



**IUPESM
2025**
World Congress on Medical Physics
and Biomedical Engineering

IUPESM World Congress on Medical Physics and Biomedical Engineering 2025
29 September – 4 October 2025
Adelaide Convention Centre

Program current as of 27 September 2025, subject to change

Sunday 28 September 2025	
14:00	
15:00	
16:00	Registration 2:00pm - 6:00pm
17:00	
18:00	End of Day 0

Monday 29 September 2025										Business meetings	
Hall CD										Room E3	Gilbert Suite
Registration											
Opening Ceremony 9:30-11:30 <i>The Opening Ceremony of the IUPESM World Congress will set the stage for an inspiring week of innovation and collaboration. Highlights include the presentation of prestigious awards recognising outstanding contributions to the fields of medical physics and biomedical engineering, a special welcome from Chris Picton MP, Minister for Health and Wellbeing, and the official opening of the Congress. This memorable occasion will bring together global leaders, researchers, and professionals as we celebrate excellence and mark the beginning of an extraordinary program.</i>											
Headlining Plenary Keynote - Dr Lars Jensen The AI revolution in biomedical data science											
Headlining Plenary Keynote - Prof Anthony Burkitt Closing the Loop in Neuroprostheses: Improving Electrical Stimulation Strategies for the next Generation of Visual Prostheses											
Lunch											
Riverbank Room 6 Sponsored Special Symposium: Elekta Adaptive Radiation Therapy: Past, Present, and Future Dr Michael Jameson											
Lunch											
Hall A	Hall B	Hall CD	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7		
1.1 3D Printing in Radiation Oncology	11.1 Digital Health – Integrity and Security	IUPESM Awardee Presentation Session		13.8 Artificial Intelligence in Biomedical Engineering 1	16.4 Rehabilitation	8.5a Biomedical Engineering Modelling and Simulation 1	9.5 - Dosimetry, Calibration and Computational Analysis 1	1.8 Patient Dosimetry, Patient-specific Quality Assurance + Techniques 1	10.3 Radiation Protection Communication		
3D printed face phantom for electron radiotherapy commissioning Prof Tanya Kairn	First, do no harm: Can Zero Trust secure healthcare without disrupting care? Prof Trish Williams, Prof Vincent Mccauley	The UC Davis Breast Imaging Research Journey Dr John Boone Distinguished Professor UC Davis Medical Center, American Association of Physicists in Medicine United States		A supervised machine learning based app to predict bodyweight for management of acute ischemic stroke patients Dr Gopishankar Natanasabapathi	'Serious Games' as a rehabilitation tool to improve physical and cognitive function A/Prof David Hobbs	Computational modeling and dispersion tracking of drug within wound dressing hydrogel Miss Fatma Alzamel	Radiation therapy and cancer during pregnancy – current practice in the Netherlands Dr Phil Koken	An open-source methodology for avoiding potential patient/gantry collisions prior to treatment using photogrammetry technology Mr Corey Bridger	Using generative AI video for patient radiation risk communication A/Prof Mohamed Badawy		
Creation of patient shielding for superficial radiotherapy using optical scanning and 3D printing Prof Scott Crowe				Deep learning-based patient weight prediction using regularly sampled CT slices Mr Daniel Carrion, Mr Stanley Norris		Using Computational Fluid Dynamics to investigate the potential role of hypercapnia upon impaired decision making onboard OceanGate's TITAN submersible Mr Bart Kemper		Simultaneous Integrated Boost vs. Sequential Boost in Breast Cancer Radiotherapy: A Comprehensive Analysis of Dosimetric, Radiobiological, Cost-Effectiveness Mr Md. Jobairul Islam	Comprehensive Analyses of Roles and Responsibilities in Treating Thyroid Cancer and Benign Diseases: Comparing Contributions of Private and Public Sectors and Insights into Radiation Safety Management in Australia and New Zealand – Projecting Theranostics! Farshid Salehzahi	IOMP PRC 1&2 14:00-15:00	
Fabrication of Versatile, Printable, and Non-Metallic Radio-Opaque Markers for CT-Guided Biopsy, Interventions, and Radiotherapy Dr Senthikumar Shanmugam	Cybersecurity in the health sector - Mitigating threats and securing medical devices/operational technology Mr Simon Cowley			Hybrid time series forecasting for blood-plasma donation trends using exponential smoothing and SARIMA Mr Ali Salman	The development of a novel virtual reality intervention for chronic stroke upper limb rehabilitation Mr Thomas Beltrame, Mr Max Hollis	Numerical modelling of magnetic drug targeting for enhanced drug delivery in the paranasal sinuses Mr Kavan Zarei	Characterisation of scatter radiation dose for a new full-field digital mammography system in tomosynthesis mode Dr Ioannis Delakis	Impact of Respirometer exercise on breath holding capacity of breast cancer patients before radiotherapy under DIBH technique A/Prof Shriram Rajurkar	Optimized Management of Radioactive Patient Waste in Theranostic Service Delivery A/Prof Soma Nesan		
Evaluation of beam matching characteristics between two Varian TrueBeam™ LINACS Dr Subramani Vellaiyan	Decentralized Medical Data Integration Using NFTs and Blockchain-Performance Evaluation of Data Integrity and Access Control- Ms Nanami Miyanishi			COBRA: Multimodal Sensing Deep Learning Framework for Remote Chronic Obesity Management via Wrist-Worn Activity Monitoring Dr Mayue Shi	How the design of cognitive training paradigms impact efficacy for paediatric cancer-related cognitive impairment: a systematic review Ms Rebekah O'Loughlin	Nasal airflow redistribution under varying airflow conditions: CFD-based evaluation on post-surgery case Mr Jun Xiao	Activities of ICRP Task Group 126 on radiological protection in human medical research Mr Cameron Jeffries	Exploiting additional degrees of freedom in next generation radiotherapy treatment of Nasopharyngeal cancers: can a hybrid planning approach be superior? A/Prof Vanessa Panettieri	Practical alignment of a regional I-131 therapy service with best radiation protection practice Mr Stephen How		
Patient Specific Intrafraction Motion Tolerances for Prostate Radiotherapy Mr Brad Beeksm	Accountability in in the Digital Age Prof Tatjana Welzer	MSc Adriana Velasquez Berumen Lead for Medical Devices Former World Health Organization Switzerland		Development and validation of a Machine Learning model for asthma diagnosis using a frugal, custom-built spirometer Mr Pedro Checa Rifa	A survey of current Rehabilitation Engineering practice in Australia Dr Iain Brown		Oropharynx Proton Therapy: A Planning Workshop with Model-Based Selection Analysis Dr Jonathan Sykes	Assessing OAR dose using a dose-area-histogram (DAH) from film data; a compliment to gamma analysis Dr Andrew Alves			
Development and validation of a robust dataset using commercial TPS and dose measurements devices for deep learning in transit dosimetry Miss Carlotta Mozzi	Developing a Digital Form to Calculate Infusion Rates for Drug Delivery to Minimize Human Error and Medical Waste Miss Clarice Du Toit				Early Identification of Learning Disorders Through Gamified Digital Screening Mr Giacomo Pratesi		A digital twin prototype to estimate radiotherapy outcome in head and neck cancer patients from microvascular architecture Dr Luca Possenti	Impact of superior shift of isocenter for mono-isocentric treatments in post mastectomy radiotherapy Dr Shaiju V S			
Afternoon Tea											

