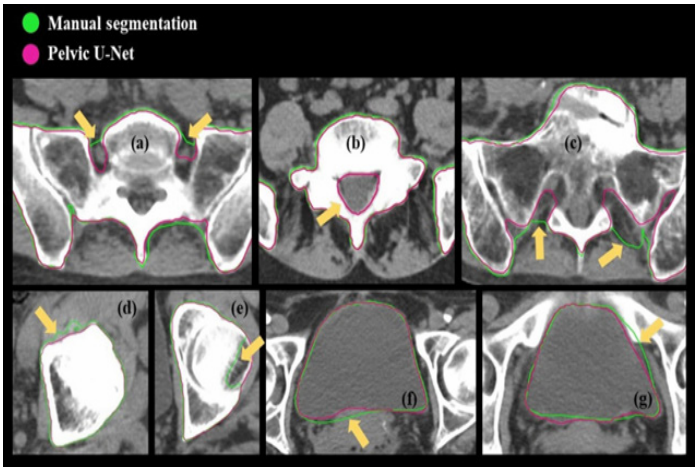

Fig 2: Observations made during a more detailed, visual comparison, between the segmentation structures predicted by the Pelvic U-Net and the manual, ground truth (GT), delineations for multiple test patients. In some 2D image slices, tissue near the actual bone structures was not segmented (a–c). Furthermore, incorrect delineations caused by the automatic, thresholding-based segmentation algorithm used for generating the GT bone marrow data were found (d, e). In addition, rare, manual delineation errors for e.g., the bladder could be observed (f, g)

Discussion

By streamlining organ segmentation, deep learning tools like 3D U-Net are transforming radiotherapy planning. Automated, accurate segmentation enables clinicians to spend less time on labor-intensive tasks and more on patient care. Consistent contours reduce inter-observer differences, leading to safer and more reliable treatment plans.

Clinically, these improvements can help clinics of all sizes from major cancer centers to hospitals in resource-limited settings deliver higher quality care. However, some challenges remain. The model's accuracy occasionally drops for organs with unusual shapes or when image quality is poor. Also, many studies, including this one, rely on data from a single institution; future work should test these methods in larger, multi-center datasets for better robustness and generalization.

Conclusion

Deep learning-based 3D segmentation using U-Net is a promising step toward precision medicine in pelvic cancer radiotherapy. By making VMAT planning faster and more reproducible, this approach holds significant potential to elevate patient safety and efficiency across varied clinical environments.

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NEWS & EVENTS

Prof. Dr. Hasin Anupama Azhari Elected President of AFOMP

The Bangladesh Medical Physics Society (BMPS) is proud to announce that Prof. Dr. Hasin Anupama Azhari has been elected as the President of the Asia-Oceania Federation of Organizations for Medical Physics (AFOMP). This prestigious appointment marks a significant milestone for the medical physics community in Bangladesh and the Asia-Oceania region.

Prof. Dr, Hasin Anupama Azhari has long been a driving force in advancing medical physics nationally and internationally. She previously served as Vice President and Secretary General of AFOMP, where her leadership and vision greatly contributed to strengthening collaboration and professional development across member countries.

As the Founder President of the Bangladesh Medical Physics Society, Prof. Dr. Hasin Anupama Azhari has made remarkable contributions to the establishment and growth of medical physics education and training in Bangladesh. Her tireless efforts were instrumental in developing unified recruitment rules for medical physicists and in the creation of official medical physicist positions within the healthcare system.

Her election as AFOMP President is not only a recognition of her exceptional contributions but also an inspiration for all Bangladeshi medical physicists. BMPS extends its heartfelt congratulations and best wishes to Prof. Anupama for continued success in her new leadership role.

Dr. Md. Akhtaruzzaman Appointed as Chair of AFOMP Education and Training Committee

It is a matter of great pride and pleasure for the Bangladesh Medical Physics Society (BMPS) to announce that Dr. Md. Akhtaruzzaman has been appointed as the Chair of the Education and Training Committee of the Asia-Oceania Federation of Organizations for Medical Physics (AFOMP). This prestigious appointment reflects his longstanding contributions and leadership in the field of medical physics, both nationally and internationally.

Dr. Akhtaruzzaman has been serving BMPS since its inception in 2009, holding various key executive positions over the years, and currently serves as the President of BMPS. Under his leadership, BMPS has expanded its academic and professional activities, fostering collaboration, capacity building, and educational advancements in medical physics across Bangladesh. Within AFOMP, Dr. Akhtaruzzaman has made significant contributions as a member of the Science Committee, Education and Training Committee, and Publication Committee. His new role as Chair of the Education and Training Committee further recognizes his dedication to advancing professional standards and promoting high-quality education and training programs for medical physicists across the Asia-Oceania region.

BMPS congratulates Dr. Md. Akhtaruzzaman on this remarkable achievement and wishes him continued success in his efforts to strengthen medical physics education, research, and professional development globally.

AFOMP & IOMP Council Meeting 2025 Held in Adelaide, Australia

The AFOMP Council Meeting 2025 was successfully held on 2nd October 2025 at Room E1+E2, Adelaide Convention Centre, Adelaide, Australia, alongside the Asia-Oceania Congress on Medical Physics (AOCMP 2025).

From Bangladesh, the delegation included Dr. Md. Akhtaruzzaman, President of the Bangladesh Medical Physics Society (BMPS); Md. Mokhlesur Rahman, Joint Secretary of BMPS; Prof. Hasin Anupama Azhari, Past and Founder President of BMPS and Vice President of AFOMP; and Prof. Dr. Golam Abu Zakaria, Mentor of BMPS. Their participation underscored Bangladesh's growing engagement and contributions to the medical physics community in the Asia-Oceania region. A major highlight of the meeting was the election of Professor Dr. Hasin Anupama Azhari as the President of the Asia-Oceania Federation of Organizations for Medical Physics (AFOMP) for the 2025–2028 terms. This is a historic milestone as Prof. Azhari becomes the first South Asian woman to be elected to this distinguished position.

