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3rd European Congress of Medical Physics

Embracing Change, Sharing Knowledge



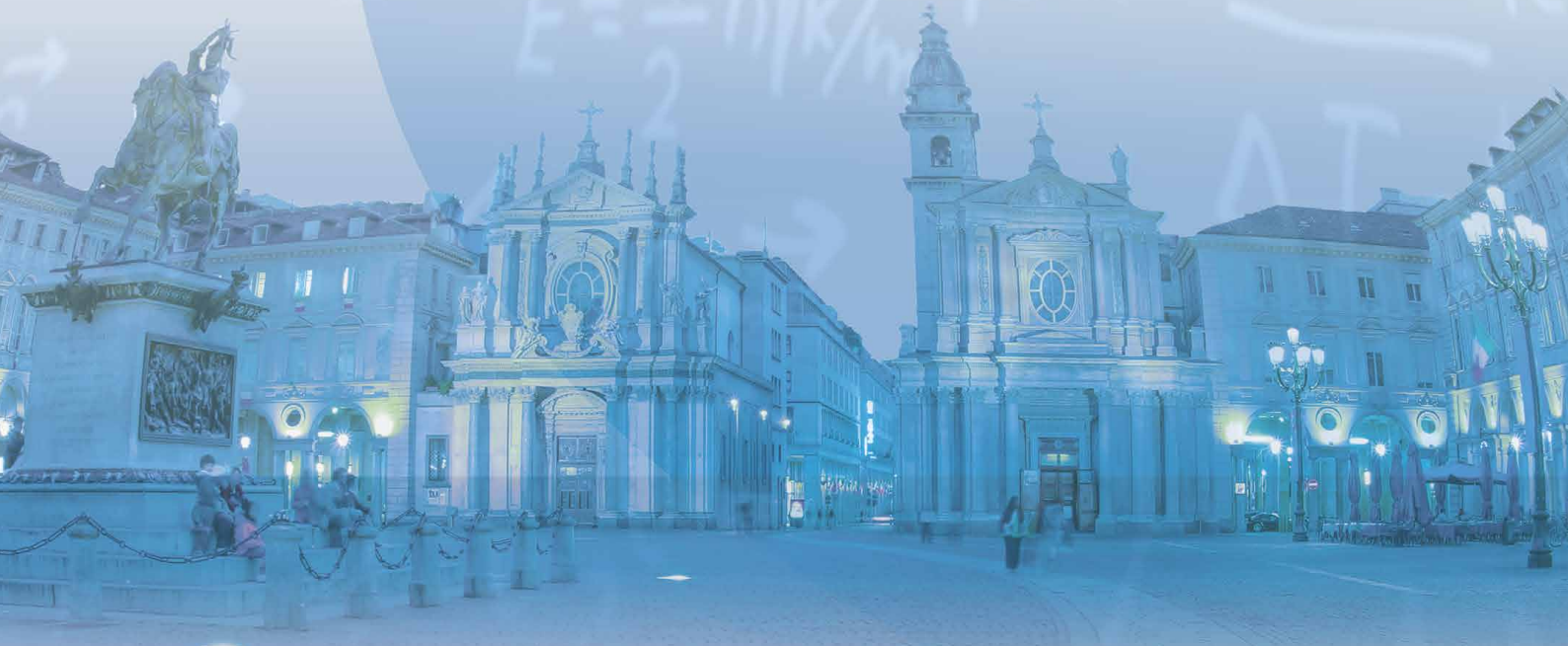
11° Congresso
Nazionale AIFM

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16-19 June 2021

VIRTUAL EDITION

SCIENTIFIC PROGRAMME



ECMP 2020 welcomes



Sociedad Española
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WEDNESDAY 16 JUNE 2021

Time table	LIVE ROOM • 1	LIVE ROOM • 2	LIVE ROOM • 3	LIVE ROOM • 4
9.00 17.00	AIFM DAY 11° AIFM National Congress	Precongress EFOMP School (ESMPE) <i>Satellites in:</i> Artificial Intelligence	Precongress EFOMP School (ESMPE) <i>Satellites in:</i> Nuclear Medicine Dosimetry	Precongress EFOMP School (ESMPE) <i>Satellites in:</i> Patient Specific QA in Radiotherapy

THURSDAY 17 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	RT	ECSK
8.00	<p>Refresher Course RT Radiotherapy. Small Field Dosimetry. Development and Challenges <i>Chair. Nuria Jornet [ES]</i></p> <p>New Developments and Detectors for Small Field Dosimetry. <i>Hugo Palmans [UK]</i></p> <p>Challenges and Opportunities of Small Field Dosimetry in Clinical Practice. <i>Paolo Francescon [IT]</i></p>	<p>Refresher Course ECSK Embracing Change, Sharing Knowledge <i>Chair. Leonard Wee [NL]</i></p> <p>Biological Basis for Occupational Dosimetry and Dose Limits. <i>Klaus Rüdiger Trott [DE]</i></p> <p>Small Field Dosimetry for QA of Stereotactic Radiotherapy. <i>Serenella Russo [IT]</i></p>
9.00	Live Discussion & Coffee Break	
9.30	<p>Scientific Session RT <i>Chair. Jens Edmund [DK]</i></p> <p>Keynote • Automated Treatment Planning. Potentials and Limitations. <i>Ben Heijmen [NL]</i></p> <p>Production and Dosimetric Characterization of a FLASH Electron Beam. <i>Eleonora Bortoli</i></p> <p>Radiation Enhancement for kV and MV X-ray Irradiation of Breast Cancer Cells Incubated with Gold Nanoparticles. <i>Alessia Tudda</i></p> <p>Validation of SNPs Associated with Late Severe Toxicity after Radiotherapy for Prostate Cancer. <i>Eliana Gioscio</i></p> <p>Combining Computed Tomography and Biologically Effective Dose Radiomics Improve Prediction of Tumor Response to Robotic Lung SBRT. <i>Michele Avanzo</i></p> <p>Training and Validation of a Robust PET Radiomic-based Index Predicting Distant-relapse-free-survival after Radio-chemotherapy of Patients with Locally Advanced Pancreatic Cancer. <i>Martina Mori</i></p>	<p>Scientific Session ECSK <i>Chair. Marco Brambilla [IT]</i></p> <p>Keynote • Monte Carlo in Imaging. <i>José M. Udías [ES]</i></p> <p>Machine Learning with Imbalanced Clinical Data. Does Synthetic Minority Oversampling Help? <i>Avishek Chatterjee</i></p> <p>A Machine-learning Radiomics Approach in Prostate Cancer Studies. <i>Giorgio Russo</i></p> <p>Diffusion-weighted MRI-based Textures as Imaging Biomarker for Early Evaluation of the Response to Therapy in Oropharyngeal Cancer. <i>Silvia Tommasin</i></p> <p>Computer-Aided Diagnosis of Masses in Breast CT Imaging. Combined Power of Handcrafted and Deep Learning Radiomics. <i>Marco Caballo</i></p> <p>Denoise and Segmentation of CT Images through CNNs. Performance and Post-processing Characterization. <i>Federico Valeri</i></p> <p>Characterization of Cadmium Telluride as Detector Material for Multispectral Imaging Devices. <i>Stefanie Kirschenmann</i></p>