Monday 29 September 2025											Business meetings	
	Hall A	Hall B	Hall CD	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7	Room E3	Gilbert Suite
16:00	1.23 Detectors in Radiation Oncology 1	11.2 Digital Health – Clinical and Management Systems	IOMP Awardee Presentation Session	22.1 Medical device innovation and regulation	13.9 Artificial Intelligence in Biomedical Engineering 2	16.5 Joint Biomechanics	2.5 Patient Dosimetry in Diagnostic Radiology	27.1 Diversity and Inclusion	3.2 Radiomics and Quantification	1.0 Patient Dosimetry, Patient-specific Quality Assurance + Techniques 1		
16:00	Multicomponent calibration of plastic scintillation dosimetry on a CT-linac and MR-linac Miss Laurie De Vries	Data quality, noise, and bias in medical data: The critical role of data collection design A/Prof Lenka Lhotská	A Medical Physics Journey Madam Curie Award: Professor Emeritus Dr Michael McNitt-Gray (Dept. of Radiological Sciences, David Geffen School of Medicine at UCLA)	A Web Tool for early stage HTA and Health Economic Analysis Prof Leandro Pecchia	Enhancing cast suppression in wrist radiographs via paired synthetic data generation Mr Stanley Norris	Positioning of the knee in CT is a critical factor for accurate load-induced implant displacement measurement Ms Annemie Ter Wee	Organ and effective doses from interventional paediatric head and neck angiographic procedures Ms Amanda Perdomo	Adding gender to therapy: the emerging need for gender-based studies for treatment optimisation in oncology. Prof Loredana Marcu	Study on prognostic prediction of postoperative colorectal cancer liver metastasis patients based on multimodal data Prof Nini Rao	A medical physicist's perspective on precision, safety, and quality for breast radiotherapy Dr Md Akhtaruzzaman		
16:15	Accuracy of dose distribution reconstructed using an in-air readout optical computed tomography by generating parallel optical path Dr Akito S Koganezawa				Deep learning-based classification of rejected radiographs Mr Daniel Carrion	Effect of Anteversion on the risk of dislocation in a tumor hip prosthesis evaluated using finite element analysis Mr Juan Dionisio Merida	Mind the dose: Brain and lens exposures in interventional neuroradiology procedures. A/Prof Mohamed Badawy		Predicting Prostate Cancer Radiotherapy Complications: An Integrated Approach Using Radiomics, Dosimetrics, and Machine Learning Ms Elham Sadati	Enhancing patient communication in radiation oncology by integrating ARIA with an automated SMS service using the new ARIA API. Mr Matthew Jennings		
16:30	Skin dosimetry in MV RT using hydrogenated amorphous silicon on a tissue equivalent flexible substrate Ms Aishah Bashiri	Early Identification of Learning Disorders Through Gamified Digital Screening Mr Giacomo Pratesi		Integrating regulatory aspects in academic medical device research Dr Angel Solé Morillo	Deep learning model for measuring tissue perfusion using magnetic resonance imaging Mr Fidel Alejandro Navarro Salazar	The effect of CT scanning and metal artefact reduction strategies on measuring knee implant displacement: iMAR – helpful or harmful? Ms Annemie Ter Wee	Organ-specific radiation dose mapping in chest x-ray imaging using nanoDot optically stimulated luminescent dosimeter (OSLD) Prof Inayatullah Shah Sayed	SCREAM with me, a staff wellbeing and engagement project Ms Julie Miller	Proposal of pixel-wise MRI radiomics for grading prostate cancer Mr Shinichi Tanaka	Preliminary validation of a novel quality control test for dynamic collimator rotation synchronisation in RapidArc Dynamic. Mr Matthew Jennings		
16:40												
16:45												
16:50	Development and optimisation of a single-fibre real-time optically stimulated luminescence (rtOSL) dosimeter using BeO ceramics Miss Erin Lukas	Beyond the Heartbeat: Securing the Digital Pulse of Healthcare - A Clinical Engineer's Challenge in Integrating ECG Systems Miss Shay Vickneswaran	From Inspiration to Global Impact: A Journey in Medical Physics Harold Johns Medal: Professor Dr Golam Abu Zakaria (EFOMP, German Society of Medical Physics)	XSpace Bio: Self-Learning Platform for Implementation of Biomedical Device Prototyping Miss Leslie Yessenia Cieza Huane	Artificial intelligence for improved detection of endometriosis signs using magnetic resonance imaging and transvaginal ultrasound Dr Yuan Zhang	Operator variation in applying a knee loading device for evaluation of tibial component loosening in total knee arthroplasty Ms Annemie Ter Wee	Development and validation of a 3D-printed dosimetry phantom for paediatric radiology Mr Jonathon Stone	Diversity, Equity and Inclusion: Driving Global Progress in Medical Physics Mrs Nupur Karmaker, A/Prof Afua A. Yorke	Histopathological subtyping of NSCLC based on topological radiomics of DECT Mr Ryosei Kawasima	1.10 Patient Dosimetry, Patient-specific Quality Assurance + Techniques 3 Proposal workflow of polymer gel dosimetry in dose verification of the VMAT Mr Keisuke Fujita		
17:00	Towards filmless real-time end-to-end verification of dose placement for IGRT using 2D monolithic high-spatial-resolution semiconductor detector MagicPlate-976 Dr Ilia Filipcev	A proposal for the implementation of an electronic medical devices record (EHR) system in healthcare Prof Fabiola Martinez-Licona		Integrating Model-Based Systems Engineering and Computational Simulations into Digital Twins for Accelerating Biomedical Device Innovation Mr Tanguy Pinol	Predictive models for recurrence in triple-negative breast cancer patients using preoperative dynamic contrast-enhanced magnetic resonance image features Ms Mayu Nakagaki		Use of 3D printing techniques for individualised anthropomorphic phantoms for quality controls in diagnostic radiology Prof Augusto Giussani	Regional study to understand and analyse the realities, perspectives, challenges, and way-ahead in the second inning of women medical physicists (WMPs) professional lives and comparison to other women healthcare professionals Dr Rajni Verma	Contrast-enhanced CT-based Radiomics classification of Non-advanced Hepatocellular carcinoma (HCC) Mr Bappah Suleiman Yahaya	Patient-specific quality assurance for Radixact Helical Tomotherapy based on the unit's included software: A dosimetric evaluation study Dr Mohammad Amin Mosleh-Shirazi		
17:10			John Mallard Award: Dr Adam Kesner (Department of Medical Physics, Memorial Sloan Kettering Cancer Center, New York, USA) On Pursuing Relevance					Advancing Gender Diversity in Biomedical Engineering: Regional Strategies, Mentorship Practices, and Inclusive Characteristics for Recruitment and Retention Dr Virginia Ballarin				
17:15								Closing the Gap: Strategies to Increase Representation of Women in Physics Leadership Positions Dr Jennifer Pursley				
17:20	Impact of Intensity of incident light (Lux) on the annealing efficiency of Al ₂ O ₃ :C Optically Stimulated Luminescence Dosimeters. Mr Dandapani Epili	Technology and serious gaming for neurodevelopmental disorders: a systematic literature review Mr Muhammad Farooq Shaikh		BloomAura: Electrochemical sensor-based medical device for Bacterial Vaginosis detection Mr Hugo G. Venegas			Implementation of PySkinDose, an open-source RDSR-based skin dose estimator. Mr George Antoniou		Radiomics-based machine learning for lung cancer subtype classification using CT images Prof Hasin Anupama Azhari	Experience with simulation-free palliative radiation therapy in regional and rural Western NSW Australia Dr George Warr		
17:30	IOMP Teaching Lecture 1: Radiation Safety & Protection Madan Rehani Arun Chougale 17:30-18:30											IUPESM AC1 meeting 17:30-18:30
17:45												
18:30												
19:00	Welcome Reception at Adelaide Oval Join us for the Welcome Reception as we officially begin the IUPESM World Congress. This is a chance to connect with colleagues from around the world in a relaxed and social setting. Enjoy light refreshments, meet new peers, and reconnect with familiar faces as we celebrate the start of an exciting week ahead.											
20:00	End of Day 1											