Prof. Dr. Eva Bezak, Past President of AFOMP and current President of the International Organization for Medical Physics (IOMP), officially handed over the AFOMP presidential responsibilities to Prof. Dr. Hasin Anupama Azhari during the meeting.

Prof. Azhari is a renowned medical physicist from Bangladesh and currently serves as the Director of the Centre for Biomedical Science and Engineering at United International University, Dhaka. Her leadership and vision are expected to further enhance AFOMP's mission of advancing the practice and development of medical physics across the Asia-Oceania region.

The AFOMP Council expressed its appreciation to the outgoing officers for their dedicated service and extended best wishes to the newly elected executive members for a successful term ahead. The meeting concluded with discussions on future initiatives, regional collaboration strategies, and upcoming events aimed at promoting excellence in medical physics education, clinical practice, and research.

IOMP Council Meeting 2025 Held in Adelaide, Australia

The International Organization for Medical Physics (IOMP) Council Meeting 2025 was held in Adelaide, Australia, alongside the IUPESM 2025 World Congress on Medical Physics and Biomedical Engineering, from September 29 to October 4, 2025, at the Adelaide Convention Centre.

The meeting served as a platform for international collaboration and the election of new IOMP officers for the 2025–2028 terms. From Bangladesh, Dr. Md. Akhtaruzzaman, President of the Bangladesh Medical Physics Society (BMPS), and Prof. Dr. Hasin Anupama Azhari, Past and Founder President of BMPS and President of AFOMP, participated in the meetings.

Their involvement highlights Bangladesh's growing contribution and leadership in the global medical physics community.

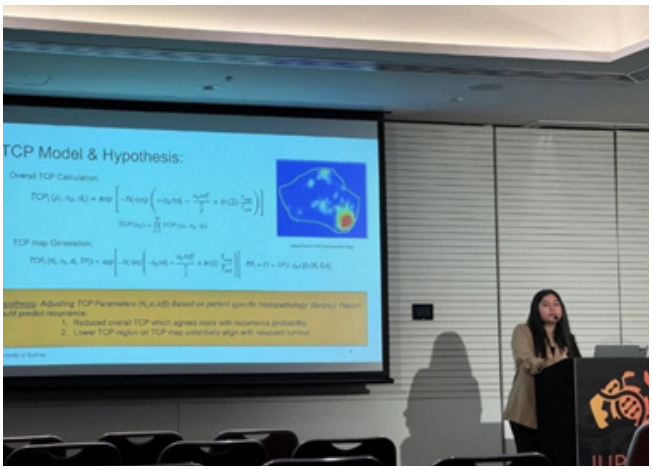
Attending the IUPESM World Congress on Medical Physics & Biomedical Engineering 2025 – Adelaide

The triennial IUPESM World Congress on Medical Physics & Biomedical Engineering took place in Adelaide from 29 September – 4 October 2025, bringing together thousands of researchers, clinicians, and industry leaders from across the globe. The congress, which is held every three years, is a premier forum for advancing knowledge, innovation, and collaboration in both medical physics and biomedical engineering.

This year, Artificial Intelligence (AI) was a central theme, with numerous plenary sessions, symposia, and workshops devoted to its applications in healthcare. Talks explored AI-driven diagnostic tools, predictive modelling in radiation oncology, and AI integration into biomedical engineering systems, reflecting the rapid transformation of the field.

Alongside AI, the congress showcased a diverse range of focus areas, including dosimetry, radiomics, innovative medical devices, nanotechnology, medical imaging, nuclear medicine, treatment planning optimisation, and novel techniques in radiation oncology. Participants benefited from teaching lectures and hands-on workshops covering essential topics such as radiation safety and protection, advanced dosimetry methods, GEANT4 biomedical modelling, and radiation shielding design for medical linear accelerators, providing valuable opportunities for knowledge transfer across career stages. The scientific program was further enriched by keynote sessions from global leaders, award ceremonies recognising excellence, and a variety of symposia highlighting cutting-edge research. The congress also promoted professional connections through its social program, which featured a welcome reception, formal congress dinner, Trivia night, and even a morning run club—activities designed to foster networking and collaboration in an informal, engaging setting.

As part of my PhD, I had the honour of presenting one of my research projects titled “Enhancing Prostate Cancer Recurrence Prediction Using an Atlas-Based Tumour Control Probability Model.” This work, developed within the Biologically targeted Radiation Therapy (BiRT) team at the Institute of Medical Physics, The University of Sydney, focuses on using AI and advanced imaging to map the biological distribution of cancer cells. Our ultimate goal is to apply this knowledge of tumour heterogeneity to optimise radiotherapy—delivering effective cancer treatment while reducing harm to normal tissue.



The congress was both scientifically enriching and personally inspiring, providing the chance to share my work with international peers, gain exposure to the latest advances, and build new professional connections. It was a great pleasure meeting Bangladesh Medical Physics Society (BMPS) members and fellow physicists from my home country, Bangladesh and learning about their research and progress in this field on such a significant international platform. This experience was truly inspiring and encouraged me to contribute this article to the BMPS newsletter.

IUPESM World Congress on Medical Physics and Biomedical Engineering 2025

The International Union for Physical and Engineering Sciences in Medicine (IUPESM) World Congress on Medical Physics and Biomedical Engineering 2025 was held in Adelaide, South Australia, from September 29 to October 4, 2025, at the Adelaide Convention Centre. The Congress was organized in collaboration with the International Organization for Medical Physics (IOMP) and the International Federation for Medical and Biological Engineering (IFMBE). The local hosts were Engineers Australia (EA) and the Australasian College of Physical Scientists and Engineers in Medicine (ACPSEM).

This triennial event, which also incorporated the International Conference on Medical Physics (ICMP) and the Asia-Oceania Congress of Medical Physics (AOCMP), brought together around 1,300 participants from approximately 80 countries, including a significant number from low- and middle-income nations. The Congress theme — "Bridging the Gap: Science, Technology, and Clinical Practice for a Sustainable World" — reflected its focus on global collaboration and innovation in healthcare.