THURSDAY 17 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	RT	ECSK
11.00	<i>Live Discussion & Coffee Break</i>	
11.30	<p>EANM Joint Session - Advances in PET Challenges of Integration between the Different Disciplines in Medical Physics Related to Hybrid Equipment <i>Chair. Dimitris Visvikis (FR)</i></p> <p>AI for PET. <i>Andrew Reader (UK)</i></p> <p>Large Axial Field of View PET. <i>Kuangyu Shi (CH)</i></p> <p>The Promise of Digital PET/CT. <i>Ian Armstrong (UK)</i></p>	<p>Joint Session EuSoMII Deep-Learning Applications in Mammography <i>Chair. Federica Zanca (IT)</i></p> <p>Technical Challenge. <i>Jonas Teuwen (NL)</i></p> <p>Clinical Implementation and Evaluation. <i>Sue Astley (UK)</i></p> <p>Integration in the Workflow of the Radiology Ecosystem. a European Deployment. <i>Katia Katsari (NL)</i></p>
12.30	<i>Live Discussion</i>	
12.50	<i>Lunch Break and Satellite Symposia</i>	
14.00	<p>ECMP Welcomes Spain. Brachytherapy <i>Chair. José Pérez-Calatayud (ES)</i></p> <p>In-vivo Dosimetry in Brachytherapy. <i>Antonio Herreros (ES)</i></p> <p>Skin Brachytherapy. <i>Victor González (ES)</i></p> <p>New Algorithms in Brachytherapy Dosimetry. <i>Facundo Ballester (ES)</i></p> <p>Cervix Brachytherapy. <i>José Pérez-Calatayud (ES)</i></p>	<p>Scientific Session ECSK <i>Chair. Mark Lubberink (SE)</i></p> <p>Keynote • Radiomics in Multimodality Imaging. <i>Dimitris Visvikis (FR)</i></p> <p>A Method for the Quantitative Discrimination of Breast Tissue Chemical Composition Based on the Spectral Decomposition of X Ray Tomographic Breast Images. <i>Stefan Vrbaski</i></p> <p>Improving Spinal Cord fMRI Using High Order and Slice-specific Linear Shimming. <i>Dimitra Tsivaka</i></p> <p>SPR Stoichiometric Calibration of a Single Energy CT and Validation Using Fresh Tissue Samples. <i>Pedro Bora Aguilar Redondo</i></p> <p>Promises of Film Dosimetry Based on Radiophotoluminescence Imaging in Radiotherapy Including Charged Particle Beams. <i>Marijke De Saint-Hubert</i></p> <p>3D Diamond Detectors for Small Field Dosimetry. <i>Kheida Kanxeri</i></p>

THURSDAY 17 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	RT	ECSK
		<p>Modulation Complexity Metrics for Robotic MLC Plans. Predictors of Quality Assurance Results. <i>Laura Masi</i></p> <p>Texture Analysis in 177Lu SPECT Phantom Images to Assess the Uniformity Requirements. <i>Emilio Mezzenga</i></p>
15.30	Live Discussion & Coffee Break	
16.00	<p>Scientific Session RT <i>Chair. Brendan McClean (IE)</i></p> <p>Keynote • Innovative Techniques in Radiotherapy. <i>Yolanda Prezado (FR)</i></p> <p>Towards Real-time EPID-based 3D In-vivo Dosimetry Using Machine Learning. <i>Juliana Cristina Martins</i></p> <p>Patient Specific Evaluation of Breathing Motion Induced Interplay Effect. <i>Mohammad Varasteh Anvar</i></p> <p>CIED Malfunctions by Direct Exposure at Doses $\geq 2\text{Gy}$. a Prospective, Multi-centre, In-vitro Evaluation. <i>Maria Daniela Falco</i></p> <p>The Effect of Modern Radiotherapy Techniques Using Flattening Filter-free Beams (6 MV) on Cardiac Implantable Electronic Devices (CIEDs). <i>Giorgia Guerra</i></p> <p>Dosimetric Study of Fetal Dose during External Beam Radiotherapy Using OSLD. <i>Marta Paiusco</i></p> <p>Practical Strategies for Plan Complexity Reduction. <i>Alessandro Scaggion</i></p> <p>Establishing Ground Truth Training Data for Deep Learning in Radiotherapy. <i>Eva Ambroa Rey</i></p>	<p>Scientific Session ECSK <i>Chair. Jonas Andersson (SE)</i></p> <p>Keynote • Medical Device Integration with IT Networks. <i>Maurice Janssen (NL)</i></p> <p>X-ray Grating Interferometry Design for the 4D GRAPH-X System. <i>Alessandra Patera</i></p> <p>Fabrication and Characterization of an Heterogeneous Phantom for Quantitative MRI. <i>Adriano Troia</i></p> <p>Effect of Dictionary Optimization on Relaxation Time Maps in Low Field MR Fingerprinting Applications. <i>Davide Cicolari</i></p> <p>Comparison of Machine Learning Classifiers to Predict Patient Survival and Genetics of GBM. Towards a Standardized Model for Clinical Implementation. <i>Antonio Napolitano</i></p> <p>Compliance Assessment of Different Radiomic Software Programs with Respect to the IBSI Standard. <i>Andrea Bettinelli</i></p> <p>Registration of Dynamic Computer Tomography Images for In-vivo Joint Kinematics. <i>Benyameen Keelson</i></p> <p>Assessment of Two Printing Technologies for the Manufacturing of Anthropomorphic Breast Models. Preliminary Results. <i>Tihomir Georgiev</i></p>
17.30	Live Discussion	

FRIDAY 18 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	NM	RPD, BME, DIR
8.00	<p>Refresher Course NM Nuclear Medicine. Theranostics <i>Chair. Manuel Bardies [FR]</i></p> <p>State of the Art in Nuclear Medicine Theranostics. <i>Glenn Flux [UK]</i></p> <p>New Theranostic Isotopes. <i>Cecilia Hindorf [SE]</i></p>	<p>Special Focus Session RPD Radiation Protection and Dosimetry <i>Chair. Antonio Lallena [ES]</i></p> <p>Keynote • DRLs. The Good, The Bad and The Ugly. <i>Madan Rehani [USA]</i></p> <p>Results from EUCLID (European Study on Clinical DRLs). <i>John Damilakis [GR]</i></p>
9.00	Live Discussion & Coffee Break	
9.30	<p>Scientific Session NM <i>Chair. Stefaan Vandenberghe [BE]</i></p> <p>Keynote • The First Total Body PET Scanner (EXPLORER). <i>Terry Jones [USA]</i></p> <p>Evaluation of a Novel Data-driven Respiratory Gating Technique in PET/CT Exams. <i>Valeria Trojani</i></p> <p>Optimization of Myocardial Perfusion SPECT Dose in Dialysis Patients. <i>Laura Pagan</i></p> <p>A PET-based Radiomics Model of Brain Metastasis. <i>Giorgio Russo</i></p> <p>Radioembolization of Hepatocarcinoma with 90Y Glass Microspheres. Treatment Optimization Using the Dose-toxicity Relationship. <i>Carlo Chiesa</i></p> <p>The Potential Value and Pitfalls of Radiomics for Clinical Positron Emission Tomography (PET) in DLBCL. a Comparison between Two of Most Widely Used Segmentation Thresholds. <i>Federico Dalmaso</i></p> <p>Large Area SiPM Pixels for SPECT. a Cost-effective Approach to Build Compact Cameras. <i>Daniel Guberman</i></p> <p>Does Voxel Dosimetry Improve Clinical Outcome Prediction in Radioembolization Treatment? <i>Chiara Romanò</i></p>	<p>Scientific Session RPD, BME, DIR <i>Chair. Sonia NIELLES-Vallespin [UK]</i></p> <p>Keynote • Examples of Practical and Clinical Consequences after Implementing Dose Monitoring. <i>Elina Samara [CH]</i></p> <p>Surgeon Eye-lens Dose Monitoring in Interventional Procedures. a Multi-centre and Multi-procedure Survey. <i>Simone Busoni</i></p> <p>Review of Guidelines and Legislative Documents Regarding the Use of Patient Contact Out-of-field Shielding. <i>Marta Sans Merce</i></p> <p>Dosimetric and Radiation Cancer Risk Evaluation of High Resolution Thorax CT During COVID-19 Outbreak. <i>Caterina Ghatti</i></p> <p>Use of an MRI Scan Based 3D Printed Personalized Phantom to Assess Lens Dose Reduction Factors for Lead Glasses in Interventional Cardiology. <i>Susan Maguire</i></p> <p>Reference Dosimetry Audits for Radiotherapy Beams in Italy. <i>Maria Pimpinella</i></p> <p>Irradiation of a Pregnant on Leksell Gamma Knife Icon/Perflexion. Radiobiological Risk Assessment and Three Clinical Cases. <i>Josef Novotny</i></p>
11.00	Live Discussion & Coffee Break	