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Wednesday, 1 October 2025														Business meetings		
12:30	Lunch											IFMBE FJC / Publisher Present + Editorial Board + Publication Committee 12:30-14:00		12:30		
13:00	Lunch													12:45		
13:30	Lunch													13:15		
	Hall A	Hall B	Hall CD	Panorama Rooms 1-3	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7	Riverbank Room 8	Gilbert Suite	Room E1+E2	Room E3	
14:00	1.18 Brachytherapy 2	1.21 Stereotactic Ablative Radiotherapy/Stereotactic Radiosurgery (SABR/SRS)	FMBE Awards Winners Keynotes	Special Symposium: Medical Physics: accreditation, certification, registration and continued education	GEANT4 Bio-medical Modelling Workshop	26.2b Capacity and Capability for Global Health	5.3 Nuclear Medicine: Dosimetry and Theranostics	26.2a Capacity and Capability for Global Health	16.1 Prosthetics and Assistive Tech	8.5b Biomedical Engineering Modelling and Simulation 2	24.3 - Education and Training Case Studies	13.10 Artificial Intelligence in Biomedical Engineering 3				14:00
14:00	MCO-assisted selection of robust-optimised HDR prostate brachytherapy plans Dr Andrew Kennedy	A dosimetric comparison between adaptive MR-Inac and VMAT ultra-hyperfractionated prostate SABR Dr Hilary Byrne							Retrolifting Sensation for Existing Prosthetic Hands: A Scoping Review Mr Ayan Sharma	Computational modeling and simulation of endovascular graft migration behavior helps advance design innovation Dr Shuo Yang	Update on remote clinical training of PNG ROMP registrars and new cancer centre at Port Moresby General Hospital Miss Emma Spellenken	Effect of the motion artifacts image for estimation of brain tumor region using deep learning Mr Masafumi Akanuma				14:00
14:10			Supramolecular self-assembled polymers and hydrogels for nanomedicine and sustainability applications Prof Jun Li	Global perspectives on accreditation, certification and recognition in Medical Physics Prof John Damiakis		The contribution of the IAEA Directory of Radiotherapy Centres (DRAC) to equitable partnerships in health economics studies. Mr Mauro Carrara	Personalized Dosimetry in Theranostic Nuclear Medicine: Seven Lessons Learnt Prof Chai Hong Yeong	Diagnostic, Therapeutic and Laboratory Equipment Training – A Tale of Two Cities Ms Peck Ha Tan				Measurement and classification of dielectric properties in human brain tissues: differentiating glioma from normal tissues using machine learning Mr Guanfu Li				14:10
14:15																14:15
14:20	Real-time HDR brachytherapy source tracking with a fibre-optic dosimeter Mr Khalid Athamad	Single isocentre multiple target SRS QA – using RadCalc to identify candidates for measurement Dr Christopher Colyer							The intersection between biology and engineering – Integrating effective haptic feedback into an upper limb prosthetic Mr Shane Deery	Innovative benchtop capability validates computational simulation of stent durability for peripheral artery disease (PAD) treatment Dr Ray Boudreaux	IAEA activities to enhance the status, knowledge, and skills of medical physicists in diagnostic and interventional radiology services in the Asia-Pacific region Dr Ioannis Delakis	Focal Cortical Dysplasia Type II Detection Using Cross Modality Transfer Learning and Grad-CAM in 3D-CNNs for MRI Analysis Mr Lorenzo Lasagni				14:20
14:30	Development of New Measurement Techniques for the Intensity of 125I Brachytherapy Sources in a Stereotactic Cartridge Mr Kai Nutting	Selective Energy Deposition Index for assessing treatment plan quality in gamma knife stereotactic radiosurgery Dr Gopishankar Natanasabapathi				Where should global efforts be focused? Priorities of medical physicists working in low and middle-income countries (LMICs) Ms Stephanie Parker	Small-scale bone marrow dosimetry study of actinium-225 Mr Stephen Tronchin	From Disease Burden to Research Priorities: Optimizing Biomedical Engineering Funding in the Philippines Dr Phoebe Nicole Perez	Wearable system to support older people with balance disorders Prof Szczepan Piszczatowski	From Clinic to Computation: Mapping Novel Electrophysiological 4F Metrics to Computational Models via Gaussian Process Emulation Dr Dhani Dharmapriani	Global Standards, Local Impact: Advancing medical physics education through hands-on training and e-learning program in South Asia Region Prof Hasin Anupama Azhari Education, Dei, Women in Mp, Radiation Oncology	Artificial Intelligence for Rare Disease Detection: A Hierarchical Approach Using Retinal and Cardiac Imaging Miss Maria Elisabetta Pagnano			IOMP SC 18.2 14:00-15:00	14:30
14:40				National systems of licensing and registration: continuous education and accreditation Prof Kiki Theodorou	Michael Douglas, Alex Santos, Susanna Guatelli, Sherryn Macleod, Scott Penfold, Christopher White							Leveraging BERT for sentiment analysis in mental health Prof Ernesto Iadanza				14:40
14:45			Prof Chwee Teck Lim		Geant4 is an open-source Monte Carlo simulation widely used in medical physics for radiotherapy, nuclear medicine, imaging, dosimetry, and radiation protection. This workshop will overview its capabilities and showcase applications in X-ray radiotherapy, hadron therapy, imaging, shielding, and radiobiology.	Establishing and supporting sustainable radiation medicine programmes – the IAEA perspective Mr Mauro Carrara	Advancing Personalized Dosimetry in Targeted Radionuclide Therapy: The WIDMing Project Dr Riccardo Mirabelli	Assessing the Biomedical Engineering Workforce in 16 Pacific Island Countries and Territories: A Foundation for Strengthening Capacity and Enhancing Health Service Delivery Ms Sunema Talapusi	A new approach in upper limb prosthetic sockets: A soft-base adaptive support for partial hand amputations. Mr Harab Teran-Cuevas	Multivariable feedforward control of inspiratory oxygen using low pressure sources for mechanical ventilation Mr Felix Rohren	Medical Physicist Professional Degree Program: A bridge solution for Health Transformation Program in Indonesia Prof Supriyanto Pawiro	A 2024 survey of patient-specific quality assurance practices in radiotherapy clinics in Canada Dr Brennen Dobbertien				14:45
14:50	Caught in the act, or after the fact – hopefully before when Brachy Medical Physicists are on the case! Dr Wendy Phillips	SEAFARER remote PSA assessment: head & neck and spine SABR Prof Joerg Lehmann														14:50
14:55				Embracing lifelong learning A/Prof Jacqueline Gallet												14:55
15:00						Applying appropriate metrics to evaluate the reliability and performance of a medical linear accelerator Mr Deepak Arora	Changes of absorbed dose for organs and tumor in dosimetry of Lu-177 oxodotatocit therapy with dose reduction Ms Yui Masaki	Clinical Engineering in Africa Mr Ashenafi Hussein	Dynamic Anatomical Ultrasonography for assessment of bone motion within the post-amputation residual lower limb during ambulation: benchtop scientific validation using 3D-printed phantoms Dr Christian Langton			Advancing Medical Physics Education and Research in Indonesia: Current Outcomes of the SDG-DAAD Program Prof Supriyanto Pawiro	Deep learning-based preprocedural prediction of atrial fibrillation recurrences following catheter ablation from transthoracic echocardiography Mr Yiheng Lyu			15:00
15:05	Dual energy CT for brachytherapy catheter identification Mr Craig Lancaster	Facilitating the MoVentilation SABR Lung Technique with deformable image registration: Retrospective Study into contour accuracy A/Prof Joel Poder														15:05
15:15			Andy Tay													15:15
15:25	Bolus-free brachy: A feasibility study in HDR surface-mould skin brachytherapy. Miss Indiana Neumann	Beyond Static Phantoms: A 30-Patient Study Advocating Motion-Inclusive QA in Lung SABR Ms Jayree Ukath		Panel Discussion		Professional Challenges in Low- and Middle-Income Countries: Leadership and Mentoring Strategies in Medical Physics and Biomedical Engineering Prof Hasin Anupama Azhari Education, Dei, Women in Mp, Radiation Oncology	Optimizing image qualification for quantitative dosimetry in 177Lu-based radiopharmaceutical therapy: A requirement for accurate dosimetry. Dr Siju George	Access to Care Cape Town: 9-year review of radiotherapy training programme Mrs Nanette Joubert	A review of evolving regulatory requirements for assistive products in Australia Dr Iain Brown		Status of Medical Physics Education, Training, and Professional Development in Africa Prof Francis Hasford					15:25
15:30	Afternoon Tea											IOMP Awards and Honours Committee Meeting 1 and 2 15:30-16:30		15:30		