The opening ceremony featured distinguished presidents: Prof. Madan Rehani (IUPESM), Prof. John Damilakis (IOMP), and Prof. Ratko Magjarevic (IFMBE). The plenary program included internationally renowned speakers such as Lars Jensen, Fiona Adshead, Simon Cherry, Jitendra Sharma, and Maryellen Giger, who discussed emerging trends in AI, imaging, health innovation, and sustainability in medical physics and biomedical engineering.

Bangladesh Delegation and Participation: A strong delegation from Bangladesh proudly represented the nation at this prestigious event. The participants included:

- Dr. Md. Akhtaruzzaman, President, Bangladesh Medical Physics Society (BMPS)
- Asst. Prof. Md. Mokhlesur Rahman, Joint Secretary, BMPS
- Prof. Dr. Hasin Anupama Azhari, Past and Founder President, BMPS and newly elected President of AFOMP
- Prof. Dr. Golam Abu Zakaria, Mentor, BMPS

In addition, Dr. Ali Nafisa (Labaid Cancer Centre, Dhaka) and Prof. Dr. Muhammad Abdul Kadir (Chairman, Department of Biomedical Physics and Technology, University of Dhaka) actively participated as session chairs and oral presenters. Several Bangladeshi-origin professionals working in Australia also attended and contributed to scientific sessions, further strengthening Bangladesh's visibility in the global medical physics community.

BMPS President, Dr. Md. Akhtaruzzaman, chaired one scientific session and delivered two oral presentations, while Md. Mokhlesur Rahman, Joint Secretary, presented one scientific paper. Dr. Ali Nafisa and Prof. Dr. Muhammad Abdul Kadir also delivered oral presentations and chaired sessions, contributing to the exchange of advanced research ideas and clinical applications.

During the Congress, Professor Dr. Hasin Anupama Azhari was elected as the President of AFOMP (2025–2028) — marking the first time a South Asian woman has been elected to this prestigious position. Prof. Dr. Eva Bezak, Past President of AFOMP and current IOMP President, officially handed over the responsibilities during the meeting.

Another proud moment for Bangladesh came when Professor Dr. Golam Abu Zakaria, a Bangladeshi-origin German medical physicist and Advisory Member of BMPS, received the Harold Johns Medal 2025 from the IOMP in recognition of his outstanding contributions to education, research, and leadership in medical physics in Bangladesh.

The BMPS also congratulates its President, Dr. Md. Akhtaruzzaman, for receiving a prestigious AFOMP Travel Award to attend the Congress, in recognition of his leadership and dedication to the advancement of medical physics in Bangladesh.

Congress Highlights: The Congress featured 27 thematic tracks, covering diverse areas such as AI and machine learning in clinical practice, particle therapy and dosimetry, 3D printing and

metaverse-enabled education, biosignals and neuroengineering, and global health and capacity building.

Notably, the IAEA organized a regional coordination meeting for Pacific Island nations, emphasizing quality, safety, and sustainability in diagnostic imaging and radiotherapy services.

A memorable highlight was the AI-generated opening ceremony, where digital recreations of Einstein, Curie, and Tesla humorously welcomed participants — setting a dynamic and engaging tone for the week. The IOMP President's Dinner, held at the historic home of Sir William Henry Bragg, offered participants a chance to celebrate scientific heritage and camaraderie.

Conclusion: The IUPESM World Congress 2025 was a resounding success, fostering new collaborations, knowledge exchange, and innovations in medical physics and biomedical engineering. The Bangladesh Medical Physics Society (BMPS) delegation's active involvement and achievements brought great pride to Bangladesh, reflecting the nation's growing contribution to global medical science and healthcare innovation. BMPS extends heartfelt congratulations to all Bangladeshi participants and awardees for their outstanding representation at this landmark international event.

Pre-Congress Hands-On Workshop on Radiation Oncology and Medical Physics

Prior to the main event, the 4th International Conference on Medical Physics in Radiation Oncology and Imaging (ICMPROI-2025), which was held on February 13–14, 2025, the Bangladesh Medical Physics Society (BMPS), in collaboration with the Combined Military Hospital (CMH) Cancer Center, organized a Pre-Congress Hands-On Workshop on Radiation Oncology and Medical Physics on February 12, 2025, at the Cancer Centre, CMH Dhaka.

The workshop was attended by 60 medical physicists and radiation oncologists from various hospitals across Bangladesh and featured internationally renowned facilitators, including Dr. Vrinda Singla (Max Super Specialty Hospital, India), Dr. Manju Sharma (University of California, San Francisco, USA), and Dr. Maria Mania Aspradakis (Cantonal Hospital Winterthur, Switzerland).

Participants received intensive hands-on training on essential topics such as contouring guidelines for head & neck and prostate cases, small-field dosimetry, and end-to-end quality assurance (QA) procedures in radiotherapy. The event concluded with a certificate distribution ceremony and an interactive Q&A session, highlighting the importance of continuous professional development and the strong collaboration between radiation oncologists and medical physicists in ensuring optimal patient care.

The successful completion of the workshop set an inspiring tone for ICMPROI-2025, which followed with a series of high-level scientific sessions, keynote lectures, and panel discussions featuring experts from home and abroad, further strengthening the foundation of medical physics and radiation oncology in Bangladesh and beyond.

Fig-: Pre-Congress Hands-On Workshop at CMH Dhaka

BMPS Members Lead and Present at International Conferences

The Bangladesh International Cancer Congress 2025 (BICC-2025)

The Bangladesh International Cancer Congress 2025 took place on October 30–31, 2025, at the Radisson Blu Water Garden, organized by the Oncology Club. In the Medical Physics Session, Prof. Dr. M. Saiful Huq, Dr. Md. Shakilur Rahman, and Dr. Stephen M. Avery served as Chairpersons, while Mohammad Mahfujur acted as the Moderator. Members of the Bangladesh Medical Physics Society (BMPS) actively participated as delegates and faculty during the conference.