FRIDAY 18 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	NM	RPD, BME, DIR
11.30	<p>Joint Session ESMRMB Quality Control in Hybrid MR Imaging <i>Chair. Ioannis Seimenis [GR]</i></p> <p>Challenges of Quality Assessment and Control in Hybrid Imaging. <i>Bernhard Sattler [DE]</i></p> <p>Quality control in the MR LINAC. <i>Andreas Wetscherek [UK]</i></p> <p>Quality Control in PET-MR. <i>Georg Schramm [BE]</i></p>	<p>Joint Session ESR Multiple Imaging Examinations <i>Chair. Annalisa Trianni [IT]</i></p> <p>Multiple Imaging Examinations. ESR and ISR Views. <i>Guy Frija [FR]</i></p> <p>Cumulative Radiation Dose from Medical Imaging. <i>Marco Brambilla [IT]</i></p> <p>Multiple Imaging Optimisation-Radiologist and Medical Physicist Point-of-view. <i>Boris Brkljačić [HU], Jenia Vassileva [AT]</i></p>
12.30	Live Discussion	
12.50	Lunch Break and Satellite Symposia	
14.00	<p>Scientific Session NM <i>Chair. Søren Holm [DK]</i></p> <p>Keynote • Dosimetry in Nuclear Medicine. <i>Manuel Bardies [FR]</i></p> <p>Clinical Practice Implementation of Personalized Dosimetry in Patients Treated with ¹⁷⁷Lu-DOTATATE. <i>Valentina Pirozzi Palmese</i></p> <p>Comparison of mRECIST Versus Densitometric Method for Radioembolization Treatment Response Evaluation in Hepato-cellular Carcinoma Patients. <i>Chiara Romanò</i></p> <p>Diagnostic Reference Levels in Nuclear Medicine Single Photon Emission Imaging in Croatia. <i>Dea Dundara Debeljuh</i></p> <p>Implementation of the New QUANUM 3.0 Tool as an Internal Audit Methodology in a Large General Hospital. <i>Luiza Mello</i></p> <p>Influence of Volumes, Scan Times and Radiotracer Distributions on PET Radiomics Features. a Phantom Study. <i>Lisa Milan</i></p>	<p>Scientific Session RPD, BME, DIR <i>Chair. Kirsten Bolstad [NO]</i></p> <p>Keynote • Clinical Applications of Spectral Imaging and Dynamic CT. <i>Nico Bols [BE]</i></p> <p>RadiomiK Phantom to Test the Robustness of CT Radiomic Features. <i>Stefania Pallotta</i></p> <p>Analysis of Rejected Radiological Images Across 5 Centres. <i>Elina Samara</i></p> <p>Verification of Threshold NPWE Detectability Indices with a Novel Statistical Alternative for Image Quality Assessment in Digital Mammography. <i>David Caldwell</i></p> <p>Assessment of Task-based Image Quality for Abdominal CT Protocols Linked with National Diagnostic Reference Levels. <i>Damien Racine</i></p> <p>Conversion of Dose Parameters between Cone-beam CT and Multi-slice CT. a Structured Review of the Current Literature. <i>Steffen Ketelhut</i></p>

FRIDAY 18 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	NM	RPD, BME, DIR
	<p>Clinical Impact on the Radiotherapy Treatment Planning of the New EARL FDG-PET/CT Accreditation Versus the Previous EARL1. <i>Antonio Leal</i></p> <p>Longitudinal [18F]flortaucipir PET. Comparison of Quantitative and Semi-quantitative Parameters. <i>Hayel Tuncel</i></p>	<p>On Site-specific dose Trigger Levels in Case of High-dose Interventional Radiology Procedures Using Radiation Dose Monitoring Software. <i>Stefano Riga</i></p> <p>Validation of Probabilistic Fiber Tracking Method by Evoked Potential Recorded in Epileptic Patients. <i>Domenico Lizio</i></p>
15.30	Live Discussion & Coffee Break	
16.00	<p>Scientific Session NM <i>Chair. Bernhard Sattler (DE)</i></p> <p>Keynote • Quantitative SPECT. <i>Brian Hutton (UK)</i></p> <p>Dosimetric Evaluation of Receptor-heterogeneity on the Therapeutic Efficacy of Peptide Receptor Radionuclide Therapy. Correlation with DNA Damage Induction and In-vivo Survival. <i>Giulia Tamborino</i></p> <p>Neuroendocrine Tumor Therapy with 177Lu-DOTATATE. the Dosimetric Approach. <i>Anna Rienzo</i></p> <p>Targeted Alpha PSMA-based Therapy of Metastatic Castrate-resistant Prostate-cancer Patients (mCRPC). Prediction Dosimetry. <i>Maria Luisa Belli</i></p> <p>Quality Control in PET/CT and PET/MRI. Results of an EFOMP Survey Amongst Europe. <i>Gabriel Reynes</i></p> <p>Impact of Cellularity and Heterogeneity on Deposited Absorbed Dose Patterns of Alpha and Beta Emitters in a Model of Tumoral Clusters. <i>Jonathan Tranel</i></p> <p>Qualitative and Quantitative Analysis of Y-90 Imaging of SPECT/CT and PET/CT Phantom Studies. <i>Agata Kubik</i></p> <p>Dosimetric Approach to 131I Remnant Ablation in Differentiated Thyroid Cancer. <i>Fatma Arzu Görtan</i></p>	<p>Scientific Session RPD, BME, DIR <i>Chair. Daniela Thorwarth (DE)</i></p> <p>Monte Carlo Unusual Applications. <i>Antonio Lallena (ES)</i></p> <p>A Monte Carlo Code for the Creation of Heterogeneous Breast Phantoms for Mammography. <i>Raffaele Maria Tucciariello</i></p> <p>Generation of Realistic Patient-specific SPECT Images with GATE Monte Carlo Simulation for 177Lu Dosimetry in Molecular Radiotherapy (MRT). <i>Gunjan Kayal</i></p> <p>Precise Dose Calculations in Nuclear Medicine Dosimetry Using a Graphical User Interface-based on GAMOS/GEANT4. <i>Pedro Arce</i></p> <p>Dosimetric Validation of a Monte Carlo Based Treatment Planning System for Pencil Beam Scanning Proton Therapy Treatments in Low Density Tissues. <i>Francesco Fracchiolla</i></p> <p>Monte Carlo Simulation and Experimental Assessment of Dose Measurements in Mammography using AGMS-DM+ and OSL NanoDot™ Detectors and Voxel Phantom. <i>Imane Fathi</i></p> <p>Monte Carlo Calculations of Dose in CT Examinations. influence of Number of Tissues Included in the Voxel-based Patient's Model. <i>Witold Skrzynski</i></p>
	<p>Medal award Jim Malone Images and Reflections for Medical Physics. Ten Artworks to Challenge and Inspire.</p>	
17.30	Live Discussion	