Wednesday, 1 October 2025													Business meetings	
Hall A	Hall B	Hall CD	Panorama Rooms 1-3	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7	Riverbank Room 8	Gilbert Suite	Room E3	
16:00	9.1 - Cellular Radiosensitivity and Radiological Impact	22.4 Innovative Medical Devices for Airways	FMBE General Assembly	Special Symposium - Joint AAPM/ACPSM special Symposium: FLASH beam dosimetry: Challenges and opportunities Prof Dimiris Mihailidis	GEANT4 Bio-medical Modelling Workshop	Special Symposium: Empowering Young Researchers, Early Career Professionals, and Students to Conduct Innovative, Socially Impactful Projects Using Emerging Technologies Mr Liwelyn Halls	13.2 Artificial Intelligence and Image Segmentation Geometric and Dosimetric Evaluation of a RayStation Deep Learning Model for Auto-Segmentation of Organs at Risk in a Real-World Head and Neck Cancer Dataset Dr Dayananda Sharma	7.4 Emerging Radiation Modalities Spatially fractionated radiation therapy on the sub-millimetre scale: advancing microbeam radiation therapy to clinical trials Dr Elette Engels	10.1 - Radiation Safety and Quality 10 Years Later and You Are Still One of the Best Decisions We Have Ever Made - Happy Anniversary ASTRO APEX® Accreditation and RO-LSB Radiation Oncology Incident Learning System Dr Kathleen Histenlang	2.2 Quality Control Software for measurement of CT task-based performance metrics with automatic Catphan analysis Dr David Henry	8.1a Dose Calculation and Verification (A) Microsecond-scale radical dynamics driven by beam temporal profile in FLASH radiotherapy: a Monte Carlo simulation study Mr Jianhan Sun, Ms Xianghui Kong, Prof Yibao Zhang, Prof Senlin Huang	13.11 Artificial Intelligence in Biomedical Engineering 4 Trustworthy AI in Healthcare: Explainability and Reliability in Clinical Decision-Making Prof Jorge Henriques	IOMP Awards and Honours Committee Meeting 1 and 2 15:30-16:30	
16:00	Individual radiosensitivity and its implications for personalised radiotherapy and risk of second cancer assessment Prof Juliana Toma-Dasu	Development and validation of an adjustable head and jaw positioning device for optimised airway management in bronchoscopy procedures Prof Sudesh Sivarasu		Development of AAPM Task Group 359: Addressing Dosimetry Challenges in Ultra-High Dose Rate (UHDR) Beams and the Need for a Standardized Protocol Prof Dimiris Mihailidis		Reimagining recovery after knee replacement: an industry innovation targeting sensorimotor function. Mr Liwelyn Halls								
16:10						Bridging Academia and the Healthcare Industry: Lessons from a Biomedical Engineering Internship Program in Peru Miss Leslie Yessenia Cieza Huane								
16:15														
16:20														
16:30	Novel DNA damage formation assessment for radiosensitizers Dr Jake Atkinson	Development of a DR5ABCD resuscitation trainer Mr Jacob Van Asch		Challenges in supporting clinical trials on FLASH RT Stephen Kry		Empowering Young Researchers and Students to Conduct Innovative, Socially Impactful Projects Using Emerging Technologies Prof Martha Zequera								
16:40	Metabolic and Survival Responses of Lung Cancer and Normal Lung Cells to Proton FLASH and Conventional Radiotherapy Dr Fang-Fang Yin													
16:45	9.2 - Experimental Models and Pre-clinical Technologies													
16:45														
16:50	Evaluating the expression pattern of MUC1-CE in head and neck cancers for potential application in radioimmunotherapy. Dr Ashleigh Hull	A novel and cost-effective CICO trainer Mr Sean Foo	This is the main business meeting of the FMBE, attended by representatives of affiliated organisations from around the world. Reports are tabled on the activities of the Federation, new member societies are introduced, and newly elected office bearers are presented.											
16:55														
17:00														
17:05	A Novel Method for Embedding Cells on Galvanic Film for in Vitro High-Precision Radiation Dosimetry A/Prof Parminder Basran	Real time Impedance Tomography to monitor pulmonary oedema in PET/CT Prof Franco Sinini												
17:10														
17:15														
17:20	On the influence of beamlet sizes on in vitro SFRT irradiations to osteosarcoma cells delivered from a conventional linac A/Prof Parminder Basran	Application of electrostatically charged aerosols for drug delivery in chronic rhinosinusitis Mr Alreza Meynivand												
17:30	DMP Teaching Lecture 5: Biostatistics – Method Comparison 5 Studies Adrian Esterman	Development and validation of a standalone high-flow nasal oxygen device with integrated patient monitoring Prof Sudesh Sivarasu												
17:45														
18:30														
19:00	Congress Dinner at Adelaide Convention Centre													
22:00	End of Day 3													