Dr. Md. Akhtaruzzaman, President of BMPS; Dr. Md. Anwarul Islam, Vice President of BMPS; Md. Jobairul Islam, Secretary of BMPS; and several other members presented and discussed their research work. In addition, research students Md. Naimur Rahman and Esteaqul Haque and several other students delivered insightful presentations and poster presentation.

The event also featured participation from internationally renowned professors and physicists, including Prof. Dr. Jonathan Yi Yao, Dr. Tharmarndar Ganesh, and other distinguished guests, who shared their extensive experience and expertise in the field of medical physics.

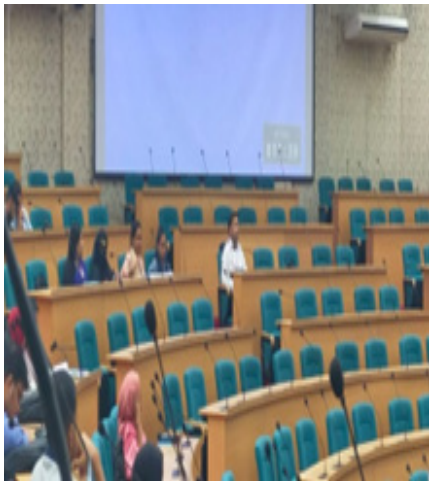
International Cancer Symposium 2025: Northern Chapter. Penang, Malaysia

BMPS Member, Sujan Mahamud Lecturer, Department of Medical Physics and Biomedical Engineering, Gono Bishwabidyalay, Savar, Dhaka), together with my colleague Md. Mokhlesur Rahman (Assistant Professor), Joint Secretary, BMPS had the honor of representing our institution at the distinguished International Cancer Symposium 2025: Northern Chapter, held at Bertam Resort, Penang, Malaysia on 28th August 2025.

The 12 International Conference on Physics in Medicine -2025(ICMP-2025)

Assist. Prof. Md. Mokhlesur Rahman, Joint Secretary of BMPS, along with BMPS members Sujan Mahamud and several other society members, participated in the 12th International Conference on Physics in Medicine (ICPM), held from October 16–17. The event was organized by the Bangladesh Medical Physics Association (BMPA) in collaboration with the University of Dhaka (DU) and the Atomic Energy Centre, Dhaka (AECD).

Additionally, Nadia Islam Trisha and Namira Zaman, students from the Department of Medical Physics and Biomedical Engineering, Gono Bishwabidyalay, Savar, Dhaka, had the honor of representing their institution at the conference under the supervision of their faculty mentors.



The 4th International Conference on Medical Physics in Radiation Oncology and Imaging - 2025, Dhaka, Bangladesh

The 4th International Conference on Medical Physics in Radiation Oncology and Imaging (ICMPROI 2025) took place on February 13–14, 2025, at the BRAC University Campus in Dhaka, Bangladesh. The conference was held under the theme "Medical Physics in Cancer Care: Challenges and Opportunities for International Cooperation." It was jointly organized by the Bangladesh Medical Physics Society (BMPS) and BRAC University (BRACU), in collaboration with the South Asia Centre for Medical Physics and Cancer Research (SCMPCR). The event highlighted the importance of global partnerships in advancing cancer care and medical physics. The conference also received endorsements from the International Organization for Medical Physics (IOMP) and the Asia-Oceania Federation of Organizations for Medical Physics (AFOMP).

Prof. Dr. Mohammad Anwar Hossen (Chief Guest), Member, University Grants Commission of Bangladesh; Prof. Dr. Syed Ferhat Anwar (Special Guest), Vice Chancellor, BRAC University, and Patron, ICMPROI-2025; Prof. Dr. G. A. Zakaria (Keynote Speaker & Patron), Professor, Anhalt University of Applied Sciences, Germany, and Founder Chairman, South Asia Centre for Medical Physics and Cancer Research (SCMPCR); Prof. Dr. Syed Md. Akram Hussain (Special Guest), Member, Health Sector Reform Commission, and Senior Consultant, Square Hospital Limited; Dr. Manju Sharma (Guest of Honor), Associate Professor, University of California, San Francisco, USA; Prof. Dr. A. F. M. Yusuf Haider (Organizing Chairperson, ICMPROI-2025); Prof. Dr. H. Anupama Azhari (Organizing Chairperson); and Dr. Md. Akhtaruzzaman (President, BMPS & Organizing Secretary, ICMPROI-2025) graced the event with their presence. They delivered insightful speeches on medical physics and radiation oncology, sharing their expertise and experiences with the scientific community. Their contributions emphasized the importance of collaborative efforts in strengthening the medical physics community and advancing cancer research and treatment.

Inaugural Ceremony: ICMPROI -2025

Photo of ICMPROI -2025

The Bangladesh International Cancer Congress 2024

The Bangladesh International Cancer Congress 2024 was held on December 13–14, 2024, at the Radisson Blu Water Garden, organized by the Oncology Club. In the Medical Physics Session, Prof. Dr. M. Saiful Huq and Dr. Md. Shakilur Rahman served as Chairpersons, while Mr. Md. Jobairul Islam acted as the Moderator. Members of BMPS participated as delegates and faculty of the conference.

Dr. Md. Akhtaruzzaman, the honorable President of BMPS, and Dr. Md. Anwarul Islam presented and discussed their research findings. Md. Mokhlesur Rahman, Assistant Professor at Gono Biswabidyalay, also presented his valuable research work. Additionally, research students Md. Mojahidul Islam and Esteaqul Haque delivered their presentations.

The program featured participation from internationally renowned professors and physicists. Dr.Stephen M. Avery, Dr. Kartik Raj Mani, Dr. Tharmarndar Ganesh, and other distinguished guests shared their vast practical experience and insights in the field of medical physics.

Photo of BMPS Members, Bangladesh International Cancer Congress 2024

Dr. Munima Haque's Academic Contributions and Conference Highlights 2025

Dr. Munima Haque, Director of the MS and BS Biotechnology Programs and Associate Professor in the Department of Mathematics and Natural Sciences at BRAC University's School of Data and Sciences, has distinguished herself as a leader in biotechnology. As Convener of the International Biotechnology Conference 2025 and a key contributor to several prominent conferences, she has advanced scientific collaboration and innovation. Her work strengthens BRAC University's position as a hub for research in the Global South while addressing critical challenges in health, agriculture, and sustainability. Alongside her conference leadership, Dr. Haque's scholarly contributions in medical sciences further amplify her impact. This article highlights her remarkable achievements in 2025, reflecting her dedication to advancing biotechnology and inspiring future researchers.