SATURDAY 19 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	DIR	PROF, E&T
8.00	<p>Refresher Course DIR Diagnostic and Interventional Radiology. Artificial Intelligence in DIR <i>Chair. Nico Buls [BE]</i></p> <p>Practical Machine Learning for Clinical Scientists. <i>Speaker TBD</i></p> <p>Computational Medical Imaging and Machine Learning-methods, Infrastructure and Applications. <i>John Lee [BE]</i></p>	<p>Special Focus Session in Professional Matters Professional Matters <i>Chair. Adriaan Lammertsma [NL]</i></p> <p>Mentorship Model Plan to Guide Resident Physicists (TBD). <i>Markus Buchgeister [DE]</i></p> <p>Retrospective Look Through 20 Years of Physica Medica - European Journal of Medical Physics. <i>Paolo Russo [IT]</i></p>
9.00	Live Discussion & Coffee Break	
9.30	<p>Scientific Session DIR <i>Chair. Maurice Janssen [NL]</i></p> <p>Keynote • Patient Specific Dosimetry in CT (AAPM-EFOMP TG-246). <i>Jonas Andersson [SE]</i></p> <p>The Importance of Evaluating the Effectiveness of Lead-free X-ray Protective Aprons for Worker Safety. <i>Adriana Taddeucci</i></p> <p>Preliminary Study on Dose Conversion Factors for Dental Cone Beam CT. <i>Joke Binst</i></p> <p>The Impact of Patient Off-centring on Organ-based Tube Current Modulation in Chest CT. a Phantom Study with MOSFET Dosimeters. <i>Touko Kaasalainen</i></p> <p>Radiation Risk for Multiple CT Examinations in a Large Multi-Specialist Hospital. a Potential Role of Total DLP from Body Series. <i>Osvaldo Rampado</i></p> <p>Comparison of Peak Skin Dose Assessment between RDIM Software and Radiochromic Film Measurements in Interventional Radiology and Cardiology Procedures. <i>Stefano Riga</i></p> <p>Multi-parameter Analysis for Dose and Noise Evaluation in Clinical Abdomen CT Examinations. <i>An Dedulle</i></p> <p>DRL and Cluster Analysis. the Case of Abdominal Region. <i>Pedro Luis Ordonez Valverde</i></p>	<p>Scientific Session PRO, E&T <i>Chair. J. Carmel Caruana [MT]</i></p> <p>Keynote • Education, Training and Registration of MPEs in Europe. an Overview. <i>Ad Maas [NL]</i></p> <p>EFOMP School for Medical Physics Expert. <i>Alberto Torresin</i></p> <p>Towards an Updated ESTRO-EFOMP Core Curriculum for Training of Medical Physics Experts in Radiotherapy-assessment of current training practice in Europe. <i>Cristina Garibaldi</i></p> <p>Radiomics and Artificial Intelligence. How Medical Physicists Can Help Their Translation into Radiology, Molecular Imaging and Radiation Therapy Routine Clinical Practice? <i>Yassine Bouchareb</i></p> <p>IAEA Human Health Campus and E-learning Platform. <i>Giorgia Loreti</i></p> <p>An innovative Combined Physics Medical Physics and Radiation Protection Undergraduate Degree. <i>Carmel J. Caruana</i></p> <p>Medical Radiation Protection. a Century of Governance, Ethics, Justification and Optimisation? <i>Jim Malone</i></p> <p>Custom-made Education in Radiation Protection for Health Care Workers. <i>Esther van Schrojenstein Lantman</i></p>
11.00	Live Discussion & Coffee Break	

SATURDAY 19 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	DIR	PROF, E&T
11.30	<p>Joint Session AAPM Cutting Edge Technologies in CT <i>Chair. Mika Kortensniemi (FI)</i></p> <p>High Resolution CT with Scintillating Detectors. <i>Ioannis Sechopoulos (NL)</i></p> <p>Photon Counting Detector CT. <i>Cynthia McCollough (USA)</i></p> <p>AI Applications in CT Image Formation. <i>Marc Kachelrieß (DE)</i></p>	<p>Scientific Session PRO, E&T <i>Chair. Alberto Torresin (IT)</i></p> <p>Keynote • History and Future of EUTEMPE-RX. <i>Hilde Bosmans (BE)</i></p> <p>Evaluation of Calcification Detectability for Different Breast Compositions in a Clinical Comparison between Digital and Synthetic Mammography. <i>Paola Baldelli</i></p> <p>Hemodynamical Assessment of Below-the-knee Arteries from Time-resolved CT Angiography on a 256-slice CT. <i>Pieter Boonen</i></p> <p>Correlation between Operator Eye Lens Doses and Transcatheter Cardiovascular Procedure Characteristic. Multi-parametric Linear Regression Model. <i>Luca Fedeli</i></p> <p>Machine Learning Estimation of Personalized, Organ-dose Absorption from CT Examinations. <i>Marios Myronakis</i></p>
12.30	Live Discussion	
12.50	Lunch Break and Satellite Symposia	
14.00	<p>Scientific Session DIR <i>Chair. Marianne Aznar (UK)</i></p> <p>Keynote • New Technologies in Hadron Therapy. <i>Reinhard Schulte (USA)</i></p> <p>4D Restricted Robust Optimization in Intensity Modulated Proton Therapy for Hypofractionated Treatments of Lung Tumors. <i>Edoardo Mastella</i></p> <p>A Fully Automated Pipeline for Log File Based Dose Recalculation Using an Independent GPU-accelerated Monte Carlo in Proton Therapy. <i>Ilaria Rinaldi</i></p> <p>Development of Integration Mode Proton Imaging with a Single CMOS Detector for a Small Animal Irradiation Platform. <i>Katrin Schnuerle</i></p> <p>In-vivo inter-fractional Monitoring in Particle Therapy with the INSIDE In-beam PET. <i>Veronica Ferrero</i></p>	<p>Scientific Session PRO, E&T <i>Chair. Dimitris Visvikis (FR)</i></p> <p>Keynote • Radiomics for Nuclear Medicine. <i>Mathieu Hatt (FR)</i></p> <p>Radiomics features of 11[C]-MET PET/CT in Primary Brain Tumors. Preliminary Results on Grading Discrimination Using a Machine Learning Model. <i>Selene Richiusa</i></p> <p>CT Imaging Texture Analysis. Evaluation of the Effect of Reconstruction Algorithms and Kernels by Different Vendors. <i>Francesca Calderoni</i></p> <p>Lesion Dosimetry in Metastatic Thyroid Cancer Treated with 131I. Standardization of SPECT-TC Calculation Method with an In-house Software Tool and Preliminary Texture Analysis Results. <i>Elisa Richetta</i></p> <p>CT-based Radiomics as a Tool to Recognize COVID-19 Positive Patients. <i>Giulio Benetti</i></p>