Program current as of 27 September 2025, subject to change

Thursday, 02 October 2025												Business meetings										
				Hall A	Hall CD	Riverbank Room 4						Gilbert Suite	Room E1+E2	Room E3								
07:30															07:30							
08:00												IOMP Teaching Lecture 6: Spectral CT Physics (DECT and PCCT) Mika Korteniemi Prof M. Mahesh	Further details to be available shortly					08:00				
Hall CD												Gilbert Suite										
Plenary Session - Dr Jitendra Sharma Biomedical Engineering – Gateway to Universal Health												Room E1+E2			Room E3	09:00						
Morning Tea												IFMBE In-coming Officers' 10:00-11:00		IOMP Public 1&2 10:00-11:00		10:00						
Morning Tea																10:30						
11:00	Hall A	Hall B	Hall CD	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7	Riverbank Room 8				11:00							
	1.13 Tracking	1.19 Electrons	IUPESM General Assembly	Workshop - Radiation Shielding for Medical Linear Accelerators	1.17 Brachytherapy 1	Asia Pacific Research Networking Fellowship	12.1 3D Printing	Special Symposium: Full Circle: The Road to an Effective Circular Economy in Healthcare	2.1 Clinical Radiology	3.1 Image Quantification Using AI and Machine Learning	5.5 Nuclear Medicine: From Supply to Synthesis				11:00							
11:00	Processing real-time target tracking and adaptation data from the Radixact Synchrony system Prof Scott Crowe	Commissioning and clinical implementation of low dose rate dual-field rotational total skin electron therapy Mr Broderick McCallum-Hee	This is a triennial meeting of the IUPESM Administrative Council, representatives of the Constituent Organizations, the National Members, and representatives of the affiliates.	Melissa Martin, David Thwaites, Wayne Beckham, Chris Trauermicht, Robin Hill This workshop introduces shielding design for radiotherapy facilities, covering linear accelerators, neutron protection, kV and CT rooms, and the process from design to evaluation. Faculty bring international expertise from the USA, UK, Canada, South Africa, and Australia.	Commissioning of Elekta Advanced Gyecological Applicator Perineal Template Dr Hema Vaithianathan	Screening for the best nanoplasta shape and sauce for tumor mitochondrial targeting Dr Andy Kah Ping Tay	3D-printed synthetic vertebrae: towards alternatives to human cadavers for orthopaedic surgical training and research Dr Tess Reynolds	Policy Perspective on the Road to Circularity in Healthcare: Momentum, Challenges and Opportunities Dr Fiona Adshead	The evolving role of imaging physicists Dr Zoe Brady	AI for x-ray image formation and analysis Prof Ioannis Sechopoulos	Radioembolization Samarium-153 Therapy (RESTM): From synthesis to dosimetry Ms Shalaine Tatu				11:00							
11:10									Patient-specific 3D printed models in medical applications Prof Zhonghua Sun								11:10					
11:15	The Feasibility of using UoItf as a Fiducial Marker for Image Guided Prostate Radiotherapy Ms Lucy Sim	Commissioning of Electron Arc therapy technique for treating curve shaped PTVs in the extremity body sites using Varian TrueBeam Linear accelerator. Dr Harley Rutherford					High dose rate Brachytherapy treatment planning system quality assurance using film dosimetry. Mr Arputha Anumanth Raj Raja	Electronic Biosensors Harnessing Carbon Nanomaterials Prof Zhaoli Gao	Development of a Low-Cost and Rapidly Manufactured Patient-Specific Head and Neck Phantom Using Fused Deposition Modeling Technology Mr Donghee Han				Development of Folate-Decorated Holmium-166 and 5-Fluorouracil-loaded Poly(acrylic acid)-Calcium Carbonate Nanoparticles for Targeted Chemoradiotherapy for Colorectal Cancer Dr Yin How Wong				11:15					
11:20									Thermoplastic polyurethane bolts: experience with a new low-cost 3D printer Prof Scott Crowe								11:20					
11:30	Precision of tracking moving body surface markers via near-infrared camera for respiratory monitoring in radiotherapy Dr Akito S Koganezawa	Design, Fabrication, and Validation of a 3D-Printed Custom End-Tam Applicator for Electron Beam Radiation Therapy Mr Md. Jobairul Islam					Simulating brachytherapy like dose distribution with lattice radiotherapy Mrs Sangeeta Hazarika	Challenges and Solutions in Wearable ECG Monitoring for Real-World Health Applications Dr Kana Eguchi			Do contrast monitoring scans need optimisation? Ms Alice Gutowski	Adaptive Kernel Selection-Enhanced YOLOv11 for Multi-Scale Dental Lesion Detection in Children's Panoramic Radiographs Prof Fatimah Ibrahim	Doxorubicin- and Holmium-166 Loaded Microspheres for Transarterial Chemo-Radioembolization of Liver Cancer Dr Yin How Wong				11:30					
11:40																	11:40					
11:45	Enhancing MRI-Guided Radiotherapy Precision: A No-Reference Image Quality Assessment Approach AProf Jayun Chen	Dosimetry changes to low energy electron beams following replacement of a Varian TrueBeam ionisation chamber Mr Corey Bridger					Development and validation of heterogeneous phantoms by additive manufacturing for brachytherapy. Miss Bianca Peixoto	Ms Erdene Chuluunchimeg	12.2 Virtual and Augmented Reality	Circularity in Healthcare: ensuring our medical devices are sustainable Prof Leanne Wiseman	ACR phantom as a tool in developing exposure factors for mammography procedures in subjects with large breasts Dr Yuri Matyagin	The impact of contouring protocols on machine learning input data quality Mr Chris Boyd	Samarium-153 and Methotrexate Co-Loaded Particles for Chemical and Radiation Synovectomy of Rheumatoid Arthritis Dr Yin How Wong				11:45					
11:45									Design and development of a VR cycling solution for chemotherapy rehabilitation: Enhancing patient engagement and physical activity Mr Max Hollis, Dr Jonathan Foo									11:45				
11:50																	11:50					
12:00	A knowledge-based approach for real-time 3D position monitoring of pancreatic tumours using monoscopic x-ray images from a conventional linear accelerator Dr Sankar Arumugam	Characteristics of a 9 MeV electron beam for total skin electron radiotherapy evaluated in comparison to a 6 MeV electron beam Prof Tanya Kaim					A Comprehensive Patient Specific Quality Assurance Scheme Developed for Nasopharynx Brachytherapy Dr Mohammad Mohammadi	Dr Che-Wel Lin	Optimising virtual reality headset fit for Asian paediatric patients: Ergonomic and engagement considerations Mr Jared Foo, Dr Jonathan Foo		Optimisation of portable antero-posterior (AP) chest imaging at a UK hospital Ms Catharyn Rivett	Pulmonary vessel segmentation based on CTPA and its application in the discrimination of pulmonary hypertension AProf Chi Zhang	Lead-212 Ecosystem in South Australia: A golden opportunity for market participants Dr Massey De Los Reyes				12:00					
12:15	X-ray Motion Tomography: A novel method to estimate lung motion directly from sparse 2D X-ray projections Dr Tess Reynolds	Comparative Dosimetric Analysis of AlterusSi™ and Lead in Shielding in Electron Field Mr Harrison Jones, Ms Lucy Sim			Dosimetric analysis of dwell time homogeneity error weight (DTHEW) factor on inverse planning optimization for intracavitary brachytherapy of carcinoma cervix cases Dr Rajni Verma		Application of Augmented Reality in Electrical As-built Drawing - A New Game Changer Prof Fatimah Ibrahim			Dose-voxel kernel (DVK) generation using Particle and Heavy Ion Transport Code System (PHITS) for voxel-based dosimetry in Selective Internal Radiation Therapy (SIRT) Ms Shalaine Tatu					12:15							
12:30	Lunch											IFMBE Women in BME Meeting 12:30-14:00			12:30							
13:00	Lunch											Sponsored Special Symposium: Vision RT Improving Radiation Practice with SGRT: Benefits Across the Workflow for All Patients Ad Robinson		Lunch		BME Open Forum 12:45 - 13:25		Lunch		IOMP-AAPM Lunch 13:30-14:00		13:00
13:30	Lunch																			13:30		



IUPESM World Congress on Medical Physics and Biomedical Engineering 2025
29 September – 4 October 2025
Adelaide Convention Centre