International Biotechnology Conference Hosted by BRAC University (IBC-2025 Conference)

From 20 to 21 June 2025 BRAC University hosted the International Biotechnology Conference 2025, organized by the Biotechnology Program within the Department of Mathematics and Natural Sciences. The two day event attracted more than one thousand scientists, researchers, academics, and students from Bangladesh and around the world. As the convener of IBC 2025 Dr. Haque was responsible for shaping the scientific program and for fostering interdisciplinary exchange. In this conference, twenty one accepted research works from Dr. Munima's NanobioRad group was presented as oral and poster contributions. By promoting collaboration across disciplines and by highlighting emerging trends in biotechnology research and application the conference strengthened BRAC University s aim to lead research excellence from the Global South and to translate discoveries into real world solutions.

6th International Conference on Biotechnology in Health and Agriculture (ICHBHA-2025)

At the 6th International Conference in Biotechnology in Health and Agriculture organized by GNOBB, Dr. Haque supported an extensive research showcase from her group. The team presented six posters that covered a range of topics including ultra processed food, radioactivity transfer from soil to plant in environmental contexts, scabies, psoriasis, in silico analysis of vitamin D related factors in Parkinson's disease, and urinary tract infection risk factors. BRAC University served as the knowledge partner for the conference, and Dr. Haque chaired a session titled BRAC University Emerging Biotechnologists. Her role helped create a platform for early career researchers to present rigorous experimental and computational work and to receive constructive feedback from national and international peers. The presence of BRAC University leadership at the closing ceremony further underscored the institution s institutional commitment to research partnership and capacity building.

Biotech, Electronics, AI, and Robotics (BEAR) Summit 2025

The BEAR Summit on Biotech, Electronics, AI, and Robotics took place at the National Science and Technology Complex in Agargaon on 16 and 17 July 2025. Dr. Haque participated as a panelist for the session Biotech for Healthcare, Agriculture, Water, and Environment — Towards a Sustainable and Healthy Future where she contributed evidence-based perspectives on how biotechnology can address pressing societal challenges. The BRAC University team exhibited eight posters and five demonstrations or prototypes while collaborators from AI, robotics, and electronics also showcased innovations. Dr. Haque's participation helped bridge academic research and technological demonstration, and she advocated for practical implementation of expert recommendations discussed in panel sessions.

4th International Conference on Medical Physics in Radiation Oncology and Imaging (ICMPROI-2025)

Dr. Haque served as co-chair of the organizing committee for the 4th International Conference on Medical Physics in Radiation Oncology and Imaging ICMPROI 2025, which BRAC University organized in partnership with the Bangladesh Medical Physics Society. The conference convened national and international specialists and provided a forum for technical exchange in radiation oncology and imaging. Dr. Haque s leadership in planning and execution contributed to the conference's smooth operation and to a rich program of talks and technical sessions. Organizers and participants alike highlighted the meeting as a valuable learning experience and as a catalyst for future collaboration.


Publications and Citations

Tabassum M, Farhin N, Afrose A, Surovy MM, Tasnim R, Affia Heaven MH, Haque M, Noor J

Awareness and Attitudes of University Students in Bangladesh Towards Cancer: Cross-Sectional Study

JMIR Formative Research. 14/06/2025:75651 (forthcoming/in press)

DOI: 10.2196/75651

URL: https://preprints.jmir.org/preprint/75651

The GCB Summer School of Medical Physics at Hokkaido University: A Global Learning Experience for Faculty, Researchers, and Students

The Global Center for Biomedical Science and Engineering (GCB) at Hokkaido University, Sapporo, Japan, successfully hosted its Summer School of Medical Physics from August 18 to 22, 2025. The program, organized in collaboration with the Stanford University School of Medicine, brought together faculty members, researchers, and students from around the world for an intensive week of advanced learning and practical training.

The 2025 edition featured two parallel tracks—Medical Physics and Molecular Biomedical Science and Diagnosis—covering a wide range of cutting-edge topics. Participants received theoretical and hands-on training in areas such as metabolic PET imaging and cancer ferroptosis, FLASH radiotherapy, Immuno-PET in oncology, proton therapy, deep learning in radiotherapy, theranostics in nuclear medicine, boron neutron capture therapy, and AI applications in diagnostic imaging and adaptive radiotherapy. A major highlight of the event was the 12th GCB Biomedical Science and Engineering Symposium, jointly organized by Hokkaido University and Stanford University, which provided participants a platform to present and discuss research innovations in medical physics and biomedical science.

Md. Mokhlesur Rahman, Assistant Professor at Gono Bishwabidyalay, reflected, “International programs like this create a gateway for Bangladeshi medical physics students to explore advanced research environments and higher education opportunities. It offers a rare and valuable platform for academic enrichment and global collaboration.”