SATURDAY 19 JUNE 2021

Time table	LIVE ROOM • TORINO	LIVE ROOM • PIEMONTE
	DIR	PROF, E&T
	<p>First Dosimetric Assessment of Proton Minibeam ARC Radiation Therapy. <i>Ramon Ortiz Catalan</i></p> <p>Real-time Positron Emission Imaging for Range Verification in Helium Beam Radiotherapy. <i>Peter Dendooven</i></p> <p>Photon-proton Dose Plan Comparison in the Pilot Phase of the Randomized Clinical DAHANCA 35 Trial. <i>Christian Hansen</i></p>	<p>Comparison of Automated Segmentation Techniques for Magnetic Resonance Images of the Prostate. <i>Matteo Pepa</i></p> <p>Organic Phantom Study of MRI-radiomic Features Repeatability and Stability. <i>Chiara Tenconi</i></p> <p>Towards 4D Dedicated Breast CT Perfusion Imaging of Cancer. Computer Simulations of the Image Generation Process. <i>Marco Caballo</i></p>
15.30	Live Discussion & Coffee Break	
16.00	<p>Scientific Session DIR <i>Chair. Simona Avramova (BG)</i></p> <p>Keynote • New Technologies for Mammography Imaging. <i>Gisella Gennaro (IT)</i></p> <p>Patient-derived 3D Printed Breast Phantoms for Mammography and Digital Breast Tomosynthesis. <i>Antonio Varallo</i></p> <p>Preliminary Evaluation of a Novel Deep Learning Image Reconstruction (DLIR) Algorithm in Computed Tomography. <i>Paolo De Marco</i></p> <p>Applying a Machine Learning-based Approach to Predict Distant-relapse-free Survival in Upfront Resectable Pancreatic Adenocarcinoma Based on CT Radiomics. <i>Martina Mori</i></p>	<p>Scientific Session PRO, E&T <i>Chair. Alejandro Mazal (ES)</i></p> <p>Keynote • PENH, a PENELOPE Extension for Proton Transport. <i>Francesc Salvat (ES)</i></p> <p>Patient-specific Radiomics Analysis Based on kVCBCT Used for Image Guided Radiotherapy. <i>Yibao Zhang</i></p> <p>The impact of Commissioning Measurements Accuracy on the Configurations of both Acuros-XB and AAA Dose Calculation Algorithms for Photon Beams. <i>Emilia Esposito</i></p> <p>Gold Nanoparticles and SABR for Treatment Planning of Intact Breast Tumor. <i>Antonio Leal</i></p> <p>Forward Planning Approach for the Single-isocenter ARC Total Body Irradiation. <i>Elena Villaggi</i></p>
	<p>ECMP Plenary Session <i>Chair. Mika Kortenesniemi (FI)</i></p> <p>The Data-driven Future of Medical Physics <i>Leonard Wee (NL)</i></p>	
17.30	Live Discussion	
18.00	<p>Closing of the Virtual ECMP2020 and Looking forward to ECMP 2022 <i>Mika Kortenesniemi (FI), Paddy Gilligan (IE)</i></p>	

Invited Talks on demand

Refresher Course

Nuclear Medicine. Quantitative Imaging

- Tracer kinetic modelling. *Ronald Boellaard [NL]*
- Correction and reconstruction algorithms. *Mark Lubberink [SE]*

Radiotherapy. MRI and Dual energy CT in Radiotherapy. Competitive or Complimentary?

- Dual-energy CT for radiotherapy applications. *Wouter van Elmpt [NE]*
- MR-guided radiotherapy. *Simeon Nill [UK]*

Diagnostic and Interventional Radiology. Advanced CT Acquisition

- Advanced measurement techniques for CT. *Love Kull [SE]*
- Optimization of image quality for advanced CT acquisition. *Kristin Jensen [NO]*

Radiotherapy · SBRT. Physics Principles and In-vivo Dosimetry

- Physics principles of SBRT. *Nuria Jornet [ES]*
- In-vivo dosimetry for SBRT. *Marco Esposito [IT]*

Diagnostic and Interventional Radiology. Updating the Diagnostic Reference Levels

- Clinical dose reference levels for CT examinations. *Natalia Saltybaeva [CH]*

Embracing Change, Sharing Knowledge

- Predicting radiotherapy outcomes using real-world clinical data. *Leonard Wee [NL]*

Scientific Session RT

- The potential of radiomics applications in radiotherapy. *Marta Bogowicz [CH]*
- Plan QA using plan analysis and complexity metrics. *Victor Hernandez [ES]*
- PRIMO. a Monte Carlo engine for treatment planning verification. *Josep Sempau [ES]*

Scientific Session NM

- Adaptive CZT body SPECT. *Laetitia Imbert [FR]*
- Digital PET. *Ronal Boellaard [NL]*

Scientific Session. Quality Management, Safety and Ethics

- Medical alarm systems. *Carola van Pul [NL]*
- Ethics in Radiological Protection for Medical Diagnosis and Treatment. *Marie Claire Cantone [IT], Francois Bochud [CH]*

Invited Talks on demand

Scientific Session DIR

- Approaches for optimization of CT examinations. *Elly Castellano [UK]*
- Fluoroscopic imaging. Noise reduction versus introduction of lag: comparison between different vendors. *Bente Konst [NO]*

Joint Session EFRS

- Optimising radiographic examinations when considering patient size. *Hendrik Erenstein [NL]*
- Radiographers and the BSS Directive: towards harmonised radiographic practice. *Shane Foley [IE]*

Joint Session EUTEMPE

- Educational aspects of the online part of EUTEMPE-RX modules. *Danielle Dobbe [NL]*
- An example EUTEMPE-RX module in Ferrara (Italy): advanced techniques in X-ray imaging. *Angelo Taibi, Paolo Cardarelli [IT]*

Joint Session IAEA

- IAEA human health campus and e-learning platform. *Giorgia Loreti [IT]*
- EFOMP Cone beam CT protocol: a joint initiative between EFOMP, IAEA and ESTRO. *Harry Delis [GR]*
- How Croatia and Serbia benefited from IAEA. *Dario Faj [HR], Borislava Petrovic [RS]*

EORTC Joint Session - The role of Medical Physicists in Clinical Trials (WIP by Oscar)

- The EORTC management of clinical trials: the need of interdisciplinarity. *Enrico Clementel [IT]*
- The need of Medical Physicists' involvement in clinical trials. *Natalie Abbott [UK]*
- EORTC-EFOMP survey on dosimetry audits: preliminary results. *Oscar Casares [A]*

Joint Session ESTRO - Challenges of integration between the Different Disciplines in Medical Physics Related to Hybrid Equipment

- Challenges and potentials of surface guided radiotherapy. *Marco Riboldi [DE]*

ECMP welcomes Spain: Proton Therapy

- Proton RBE: irradiating cells at CNA. *Isabel Gallardo [ES]*
- The new proton-therapy facilities in Spain. *Alejandro Mazal [ES], Diego Azcona [ES], Samuel Ruiz-Arrebola [ES]*

Education, Training and Registration of Medical Physics Experts in Europe: Now and in the Future

- Education, training and registration supervised by the Government. *Antonio Lopez [ES]*
- Education, training and registration under national law: a Dutch treat. *Marion Essers [NL]*
- The new core curriculum for radiotherapy MPEs. *Cristina Garibaldi [IT]*

Special Focus Session - Professional Matters: Mentorship

- How to write a grant application. *Yolanda Prezado [FR]*
- How to write a scientific paper. *Annalisa Trianni [IT]*

Oral Communications on demand

1 - Radiotherapy (RT)