Program current as of 27 September 2025, subject to change

Thursday, 02 October 2025												Business meetings				
	Hall A	Hall B	Hall CD	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7	Riverbank Room 8					
14:00	1.14 Treatment Planning and Related 1	1.20 Specialist Techniques	Keynote Session - Chia-ho Hua	Workshop - Radiation Shielding for Medical Linear Accelerators	13.5 Artificial Intelligence Patient Prognosis Prediction in Oncology/Radiomics	22.2 Novel Medical Devices	26.1b Sustainable and Affordable Technologies	Special Symposium: IFMBE Special Symposium on Biomedical and Clinical Engineering Education Part I: Innovative Approaches and Global Perspectives on Curriculum	8.3 Radiobiology, Radionic and Tumour Modeling	2.3 Imaging Technology and Dose Audits	5.1 Nuclear Medicine / Positron Emission Tomography (NM/PET) Instrumentation and Artificial Intelligence				14:00	
14:00	Influence of time-constraint parameters on the Modulation Factor and treatment time distribution in Radirect Ms Noelia Suarez Alvarez	Collision-resistant VMAT TBI planning for Elekta VersaHD with HexaPOD – a feasibility study Mr James Hunt			Deep learning radiomics in predicting disease free survival and overall survival for esophageal squamous cell carcinoma underwent radiotherapy: a multicenter study Dr Xiance Jin	Mucosal Impedance Measurement System: From TRL1 to TRL5 Mr Ruben Gallan Ortiz	Sustainability through Repair: Empowering Biomedical Engineers to Keep Medical Devices Running Mr Yuri Banens	Technologies Transforming Biomedical Engineering Education Prof James Goh								14:00
14:10																14:10
14:15	Automated Quality Assurance for Multiple Brain Metastases Planning Using Monaco Scripting: A Workflow for Efficient POI Calculation and Phantom Setup Dr Karthick Raj Mani	Retrospective comparison between Hybrid (VMAT & open fields) TBI and VMAT TBI techniques for the treatment of hematological malignancies Dr Subramani Vellaiyan	Pediatric Proton Radiotherapy Dr Chia-Ho Hua		Prediction of EGFR mutation for NSCLC patients using persistent lifetime image features on diagnostic CT images Mr Takumi Kodama	Designing and performance testing of implantable leads for ventricular assist devices Mr Ekrem Ekici	Ensuring accessibility to medical technology, everybody deserve to live Mr Joseph Rugut	Digital transformation in Education Prof Ratko Magjarevic	Modeling and Simulations Prof Martin Ebert	Micro-X Carbon Nanotube X-ray Technology: Current and Future Clinical Applications Mr Brian Gonzales	NeuroEXPLORER: A High-Performance PET System for Imaging the Human Brain Prof Simon Cherry					14:15
14:20																14:20
14:30	Correlation of Tomotherapy treatment plan complexity with patient specific-quality assurance Dr Atang Xing	Implementation of TBI-VMAT in a resource-limited radiotherapy centre: first experience in Malaysia Dr Aik Hao Ng			Determining pseudoprogression in high grade glioma patients using delta radiomics Miss Cara Crinnion	Non-invasive Real-Time Monitoring System for Contrast Media Extravasation in High-Pressure Injectors Dr Shao-Hung Lu	Frugal Design and validation of a low-cost Spirometry device for Low Resource settings Mr James Wallace									14:30
14:45																14:45
14:45	MambaDose: a mamba-based UNet model for fast and accurate dose calculation for cervical cancer VMAT Ms Wanhua Zhang	Total Marrow and Lymphoid Irradiation with Monaco TPS on the Harmony PRO Linc: Our Experience Dr Mohamathu Rafic Kather Hussain	Keynote Session - Marie-Catherine Vozenin Virtual Presentation	Melissa Martin, David Thwaites, Wayne Beckham, Chris Trauernicht, Robin Hill This workshop introduces shielding design for radiotherapy facilities, covering linear accelerators, neutron protection, KV and CT rooms, and the process from design to evaluation. Faculty bring international expertise from the USA, UK, Canada, South Africa, and Australia.	Machine Learning Prediction of Glioblastoma Progression Following BNCT Using MRI-Derived Radiomic Features Ms Yan-Han Chen	FlowCare - For U-Home Uroflowmeter for the Evaluation and Monitoring of Lower Urinary Tract Symptoms Mr Hugo G. Venegas	Frugal MedTech Innovation as a Pathway to Accessible Healthcare Across Africa Prof Sudesh Sivasarasu	Innovative Approaches in Biomedical and Clinical Engineering Education: Global Perspectives on Curriculum Design and Learning Methods Driven by Emerging Technologies Prof Martha Zequera	8.4 Imaging Physics and Detector Simulations	Variable 3D resolution in Monte Carlo simulations of complex detector geometries Ms Michelle Stroth	Measuring the impact of using 3D helical scout scans on over-scan and radiation exposure Ms Alice Gutowski	A dedicated NEMA body phantom for the evaluation of heterogeneous 18F-FDG distribution A/Prof Koichi Okuda				14:45
14:55																14:55
15:00	Evaluation of Jaw Tracking in VMAT Using FFF and FF Beams Dr Subramani Vellaiyan	Commissioning, validation and a retrospective analysis of APMI TG186 protocol-model-based dose calculation algorithm in gynaecological brachytherapy. Mrs Reena Devi Phuralatpam	FLASH radiotherapy: multidisciplinary research to shape the future of radiation oncology. Prof Marie-Catherine Vozenin		Mutual multi-modality image conversion using deep learning in image-guided radiation therapy Mr Ryoma Tsuchiya	Abdominal hypertension reduction by bladder controlled externally applied negative pressure: ABOPRE at its technology transfer phase Prof Franco Simini	Battery Powered Vaccine Carrier Ms Libernet Amotemas Adjei	An Overview and Analysis of the Landscape of Biomedical Engineering Education in Australia – Results from a 2-day Symposium. A/Prof David Hobbs	Monte Carlo simulation and investigation of X-ray, electron and optical photon transport in thick, hybrid, micro-columnar cesium iodide scintillation detectors Dr Mohammad Amin Mosleh-Shirazi	Dosimetric Evaluation of CBCT-Based Virtual Simulation in Cranial and Spinal Radiotherapy Planning Mr Glen Mok	AI-Driven PET Attenuation Correction: Eliminating the Need for CT Dr Hadi Fayad					15:00
15:05																15:05
15:15	Insights on commissioning cone-based Multiple Brain Metastases (MBM) Stereotactic Radiosurgery (SRS) Mr Godfrey Mukwada	Development of a technique for treating intermediate-high risk prostate cancer with HDR brachytherapy intraprostatic lesion focal boost in conjunction with SBRT: A retrospective study in treatment planning, KRT and dose accumulation Dr Ryan Brown			Towards reliable delta-radiomics: Identifying robust features for assessing post-radiation therapy response in prostate cancer Dr Yu-Feng Wang		Quantifying Cervical Cancer Radiotherapy Care Gap in Uganda: Baseline Assessment Prior to Implementation of a Custom Mobile Health App. Dr Afua Yorke	Biomedical Engineering Education in Uruguay Prof Franco Simini	Designing a Bowtie filter through Dose Distribution and Energy Spectrum Analysis in CT scanner: A PHITS Simulation and CTDI Phantom study Mrs Alishah Nadiyah	Use of a customisable cardiology database to audit and optimise patient doses in interventional cardiology Mr Benjamin Jones	Development of Python-based AI software for automatic segmentation of PSMA PET/CT images Mr Joel Noble					15:15
15:30																15:30
Afternoon Tea																
16:00	1.15 Treatment Planning and Related 2	13.4 Artificial Intelligence Patient Outcomes Prediction in Oncology	8.7 Simulation in Particle Therapy and Radiobiology	Workshop - Radiation Shielding for Medical Linear Accelerators	15.2 Biosignals - Neurological and Functional	AFOMP Awards Session	16.2 Motion Analysis	Special Symposium: IFMBE Special Symposium on Biomedical and Clinical Engineering Education Part II: Global Collaboration in Education and Industry		Special Symposium: Radiopharmaceutical Therapy (RPT): Personalized Dosimetry-Based Treatment Planning, is the Goal in Sight?	Special Symposium: Patient radiation safety: a dialogue with referring physicians					16:00
16:00	Evaluation of radiation treatment planning algorithms in MRT and VMAT: A comparative dosimetric plan quality for central and peripheral lung tumors Dr Atul Mishra	Defining optimal regions of interest for radiation esophagitis prediction with dosimetric for lung cancer by multi-branch fusion auxiliary learning Dr Xiance Jin			Classification of signals from inertial sensors to evaluate the tremor level Dr Jan Havlik		Utilising optimisation algorithms for accurate 3D markerless motion reconstruction Dr Callum John Thornton			Status of QA and harmonization in Radiopharmaceutical Therapy (RPT) – a major remaining obstacle to personalized dosimetry-based treatment planning. Mr Mauro Carrara	Prof Madan Rehani					16:00
16:10		Pathomic topology-based predictive models of radiation treatment response in patients with non-small cell lung cancer Miss Yu Jin	DICOMater: An open-source tool for converting 3D mesh models to synthetic DICOM CT images for medical physics research A/Prof Michael Douglass		Tremor signal classification for detecting errors in operator labels Dr Jan Havlik			Adapting biomedical engineering education to emerging technologies: Challenges and strategies Prof Piotr Ladyzynski								16:10
16:15		Development of a CT radiomics model for differentiating bone metastases from normal bone regions without ROI delineation Ms So Eun Choi			Smartphone VS Eye Tracker: A Validation of the eye-tracking algorithm for ophthalmological and neurological research Mr Wanzi Su		New metric detects healthy gait adaptation in post anterior cruciate ligament reconstruction individuals in response to asymmetric walking protocol Dr Kristin Morgan			Why should we performing dosimetry in radiopharmaceutical therapy? Dr Robert Hobbs	Margaret Arstall					16:15
16:20	Impact of improper Tongue-and-Groove modelling on dosimetric accuracy in Eclipse's Enhance Leaf Model (ELM) Mr Flavio Nelli				Negative correlation between alpha-band functional connectivity and small-world organization in patients with major depressive disorder Prof Maie Bachmann		Wearable Inertial Sensors and Machine Learning Applications for Lower Limb Rehabilitation following Total-Knee Arthroplasty: A Systematic Review Miss Alicia Mitchell	Health Informatics at the University of Coimbra: discussion of a pedagogical model for the era of LLMs Prof Paulo Carvalho		Personalized Dosimetry in Radiopharmaceutical Therapy in Southeast Asia: Opportunities and Challenges Dr Kliwat Khamwan	Krishnaswamy Sundararajan					16:20
16:30	Evaluation of RayStation generated CBCT based synthetic CTs for replan decision making Dr Shrikant Deshpande	Potentials of Machine Learning based CT-Radiomics models in predicting response to local and systemic HCC therapy – A review Mr Bappah Suleiman Yahya	Viability of Cerrobend and tungsten carbide as aperture materials in pencil beam scanning proton therapy Mr Ja Wei Law	Melissa Martin, David Thwaites, Wayne Beckham, Chris Trauernicht, Robin Hill This workshop introduces shielding design for radiotherapy facilities, covering linear accelerators, neutron protection, KV and CT rooms, and the process from design to evaluation. Faculty bring international expertise from the USA, UK, Canada, South Africa, and Australia.		Electronic vs. Ionic in EEG Data Analysis by Digital Signal Processing Ms Carla Marilia Loeff Labarthe	Prof Kyonari Inamura Memorial Orator presented by Prof Peter Metcalf, followed by the celebration of 25 years of AFOMP. Please come and join us for the launch of the special issue of AFOMP PULSE newsletter.	Method for quantitative assessment of intraoperative patellofemoral kinematics Mrs Olivia Scheide								16:30
16:40		Unsupervised Clustering Analysis to Identify Compelling Events Patterns in Stage II NSCLC Patients Treated with Radiotherapy Miss Alessandra Catalano						Teaching Medical Devices Regulation, Management, and Assessment using AI- An Exploratory Trial Prof Nicolas Palikarakis								16:40
16:45	SEAFARER harmonised information platform (SHIP): development of an interactive beam model data entry and parameter comparison tool Dr Lauren May	Automated Radiomics Analysis for Predicting Histopathology, Genomics, and Treatment Outcomes in Hepatocellular Carcinoma Ms Suning Li	Mechanistic modelling of the tumour microenvironment, timing of radiotherapy and immunotherapy and its effect on tumour growth Miss Allison Ng													16:45
17:00	Evaluating the Effect of Gantry Angle Increment in VMAT Treatment Planning Miss Mohana Maninathan		Radiobiological assessment of the anatomical structures involved in swallowing dysfunction due to head-and-neck cancer radiotherapy: A cohort and modelling study Dr Mohammad Amin Mosleh-Shirazi		Real-Time Extraction of Movement-Related Cortical Potentials Without Averaging: A Novel EEG Processing Approach Miss Ayano Nakagawa											17:00
17:15	An automated offline adaptive workflow for hypo-fractionated prostate treatment with Halcyon Hypersight CBCT imaging Mr Stephen How		Analyzing DNA double-strand breaks caused by carbon ions based on Monte Carlo simulations and biological experiments Ms Xianghui Kong, Dr Xiaoman Li, Prof Tian Li, Prof Yibao Zhang													17:15
17:30	IOMP Teaching Lecture 7: Image Quality Metrics Ioannis Siochopoulos Kevin Hickson	Young Engineers Town Hall: An interactive forum where students and early career professionals in biomedical engineering drive discussion, exchange ideas, and highlight the priorities of the next generation.														17:30
18:00												IFMBE Publicity Committee 17:30-18:30		AFOMP Council Meeting 17:30-19:00		18:00
18:30																18:30
19:00																19:00
22:00					APSIG Trivia Night - Myik Bar 18:00-22:00											22:00
End of Day 4																