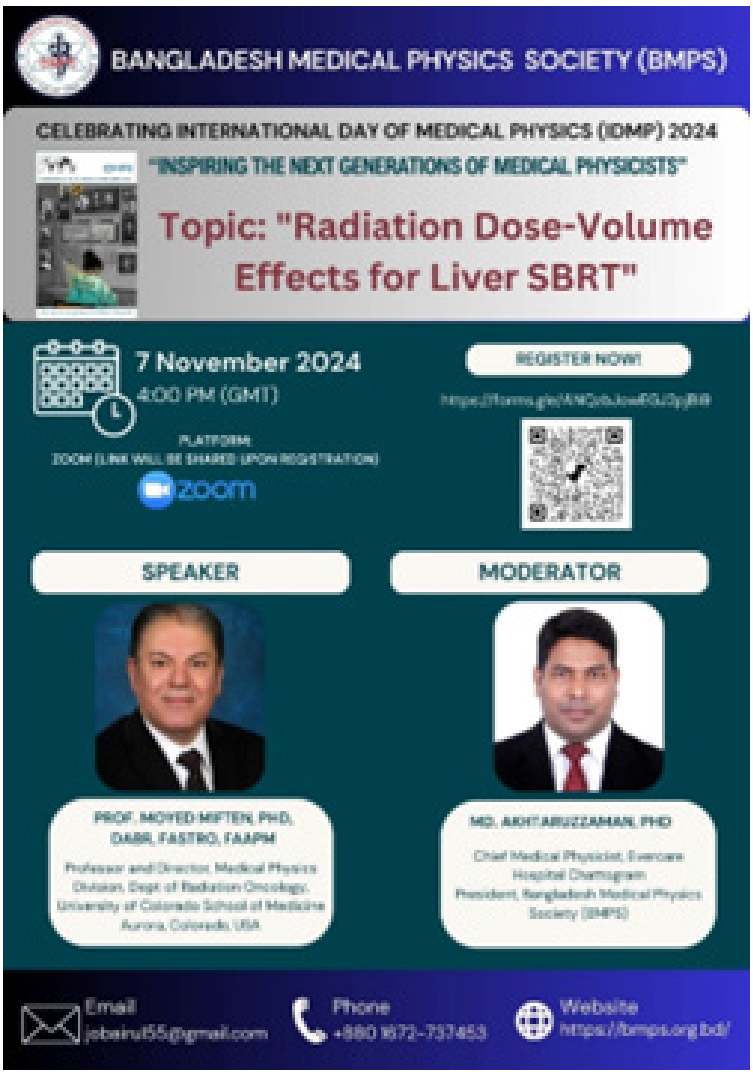
In 2025, Md. Mokhlesur Rahman, along with students Md. Abdullah and Md. Rakib Hosen, represented Gono Bishwabidyalay as fellowship awardees at the GCB Summer School. Their

selection underscored the growing recognition of Bangladesh’s academic excellence and participation in the global medical physics community. The initiative proved especially valuable for graduate students and early-career researchers, providing opportunities to build international networks and broaden academic perspectives. Participation was fully funded, with no registration fees, and all attendees received official certificates from Hokkaido University upon completion.

Celebrating IDMP 2024: BMPS Webinar Featuring Prof. Moyed Miften on Liver SBRT Dose–Volume Effects

On November 7th, 2024, the Bangladesh Medical Physics Society (BMPS) organized a webinar to celebrate the International Day of Medical Physics (IDMP) 2024 under the global theme “Inspiring the Next Generations of Medical Physicists.”

The event featured an expert lecture by Prof. Moyed Miften, PhD, DABR, FASTRO, FAAPM, Professor and Director of the Medical Physics Division, Department of Radiation Oncology, University of Colorado School of Medicine, USA. He delivered a highly informative talk on “Radiation Dose–Volume Effects for Liver SBRT.”



The session was moderated by Dr. Md. Akhtaruzzaman, PhD, Chief Medical Physicist at Evercare Hospital Chattogram and President of BMPS. The webinar provided an excellent platform for medical physicists, researchers, and students to enhance their understanding of liver SBRT dose–volume relationships, clinical implications, and toxicity mitigation strategies.

Participants actively engaged in the discussion, appreciating the depth of insights shared by Prof. Miften. The session was well-received by the medical physics community and reflected BMPS’s continued commitment to professional development and knowledge exchange in the field of medical physics.

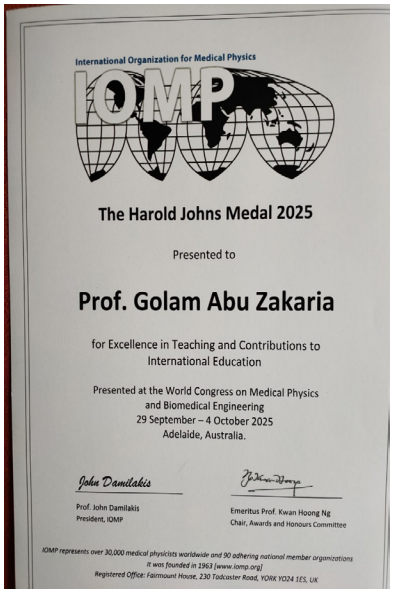
SCMPCR E-learning Program (ELP-10): Soft Skills for Medical Physicists and Scientists in Cancer Research

The SCMPCR E-learning Program (ELP-10) on “Soft Skills for Medical Physicists and Scientists in Cancer Research” is successfully ongoing from 1–21 November 2025 via Zoom. Global experts are delivering valuable lectures on leadership, AI, image processing, and communication to enhance professional skills among medical physicists worldwide.

AWARDS & HONORS

Prof. Golam Abu Zakaria Receives the Prestigious Harold Johns Medal 2025 from IOMP

The International Organisation for Medical Physics (IOMP) has honoured Professor Dr. Golam Abu Zakaria, a Bangladeshi-origin German medical physicist and Advisory Member of the Bangladesh Medical Physics Society (BMPS), with the Harold Johns Medal 2025.



This esteemed international award is presented by the IOMP to recognize excellence in medical physics across the domains of education, research, innovation, and leadership. The honour reflects Professor Zakaria's remarkable global contributions to advancing the field of medical physics.

Professor Zakaria currently serves as a Professor of Clinical Engineering at Anhalt University of Applied Sciences, Germany, and is a long-standing member of the German Society for Medical Physics (DGMP). The DGMP has congratulated him on this significant achievement, acknowledging his exceptional contributions to research, clinical innovation, and education in medical physics.

Professor Zakaria, a pioneer and founder of medical physics education in Bangladesh, has been actively involved in developing the discipline in the country since the 1990s. He established the South Asia Centre for Medical Physics and Cancer Research (SCMPCR), which has played a pivotal role in promoting education, training, and research in cancer care across South Asia.

In addition, he founded the Alo Bhubon Trust, a non-profit organization dedicated to raising educational standards in rural communities and providing essential health services, particularly in cancer prevention, diagnosis, screening, and professional training for healthcare personnel.