- SPR stoichiometric calibration of a single energy CT and validation using fresh tissue samples. *Pedro Bora Aguilar Redondo*
- Automatic eclipse planning using Script and RapidPlan for prostate SBRT. *Alberto Alarcon Paredes*
- Treatments over weekends to compensate for scheduled and unscheduled interruptions. *Eva Ambroa Rey*
- Establishing ground truth training data for deep learning in radiotherapy. *Eva Ambroa Rey*
- Impact of registration uncertainties on the prediction of early tumour response to radiotherapy in NSCLC patients. *Lameck Mbangula Amugongo*
- An assessment of the accuracy of the different delivery methods of stereotactic brain radiotherapy. *George Antorkas*
- Can radiomics predict clinical relapse after Partial Prostate Re-irradiation (PPR) for isolated locally recurrent prostate cancer? *Michele Avanzo*
- Combining computed tomography and biologically effective dose radiomics improves prediction of tumor response to robotic lung SBRT. *Michele Avanzo*
- Validation of an integrated independent dose calculation software for pre-treatment verification of online adaptive radiotherapy. *Daria Badika*
- Treatment planning system calculation accuracy in the out of field dose region and their consequences in pacemaker dose estimation. *Agnese Barbareschi*
- Output factors for small radiation therapy electron beams collimated by tubular applicators. a multi-detector comparison. *Silvia Bettarini*
- Production and dosimetric characterization of a FLASH electron beam. *Eleonora Bortoli*
- Investigating a novel gantryless positioning solution in protontherapy. *Faiza Bourhaleb*
- PlanIt: planning with intelligent radiation therapy platform for treatment plan verifications. *Faiza Bourhaleb*
- Dose-volume effect for acute patient-reported intestinal toxicity from whole pelvis radiotherapy. an Italian multicentric study. *Andrea Bresolin*
- Knowledge-based (KB) automatic plan optimization can replace manual planning in tangential field irradiation for right breast cancer radiotherapy. *Roberta Castriconi*
- Pre-clinical validation of Mobius3D 3.0 System. *Nina Cavalli*
- Spatial dose patterns associated to cardiac toxicity and survival in patients treated with photons and protons for lung cancer. *Laura Cella*
- A multiscale model for oxygen delivery and radiation damage within the microenvironment. *Alessandro Cicchetti*
- Evaluation of MR image correction schemes for accurate lesion localization in intracranial stereotactic radiosurgery. *Dimitrios Dellios*
- Real-time positron emission imaging for range verification in helium beam radiotherapy. *Peter Dendooven*
- Dosimetric impact of intrafraction motion during moderate hypo-fractionated prostate cancer radiotherapy treatment. *Francesca Di Franco*
- Physical characterisation of commercial ear impression materials for use as a bolus in radiotherapy. *Paul Doolan*
- Dual energy CT for preclinical cancer research. *Manuela Duda*
- Evaluation of a cycle-generative adversarial network-based synthetic cone-beam CT generation method for adaptive radiation therapy and daily treatment planning. *Miriam Eckl*

Oral Communications on demand

- Case report. online adaptive magnetic resonance-guided radiation therapy for patient with pacemaker. *Randa El Gawhary*
- Investigating uncertainties in daily online adaptive radiotherapy of prostate cancer. *Sevgi Emin*
- The impact of commissioning measurements accuracy on the configurations of both Acuros-XB and AAA dose calculation algorithms for photon beams. *Emilia Esposito*
- Virtual tangential-fields Arc therapy (ViTAT) for whole breast irradiation. technique optimization and validation. *Pier Giorgio Esposito*
- CIED malfunctions by direct exposure at doses ≥ 2 Gy. a prospective, multi-centre, in-vitro evaluation. *Maria Daniela Falco*
- Intraoperative radiation therapy treatment planning system with image-guided docking. *Giuseppe Felici*
- MRI-only in prostate radiotherapy planning using multiple individual atlases. *Marco Felisi*
- A feasibility study. can a vol/dose model in HNC standardize plans and optimize planning time? *Paolo Ferrari*
- In-vivo inter-fractional monitoring in particle therapy with the INSIDE in-beam PET. *Veronica Ferrero*
- Inter-fractional monitoring in particle therapy treatments with ^{12}C exploiting the detection of secondary particles. preliminary clinical trial results at the CNAO facility. *Marta Fischetti*
- Dosimetric validation of a Monte Carlo based treatment planning system for pencil beam scanning proton therapy treatments in low density tissues. *Francesco Fracchiolla*
- Analysis of the plan complexity produced by a knowledge based planning system for head and neck cancer. *Marco Fusella*
- Inverse consistency error as a validation metric for deformable image registration. preliminary implementation research. *Marco Fusella*
- The investigation of RBE-weighted dose and LETd distribution for skull base patients in proton therapy and correlation with observed necrosis regions. *Magdalena Garbacz*
- Feasibility study for the realization of individualized 3D printed phantom for dosimetry with accurate Hounsfield Units correspondence with real tissues. *Maria Antonietta Gilio*
- Dose to head and neck OARs during a TomoTherapy treatment. comparison between measurements and TPS calculation. *Maria Antonietta Gilio*
- Validation of SNPs associated with late severe toxicity after radiotherapy for prostate cancer. *Eliana Gioscio*
- Machine learning-based predictive model of radiation-induced dysphagia resulting from head and neck cancer IMRT. *Alessia Giuliano*
- The effect of modern radiotherapy techniques using flattening filter-free beams (6 MV) on cardiac implantable electronic devices (CIEDs). *Giorgia Guerra*
- Detector selection impact on small field dosimetry of collecting beam data measurements among Versa HD FFF beams. a multi-institutional variability analysis. *Boran Gungor*
- Photon-proton dose plan comparison in the pilot phase of the randomized clinical DAHANCA 35 trial. *Christian Hansen*
- A method using 4D dose accumulation to quantify the interplay effect in lung tumor coverage. *Carlos Huesa*
- Using an electronic portal imaging device for routine electron constancy assessment. *Leticia Irazola Rosales*
- An innovative polymer gel dosimeter in a 3D printed head phantom for stereotactic radiosurgery dose verification. a feasibility study. *Francesca Itta*
- Acceptance procedure for beam-matched linacs. *Katia Jacob*
- Positioning accuracy and reproducibility of the PTW TruFix System. *Lucia Lado*
- Comparison of detectors performances in small field dosimetry of Versa HD flattened and flattening free beams. *Mariaconcetta Longo*