Program current as of 27 September 2025, subject to change

Friday, 03 October 2025											Business meetings		
Hall A	Hall B	Hall CD	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7	Gilbert Suite	Room E1+E2	Gilbert Suite	
07:00 07:30	Special Symposium: Early Career Medical Physicists in Asia-Oceania Federation of Organizations for Medical Physics (AFOMP)	Special Symposium: Advanced Medical Science and Technology in Alternative Medicine: Integrating Green Sustainability and Environmental Protection	Morning Run Club Start your day with a guided group run along Adelaide's River Torrens. Led by local volunteers, departing at 7:30am each day from the Adelaide Oval footbridge. BYO water and sunscreen. There will be a short (2.5 km) and long (5 km) loop each morning.	Special Symposium: Medical Physics for World Benefit: can a small organisation make a difference?	Special Symposium: Lighting the Way: Novel Uses of Surface Guidance in Radiation Therapy	IOMP Teaching Lecture 8: Theranostics Basics - RadioPharmaceuticals Rob Hobbs Ashleigh Hull	Special Symposium: Bridging Global Clinical Engineering Expertise Through Collaborative Working Groups	Special Symposium: Digital twins for non-invasive personalized electrical stimulation	Special Symposium: The realities of scientific publishing				
07:30	Introduction of ECMP: Empowering Early Career Medical Physicists in Asia-Oceania Prof Mary Joan Madappillikkunel	Ren Shyan Liu, Po-Yu Huang, Kang-Ping Lin		Regional or global: can regional chapters support the global goal of an organisation? Prof Tomas Kron	The role of surface guidance in radiation oncology error detection Ms Stephanie Parker		Presenting the project: Clinical Engineering Collaborative Working Groups Prof Fabiola Martinez-Licona	Uncertainty quantification for phrenic nerve stimulation Ms Laureen Wegert	I vs. AI in academic writing - legal and ethical aspects of the publication Prof Magdalena Stoeva				
07:40	Bridging science and clinical practice: The evolving role of early career medical physicists Dr Aik Hao Ng			Creating a new organisation: seeing it grow and help others grow Mr Eduard Gershkevitch	Innovating with Vision: SGRT's Evolving Role Beyond Patient Positioning Prof Juergen Meyer		Further details to be available shortly	Optimal parameters for electric stimulation in an occupational context Dr Stephan Laurenz	Searching for the optimal journal to publish your work - challenges and implications for academic success Prof Iuliana Toma-Dasu				
07:50	Social Media for Young Scientists Dr Lars Juhl Jensen			Atua Yorke	SGRT in paediatric radiation therapy: experience from Peter MacCallum Cancer Centre Mr Deepak Basaula			Addressing variability in non-invasive electric stimulation of the nervous system with electrical field modeling Prof Jens Hauelsen	Tips on getting published, some do's and don'ts Jamie Trapp				
08:00 08:30				Parminder Baran									
Hall CD Plenary Session - Prof Maryellen Giger											Gilbert Suite	Room E1+E2	Gilbert Suite
AI and MIDRC in medical imaging Prof Maryellen Giger													
AI at the intersection of medical physics and art: Parallels, contrasts and public perception Prof John Damlakis													
Morning Tea											IFMBE In-coming AC 10:00-11:00		
11:00	Special Symposium: Ready, willing and able: Professional Standards for the emerging now	AFOMP Awardee Presentation	IFMBE/ IAMBE Early achievers Symposium "Frontiers of BME opportunities and challenges"	Special Symposium: Radiation Medicine in the Pacific: The Role of IAEA and Regional Collaboration	3.4 Image Processing	1.24 Detectors in Radiation Oncology 2	1.7 Commissioning + Superficial	3.3 Image Analysis	15.1 Biosignals - Cardiac				
11:00				From Film to Future: Tonga's Radiology Digital Transformation Journey Dr Ana Finau Akauala	Study of bio-molecular and elemental changes in Mild Traumatic Brain Injury (MTBI) using Fourier Transform Infrared (FTIR) Imaging spectroscopy combined with Chemometric analysis and Laser ablation inductively-coupled plasma mass spectrometry (LAICPMS) Dr Mohamed Marzouk	Evaluation and Optimization of a Novel Luminescence Detector (Lexsyg Smart) for Radiotherapy In-Vivo Dosimetry Mr Andrew Hirst	Commissioning & Clinical Implementation of the First Cyber Knife S7 System in Rajasthan: A Comprehensive Report Ms Himani Gautam	Accurate determination of the modulation transfer function of edge-enhanced computed tomography scans Mr Joshua Bogner	Analysis of ST changes in ECG based on Matching Pursuit algorithm A/Prof Elzbieta Olejarczyk				
11:10	Dr Iain Brown		Engineering Interfaces: Bridging Biomaterials, Imaging, and Education in Biomedical Innovation Diana Osorio			Correction of scintillation afterglow pile-up in the characterisation of a temporally gated fibre optic dosimeter Mr Joshua Southwell			Quality of ECG signals from wearable devices estimated by k-NN learner based on set of nonlinear features A/Prof Elzbieta Olejarczyk				
11:15	Bernadette Foley		Papua New Guinea's Vision: Becoming a Regional Hub for Radiation Medicine in the Pacific Dr Dora Lenturut-Katal	Adapting AI-Based Medical Imaging Techniques for Forensic Gunshot Residue Analysis Using Infrared Thermography Mr Marek Sokol		Effect of a commercially available platinum cured silicone rubber material on photon beam exit dose Ms Stephanie Parker	Improving accuracy in the use of radiotherapy in superficial disease Mrs Keya Amarsee	Investigating table-based implementations of universal non-circular trajectories for metal artifact reduction during intraoperative CBCT imaging: a pelvis phantom study Dr Tess Reynolds	Functional Source Separation of ECG for cardiovascular disease diagnosis A/Prof Elzbieta Olejarczyk				
11:20				Revolutions in Radiology in Fiji: The Impact of Quality and PACS Implementation in a Remote Island Nation Mrs Mereoni Gaunavinaka Mrs Jimaima Quimvutia	Applications for Parametric Image Evaluation and Comparison Dr Jan Hejda				Modulation of cardio-mechanical dynamics in the contact pressure of a cECG test bench Mr Jannik Prüssmann				
11:30	Ass/Prof Devakar Epari	AFOMP award ceremony to appreciate the high achievers in the AFOMP region, who will be presenting on their research. Includes lifetime achievement award presentation by Prof Peralta.	Design of coatings for metallic materials with potential biomedical applications and evaluation of their performance in biological environments Maria Florencia De La Hoz										
11:40				Building Regional Expertise: Reflections on the Pacific Training Course in Quality and Safety in Radiology Prof Eva Bezak	Reciprocal Imaging Process Method in Magnifying Information of Radiotherapy Delivery Variation Dr Kalle Li				Improved Heart Sound Classification Using Deep Learning Models and Time-Frequency Features Dr Marni Azira Markom				
11:45						1.25 Detectors in Radiation Oncology 3							
11:45						Energy dependence of Farmer type chambers for air kerma up to 1.5 MV photons Dr Chris Oliver	A review of the updated IAEA TRS398 Code of Practice for kilovoltage x-ray beam dosimetry Dr Robin Hill	Mr Winfred Michael Raj Edwin Andrew	Simultaneous Detection of Sleep Apnea and Atrial Fibrillation from Single-Lead ECG: ANN-ICA versus AFOSANet Deep Learning Approaches Dr Fehrvan Setiawan				
11:50													
12:00				Enabling Change: The IAEA's role in advancing quality and safety in radiology across the Pacific Dr Virginia Tsapaki	Realtime Synchrotron Tomography via Non Uniform Fast Fourier Transform and GPUs Mr Dinesh Kumar	Semiconductor Diode Detector on Skin Dose Measurement in Breast Radiotherapy: Single Centre Study Mr Kok Phin Teo	Commissioning and validation of RapidArc Dynamic in Icon Group: First clinical deployment in the southern hemisphere. Mr Matthew Jennings	Automated Catphan image quality analysis using Pylinaac. Mr George Antoniou	Object Detection with YOLOv8 Nano: Event-Based Sleep Apnea Detection from ECG Spectrograms A/Prof Che-Wei Lin				
12:15				A framework for designing medical devices resilient to low-resource settings Dr Davide Piaggio	Panel discussion and Q&A: What will the future bring?	A novel reconstruction algorithm for improving resolution in bioelectrical impedance based pigeon hole imaging Prof Muhammad Abdul Kadir	Evaluation of MicroDiamond Detector Response in Small Field Dosimetry: Impact of Peak Output Correction on Output Factor Measurements Ms Himani Gautam	HyperSight for Truebeam - First Australian Commissioning Experience Dr Frank Gagliardi	Detecting Coronary Artery Disease Through Retinal Vessel Analysis Using Polarisation Sensitive Optical Coherence Tomography Dr Hadi Afsharan				