The Bangladesh Medical Physics Society (BMPS) proudly extends heartfelt congratulations to Professor Dr. Golam Abu Zakaria for this outstanding international recognition, which brings great honour to Bangladesh and the global medical physics community.

Photo Caption: Prof. Dr. Golam Abu Zakaria, Advisory Member of BMPS, receiving the Harold Johns Medal 2025 from IOMP in recognition of his outstanding contributions to medical physics worldwide.

BMPS President Receives Prestigious AFOMP Travel Grant

The Bangladesh Medical Physics Society (BMPS) proudly announces the remarkable achievement of its President, Dr. Md. Akhtaruzzaman, who has been selected to receive a prestigious travel award from the Asian-Oceanian Federation of Organizations for Medical Physics (AFOMP).

Dr. Md. Akhtaruzzaman's exceptional leadership and contributions to the field of Medical Physics have been recognized on an international platform. He has been chosen to receive a travel grant to attend the IUPESM World Congress on Medical Physics & Biomedical Engineering 2025, scheduled from 29th September to 4th October 2025 in Adelaide, Australia.

As the President of BMPS, Dr. Akhtaruzzaman has played a pivotal role in advancing the society's objectives, fostering professional collaboration, and promoting knowledge-sharing among medical physics professionals nationally and internationally.

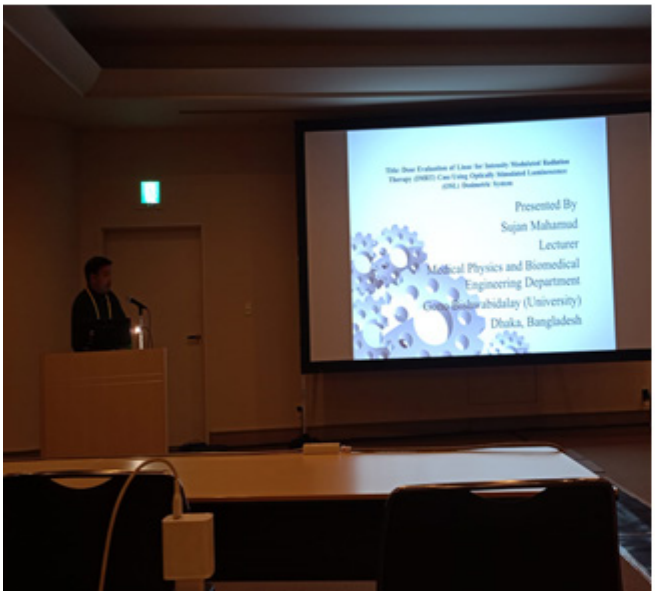
BMPS extends its heartfelt congratulations to Dr. Md. Akhtaruzzaman on this well-deserved honor and wishes him continued success in his professional endeavors.

BMPS Member Recieves JRC fellowship 2025 in Japan

The Japan Cancer Congress (JRC), organized by the Japan Radiological Society (JRS), was held in Yokohama, Japan, from April 10–13, 2025. The event served as a major international platform for medical physicists, radiation oncologists, scientists, radiologists, and technologists to exchange knowledge and discuss recent advances in cancer research and radiation therapy.

Md. Sujan Mahamud the faculty member, Department of Medical Physics and Biomedical Engineering, Gono Bishwabidyalay, Bangladesh, participated in the congress as an oral presenter. His research presentation, titled "Dose Evaluation of Linac for Intensity Modulated Radiation Therapy (IMRT) (IMR Case Using Optically Stimulated Luminescence (OSL) Dosimetric System)", addressed key aspects of radiation dose assessment in IMRT procedures. The presentation received high recognition and was nominated for the prestigious Japan Radiological Society (JRS) Fellowship Award.

Through active engagement with experts from diverse disciplines, the congress provided valuable opportunities for professional interaction and knowledge sharing. The participation of a young researcher from Bangladesh highlighted the growing contribution of Bangladeshi scholars in the field of medical physics and radiation oncology. The experience gained from this event is expected to contribute significantly to the advancement of medical physics education and research in



BMPS EXECUTIVE COMMITTEE (2023-2025)

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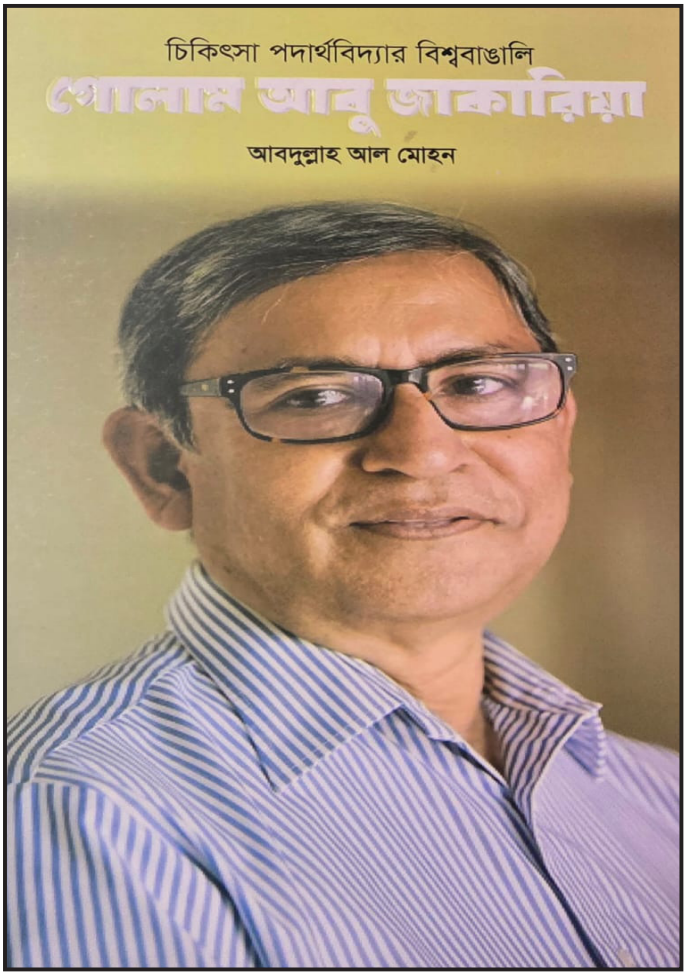