Oral Communications on demand

- Feasibility study of the use of nanoparticles as theragnostic agent in radiotherapy. *Josè Antonio Lopez Valverde*
- Determination of ion recombination and polarity effects for the PTW Advanced Markus ionization chamber in synchrotron based scanning and collimated proton beams for ocular treatment. *Davide Maestri*
- Feasibility robustness and dosimetric accuracy of the treatment of face and scalp with helical tomotherapy. *Livia Marrazzo*
- A semi-automatic planning technique for whole breast irradiation with tangential IMRT fields. *Livia Marrazzo*
- Towards real-time EPID-based 3D in-vivo dosimetry using machine learning. *Juliana Cristina Martins*
- Practical strategies for plan complexity reduction. *Alessandro Scaggion*
- Modulation complexity metrics for Robotic MLC plans. predictors of quality assurance results? *Laura Masi*
- 4D restricted robust optimization in intensity modulated proton therapy for hypofractionated treatments of lung tumors. *Edoardo Mastella*
- Changes in patient anatomy or setup. replanning predictive power of tomotherapy sinograms gamma analysis by using delivery analysis. *Anna Miranti*
- Patient-QA prediction. a new approach of complexity indexes. *Stephane Muraro*
- Evaluation of a novel dose optimization software Leksell Gamma Knife Lightning. Comparison of treatment plans for 40 challenging clinical cases. *Josef Novotny*
- Desing and validation of a phantom for a mailed dosimetric audit of HDR brachytherapy. *Laura Oliver Cañamás*
- First dosimetric assessment of proton minibeam arc radiation therapy. *Ramon Ortiz Catalan*
- Dosimetric study of fetal dose during external beam radiotherapy using OSLD. *Marta Paiusco*
- Multicenter QA protocol for lung SBRT. *Stefania Pallotta*
- Clinical kick-off of RayPilot® HypoCath® real time tracking. a novel electromagnetic device without surgical intervention to evaluate the intrafraction motion during extreme hypofractionation of localized prostate cancer stereotactic body radiation therapy. *Denis Panizza*
- Our experience using gEUD in breast vmat optimization. *Chiara Pellegrini*
- Phantom study of stereotactic radioablation treatments for ventricular tachycardia (STRA-MI-VT) using Cyberknife synchrony respiratory tracking system with a single fiducial marker. *Consiglia Piccolo*
- Reference dosimetry in high dose per pulse IORT electron beams using ionization chambers. *Maria Pimpinella*
- Advancing the Italian National Standard of absorbed dose to water in medium energy x-rays. *Massimo Pinto*
- Stability of dosiomics features extraction on dose voxel cube pixel spacing and calculation grid resolution and algorithm. *Lorenzo Placidi*
- Dosimetric and planning evaluation of IMRT vs VMAT-like plans for magnetic resonance guided radiotherapy treatment. *Lorenzo Placidi*
- Dosimetric characterization of a new transmission detector for patient-specific in-vivo plan verification. *Lorenzo Radici*
- Our first experiences with Hyper Arc and Elements Multi Brain Metastases techniques. *Giorgio Hamid Raza*
- Bias-free comparison of VMAT and IMRT strategies for left-sided whole breast irradiation using automated planning. *Laura Redapi*
- Predicting breathing target motion from a surrogate signal during radiotherapy. a Bayesian approach. *Charlotte Remy*
- Use of genetic algorithm for optimization of PTV in single isocenter multiple metastases radiosurgery treatments with BrainLab Elements. *Jose Alejandro Rojas Lopez*
- Evaluation of Superficial and Intracavitary in vivo Dosimetry Using OSLD nanoDot in 3D Conformational and Intensity Modulated Radiotherapy. *J. Alejandro Rojas-López*

Oral Communications on demand

- Dual wavelength reading method of Fricke-Xylenol orange-Gelatin gel dosimeters with cone-beam optical CT scanner for applications in stereotactic radiotherapy. *Alice Rousseau*
- "3CRT-Like" Dynamic MLC IMRT for whole breast irradiation. development of an inverse planning optimization protocol for OARs sparing and dosimetric comparison versus conventional 3DCRT and VMAT. *Giulia Sangalli*
- Three years, experience with Knowledge-based planning. a longitudinal evaluation of plan quality, optimization time and KBP-models adequacy for prostate treatments. *Alessandro Scaggion*
- Advancing proton minibeam radiation therapy through magnetic focussing. *Tim Schneider*
- Development of integration mode proton imaging with a single CMOS detector for a small animal irradiation platform. *Katrin Schnuerle*
- An investigation of a radio-chemical mechanism for explaining the efficacy of mini-beam and micro-beam radiotherapy. *Joao Seco*
- Development and validation of a 3D neutron therapy planning system for FRM 2. *Lucas Sommer*
- Polymer gel dosimeters for absolute high resolution pre-treatment dosimetric QA in RT. *Luca Trombetta*
- Investigation of bolus effect on skin dose in total body irradiations by helical tomotherapy. *Gökçe Uçar Alveroglu*
- Beam matching of two Elekta Linac. *Angela Vaiano*
- Fluence prediction for lung IMRT using a convolutional neural network. independent model against gantry and collimator angles. *Liesbeth Vandewinckele*
- Dual-window VMAT. machine consistency testing using a commercial rotating phantom. *Frederik Vanhoutte*
- Multi Criteria Optimization (MCO). a tool for educational purposes to reduce the inter operator planning variability and to improve best class solution models used in clinical routine. *Luca Leandro Vigna*
- Patient-specific radiomics analysis based on kVCBCT used for image guided radiotherapy. *Yibao Zhang*
- Evaluating biological effect of Iridium-192 dose rate used for afterloading brachytherapy. *Yibao Zhang*
- Daily guidance vs. weekly guidance. comparison of setup-induced dosimetric deviations. *Yibao Zhang*

2 - Diagnostic and therapeutic nuclear medicine (NM)

- INSPIRE clinical dosimetry study. Initial results. *Carla Abreu*
- Targeted alpha PSMA-based therapy of metastatic castrate-resistant prostate-cancer patients (mCRPC). prediction dosimetry. *Giulio Benetti*
- Correlation between 18F-FDG PET-CT metrics and the pathological response in esophageal cancer treated with induction chemotherapy followed by neoadjuvant chemo-radiotherapy. conventional and radiomic features. *Amedeo Capotosti*
- Gamma Agreement Index test for dose distribution comparisons in Selective Internal Radiation Therapy (SIRT) procedures with 90Y. *Montserrat Carles*
- How to identify robust PET image features for their use in quantitative analysis. *Montserrat Carles*
- 18F-FDG-PET Radiomic assessment for RT treatment strategy in patients with head and neck cancer. a feasibility study. *Margherita Betti*
- Red marrow dosimetry in 131I treatment of metastatic thyroid cancer. comparison of mathematical models. *Giovanni Intermite*
- Clinical impact on the radiotherapy treatment planning of the new EARL FDG-PET/CT accreditation versus the previous EARL1. *Elisa Jimenez*

Oral Communications on demand

- Impact of reduced acquisition time in PET/CT lesion detectability. study with an anthropomorphic female thoracic phantom. *Joseph M. Martì-Climent*
- Optimization of 18F-FDG oncological examination on a TOF-PET/CT scanner. results of a multicenter preliminary study. *Roberta Matheoud*
- Implementation of the new QUANUM 3.0 tool as an internal audit methodology in a large general hospital. *Luisa Mello*
- Influence of volumes, scan times and radiotracer distributions on PET radiomics features. a phantom study. *Lisa Milan*
- A validated PET radiomics model predicts outcome of diffuse large B cell lymphoma. Post-hoc analysis from the SAKK38/07 clinical trial. *Lisa Milan*
- Towards an automated approach to the semi-quantification of 18F-DOPA PET in pediatric diffuse astrocytic tumors. *Enrico Peira*
- A PET-Based Radiomics Model of Brain Metastasis. *Selene Richiusa*
- Dosimetry in therapy with 90Y microspheres and 177Lu-DOTATATE. a comparison between the standard method and a commercial software. *Anna Rienzo*
- Feasibility study of a wearable individual dose monitoring apparatus, an innovative approach for molecular radiotherapy. *Elena Solfaroli Camillocci*
- PRRT for patients with neuroendocrine tumor. how does the reduction in the number of SPECT CT studies affect tumor and OAR dosimetry? *Eugenia Tonini*
- Quantitative accuracy and 28-day Test-retest repeatability of parametric methods for [11C]UCB-J PET. *Hayel Tuncel*
- Mathematical modelling for the evaluation of the kinetic stability of a bifunctional chelating system for 212Pb. *Nouran Zaid*

3 - Diagnostic and interventional radiology (DR)