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Friday, 03 October 2025										Business meetings																							
12:30	Lunch																																
12:45																																	
12:30											BME Board Meeting 12:30-14:00	IUPESM AC2 Working Lunch 12:30-14:00																					
14:00	Hall A	Hall B	Hall CD	Riverbank Room 1	Riverbank Room 2	Riverbank Room 3	Riverbank Room 4	Riverbank Room 5	Riverbank Room 6	Riverbank Room 7																							
14:00	IFMBE Awards Session	Special Symposium: IUPESM Symposium - SHAPES 4 LMICs (Sustainable Healthcare through Advancement of Physical and Engineering Sciences for LMICs) Dr Aik Hao Ng	Keynote Session - Prof Nayana Parange	IOMP Best Presentation Session	23.3 Clinical Engineering Practice 3	16.3 Soft Tissue Biomechanics	Special Symposium: High patient radiation doses through imaging and likelihood of new cancers Prof Madan Rehani	24.5b - Biomedical Engineering Education	1.6 Imaging in Radiation Therapy 2	18.1 Cardiovascular Instrumentation																							
14:00	Further details to be available shortly	Technological innovation and green initiatives for a sustainable healthcare Dr Aik Hao Ng	Bridging Gaps in Maternal and Newborn Health: The Global Promise of Point-of-Care Ultrasound Prof Nayana Parange	Hyperthermia in Oncology: Nanoparticle-Based Advances IUPAP Early Career Scientist Prize in Medical Physics Dr Jesús García Ovejero	Women in Clinical Engineering: challenges, strengths, and future directions Prof Fabiola Martínez-Licona	Investigation of Artificial Heart High Shear-Induced Red Blood Cell Damage and Relationship with Hemostasis Dysfunction Dr Yuan Li	Patient cumulative doses in diagnostic imaging and initial data on new cancers Prof Madan Rehani	Health Technology Assessment of Medical Devices Murilo Contó	Commissioning a SGRT System, AlignRT, for DIBH Breast Treatments Mr Riley Croxford	A comparison of gastric reactance (XL) and perfusion indicators in high-risk cardiac surgery patients Mr Ruben Gaitan Ortiz																							
14:10		The Role of Biomedical Engineering in the Design of Hospitals Oriented Toward the Sustainability of Health Services Prof Leslie Yessenia Cleza Huane		The physics of belonging: Why diversity matters in clinical research and nuclear medicine. Prof Karen Jones	Best Oral IOMP Presentations	Astra management: Validation of a digital platform for monitoring the maintenance of biomedical equipment Catherine Boggio, Mr Joao Torres Rivera	Effects of Aspirin and Warfarin on Platelet Coagulation Function Under High Shear Condition Created by Ventricular Assist Device Dr Hongyu Wang	Cumulative imaging and radiotherapy dose in photon and proton radiotherapy – an individualised approach for second cancer risk estimation Prof Iuliana Toma-Dasu	Professional Supervision for Biomedical and Rehabilitation Engineers working in clinical and point-of-care settings Dr Emma Friesen Osborne	The development and investigation of an internal-external motion correlation technology that enables real-time 6 degrees-of-freedom image guided radiotherapy Ms Alicja Kaczynska	Diurnal Variability of QTc Interval in Holter ECG Lead II: A Comparative Study Between Heart Failure Patients and Healthy Individuals Ms Shi-Yi Wu																						
14:15		Collaborating Across Disciplines to Drive Sustainable Healthcare Solutions Prof Sudesh Sivarasu										Best Poster IOMP Presentations	CALIBRATION OF MEDICAL EQUIPMENT - WHY IT IS CRITICAL? Mr Symon Mbakah	Biomechanics of matrix stiffening-induced liver sinusoidal endothelial cell defenestration Dr Ning Li	In-Hospital Professional Clinical Engineering training by University-supervised Internship and Residency programs Prof Franco Simini	A Comparison of Intelligent 4D CT Sequence Scanning (4DCT) and Conventional 4DCT in Radiotherapy Imaging Dr Neda Gholizadeh	Effect of surface guided radiation therapy (SGRT) on the magnitude of post image guidance shifts for prostate patients Ms Stephanie Parker	A direct left-ventricular cannulation blood pump as a mechanical circulatory support system during emergency cardiac arrest Dr Francis Chikweto															
14:20		Medical Physics for Sustainable Cancer Care in Africa: Innovations, Challenges, and Opportunities Prof Francis Hasford																	Challenges and prospects for healthcare quality improvement and patient safety through systematic medical equipment management Prof Kang Ping Lin	Impact of data preprocessing in improving ECG and infusion pumps failure prediction accuracy Ernesto Iadanza	Bridging the skills gap in Clinical Engineering through industry-specific learning and development programs Mr Graeme Macaulay	Characterizing Respiratory Phases with 3D Vane MRI: A Cross-Correlation Approach to 4D-CT Matching in Liver Cancer A/Prof Jiayun Chen	Effect of stress tests on the forehead photoplethysmographic waveform index Mr Kristjan Pilt	The effect of elevated microvascular resistance on resting indices in stenosed arteries Tamasin Atkins									
14:30																																	
14:45																																	
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15:00																																	
15:15																																	
15:30		Closing Ceremony																															
17:00	End of Day 5																																



**IUPESM
2025**

World Congress on Medical Physics
and Biomedical Engineering

IUPESM World Congress on Medical Physics and Biomedical Engineering 2025
29 September – 4 October 2025
Adelaide Convention Centre

Program current as of 27 September 2025, subject to change

Saturday 4 October 2025

09:00

10:30

11:00

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17:30

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[Optional Technical Tours](#)

[Locations: Royal Adelaide Hospital, Tonsley, SAHMRI and MITRU, Cleland National Park, Lot 14](#)

[Click here for more details on the available tours!](#)