প্রকাশক
মো. মনির হোসেন পিন্টু
অন্যধারা
৩৮/২-ক, বাংলাবাজার, ঢাকা-১১০০
ফোন: ৭১২৩১৬৬, ০১৭১২৮০৭৯০১, ০১৯২০২১৬৯৬৮
প্রকাশকাল : অমর একুশে বইমেলা ২০২৫
প্রচ্ছদ
মোবারক হোসেন
ছবি: ইন্টারনেট, সংগৃহীত

কম্পোজ
অন্যধারা কম্পিউটার্স
৪৭/১ বাংলাবাজার, ঢাকা-১১০০
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একাত্তর প্রিন্টার্স
৪১/৪২, রূপচাঁন দাস লেন, ঢাকা-১১০০
মূল্য
৩০০.০০ টাকা মাত্র

Professor Dr. Golam Abu Zakaria
(Global Medical Physics Personality: Biography of Prof. Dr. Golam Abu Zakaria)
By ABDULLAH AL MOHAN
Published by Md. Monir Hossain Pintu, Anyadhara
38/2-Ka, Banglabazar, Dhaka 1100
Price : Tk. 300.00 Only US $ 5.00
ISBN : 978-984-99873-6-9

বৈচিত্র্যময় জীবনের বহুমাত্রিক ব্যক্তিত্ব প্রফেসর গোলাম আবু জাকারিয়া। জার্মানপ্রবাসী এই চিকিৎসা পদার্থবিদ বাংলাদেশে চিকিৎসা পদার্থবিদ্যা প্রতিষ্ঠার অগ্রনায়ক। শিক্ষাজীবনের প্রতিটি স্তরে অসাধারণ মেধাবী হিসেবে স্বীকৃতি পেয়েছেন ড. জাকারিয়া। বাংলাদেশে মেডিকেল ফিজিকস অ্যান্ড বায়োমেডিকেল ইঞ্জিনিয়ারিং তাঁর হাতেই চালু। প্রবাসে থেকেও বাংলাদেশের বিভিন্ন বিশ্ববিদ্যালয়ে চিকিৎসা পদার্থবিজ্ঞান বিষয় চালু করার চেষ্টা করে যাচ্ছেন। আজো নিরলসভাবে ক্যানসার চিকিৎসায় অবদান রেখে চলেছেন। তিনি ক্যানসার চিকিৎসায় 'ইলেকট্রন আয়নাইজেশন চেম্বার'-এর অন্যতম জনকরূপে সম্মানিত। পাশাপাশি জার্মানিতে ছড়িয়ে দিচ্ছেন বাংলা সাহিত্য এবং সংস্কৃতি। অনন্য এই গবেষক, শিক্ষক নানামুখী অবদানের জন্য পেয়েছেন 'বাংলা একাডেমি প্রবাসী লেখক পুরস্কার'সহ দেশ-বিদেশের বিভিন্ন পুরস্কার ও সম্মাননা। যার মধ্যে বিশেষভাবে উল্লেখযোগ্য জার্মান সরকারের সর্বোচ্চ বেসামরিক পুরস্কার 'ফেডারেল ক্রস অব মেরিট'। প্রিয় পথিকৃৎ, অনন্য চিকিৎসা পদার্থবিদ এই ব্যক্তিত্বের সৃজনীজীবনের স্বপ্নযাত্রা, কর্মকাণ্ড নিয়ে লিখেছেন গবেষক, শিক্ষক আবদুল্লাহ আল মোহন। স্বপ্ন জাগাতে, সাফল্যের সিঁড়ি ভেঙে ওপরে ওঠার সহায়ক হিসেবে বইটি যেকোনো শিক্ষার্থীর জন্য হয়ে উঠবে অটুট আস্থার, গভীর আত্মবিশ্বাসের, ইতিবাচক মানসিকতা সৃষ্টির অনুসরণীয় দৃষ্টান্ত, এক চমৎকার উৎস। অনুপ্রেরণা জোগানো অনন্য এই ব্যক্তিত্ব সম্পর্কে বিস্তারিত জানতে, আগ্রহীদের জ্ঞানস্পৃহা আরো বাড়াতে জীবনীটি উদ্দীপক হিসেবে কাজ করবে বলে লেখকের মতোই আমরাও প্রবল আশাবাদী।

UPCOMING SCMPCR HW-09

IN BANGLADESH

Advanced Radio-Diagnostic to Modern Radiotherapy: Integrating Imaging and Motion Management for Medical Physicists and Clinicians

By

South Asia Centre for Medical Physics and Cancer Research (SCMPCR)

Program Schedule

Theory

- The Role of Qualified Medical Physicist (MPE) in X-ray Diagnostics
- Machine and Patient Specific QA for IMRT and VMAT
- CBCT Dose in IGRT: Challenges, Cumulative Effects, and Mitigation Strategies
- IBA topics (Mammography)
- Varian topics (Motion Management)
- PTW topics (CT Optimization)
- Artificial Intelligence in Radiation Medicine
- Simulation and Motion Management in Radiotherapy
- Breast Tomosynthesis: 3D Imaging for Early and Accurate Cancer Detection
- Quality Assurance in CT Imaging: CTDI Accuracy and Optimizing Image Quality
- Highlighting the importance of Quality Images (CT, MRI, USG, PET/SPECT for tumor delineation)

Practical

- Practical (Radiotherapy Contouring)
- Practical (Radio Diagnostic: Radiology and Fluoroscopy)
- Multimodal Image Interpretation (CT, MRI, PET)
- Practical (Radio Diagnostic: Quality Control in CT)
- Practical (Medical Physics Motion Management)

Specialties of HW-09

- Expert & Certified Speakers
- Accreditation with CPD Points (In process)
- Examination and Certification

MORE DETAILS

Coming soon.....

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