- Phantom study of contrast enhanced spectral mammography. *Cinzia Avigo*
- Performance comparison of mammography systems with FFDM DBT and CESM. a dosimetry study. *Simona Avramova*
- Comparison of patient effective doses from multiple CT examinations based on different calculation methods. *Simona Avramova*
- An in-depth assessment of variability in image quality across five different CT scanners as clinically used for routine head examinations. *Patrizio Barca*
- 3T DCE-MRI radiomics for prediction of complete response to neoadjuvant chemotherapy in breast cancer. *Giulio Benetti*
- Diffusion Tensor Imaging. differences between probabilistic and deterministic approaches in epileptic patients and healthy subjects. *Luca Berta*
- Effect of pre-processing on radiomic features estimation from computed tomography imaging in patients with locally advanced rectal cancer. *Rita Borgheresi*
- Local patient diagnostic reference levels and impact of a commercial dose reduction system on dosimetric quantities in paediatric interventional cardiology. *Alessio Boschini*
- CT imaging texture analysis. evaluation of variability sources in the different steps of radiomic workflow. *Francesca Calderoni*
- Organ dose estimation in paediatric CT exams collected in a multicentre database. *Federica Campanaro*
- Post-thalamotomy neurofunctional findings on patients treated with trans-cranial magnetic resonance guided focused ultrasound surgery (tcMRgFUS). preliminary results. *Giorgio Collura*
- Evaluation of radiation dose exposure for interventional and diagnostic neuroradiology procedures using a radiation dose index monitoring software. *Paola Enrica Colombo*
- Dose tracking solution for computed radiography systems. an application in neonatal intensive care unit. *Denise Curto*

Oral Communications on demand

- Estimation of effective and organ doses in patient undergoing to hepatobiliary interventional procedures. *Andrea Dalessio*
- Impact of reconstruction algorithm on a Computer Aided Detection (CAD) system. comparison of the lung lesion contouring and of the texture analysis. *Cristina De Mattia*
- One-shot learning for diffeomorphic deformable medical image registration and periodic motion tracking. *Tobias Fechter*
- Strategy for paediatric head CT exposure optimization. protocols and workflows. *Margherita Betti*
- Reliability of quantitative diffusion weighted imaging. a large multicenter and multiparametric study based on a unsupervised clustering analysis. *Luca Fedeli*
- MR imaging of testicular lesions. the potential role of radiomics biomarkers in the characterization of focal testicular lesions. *Giacomo Feliciani*
- Investigation of 68-Ga PSMA PET and multiparametric MRI imaging radiomics based models in the prediction of ISUP score in prostate cancer patients. *Giacomo Feliciani*
- Characterization of the spectral response of CSI flat panel detectors in digital radiography. *Aitor Fernandez Iglesias*
- Predicting early mortality of COVID-19 patients of the first pandemic wave based on automatically extracted lung densitometry parameters. *Claudio Fiorino*
- Manufacturing process of a 3D printed model of an arteriovenous malformation. *Pasqualina Gallo*
- Potential role of Dual-Energy CT in brain imaging. accuracy of iodine concentrations. *Pasqualina Gallo*
- A fully automatic analysis tool for quantitatively assessment of MRI scanner performances using ACR phantom. preliminary results. *Mohamad M. Aalabdoaburas*
- Effect of acquisition geometry and reconstruction process on image quality parameters of 2D synthetic mammogram. a phantom study. *Arcangela Maldera*
- Dual Energy CT combined with Infrared Spectroscopy. imaging to predict urinary stones composition and stiffness. *Alberto Mari*
- Thalamic parcellation for target identification in trans-cranial MR-guided Focused UltraSound (tcMRgFUS) thalamotomies. a preliminary probabilistic tractography study. *Maurizio Marrale*
- Characterization of 3D printing materials for manufacturing patient-derived compressed breast phantoms. *Aldo Mazzilli*
- Head rotation effects on head and neck hemodynamics by 4D-PC MR imaging and mathematical modelling. *Parvin Mohammadyari*
- Diffusion Kurtosis Imaging (DKI). measurement optimization on the basis of a quantitative diffusion phantom. *Linhsia Noferini*
- Lung nodule detection confidence index (rating) optimization. *Pedro Luis Ordonez Valverde*
- Correlation of peak skin dose with dose indicators and geometric factors in vascular interventional radiology. a general linear model approach. *Maria Oronzio*
- Radiation dose reduction and static image quality assessment using a channelized hotelling observer on an angiography system upgraded with clarity IQ. *Ornella Ortenzia*
- A Pilot Study to Establish DRLs in Interventional Radiology Procedures. *Ismail Ozsoykal*
- RadiomiK phantom to test the robustness of CT radiomic features. *Stefania Pallotta*
- Periodic quality control of ultrasound scanners. practical experience with IEC 62736 technical specification and comparison with other evaluation methods. *Claudia Pasquali*
- Organ dose evaluation in radiological monitoring of paediatric Ollier disease. *Anna Piai*
- Small-size details detection performance of digital breast tomosynthesis synthetic 2D and conventional full-field digital mammography images for different mammography systems. a multicenter study. *Valentina Ravaglia*
- Average glandular dose in digital breast tomosynthesis systems. a multicenter study. *Valentina Ravaglia*

Oral Communications on demand

- A machine learning classifier for Digital Breast Tomosynthesis. a first step. *Roberta Ricciardi*
- Reproducibility of radiomic features in CT images of NSCLC patients. *Lisa Rinaldi*
- A prototype of heterogenous insert simulating lung lesions for quantitative texture analysis in CT acquisitions. *Lisa Rinaldi*
- Local diagnostic reference levels in paediatric patients with cystic fibrosis undergoing follow up CT scans. *Veronica Rossetti*
- The role of MR diffusion kurtosis method in brain metastases imaging. *Sevim Sahin*
- Establishment of Swiss DRLs in Dental CBCT. *Marta Sans Merce*
- AGATA. advanced Geant4-based application for in-silico clinical trial in x-ray breast imaging. *Antonio Sarno*
- Development of integration mode proton imaging with a single CMOS detector for a small animal irradiation platform. *Katrin Schnuerle*
- Implementation of T1-T2 mapping quality assurance in cardiovascular magnetic resonance. *Luisa Pierotti*
- Diffusion tensor imaging. differences between probabilistic and deterministic approaches in epileptic patients and healthy subjects. *Alberto Torresin*
- Patient-derived 3D printed breast phantoms for mammography and digital breast tomosynthesis. *Antonio Varallo*
- Using difference detail curves to assess image quality of low contrast abdominal CT scans. *Mathias Weyland*
- Local DRLs for two different cardiac imaging modalities at a University Hospital in Greece. *Despoina Zarketan*

4 - Radiation protection and dosimetry (RP)

- Performance Evaluation of the ISOCS system as a WBC for IN-VIVO radioactive contamination measurements. *Leonardo Baldassarre*
- Development of a web-app for dose class estimation in radiological procedures. *Mauro Campoleoni*
- Dosimetric evaluation to medical workers operating in a PET/CT department after the use of in house production of Ga-68 peptides. *Konsatntinos Dalianis*
- Day Hospital radioiodine remnant ablation. our experience. *Giovanni De Pascalis*
- Promises of film dosimetry based on radiophotoluminescence imaging in radiotherapy including charged particle beams. *Marijke De Saint-Hubert*
- Assessment of noise reference levels in abdomen CT. *An Dedulle*
- Novel application of a comparison metric between software simulation and radiochromic film skin dose maps in interventional radiology procedures. *Marco Felisi*
- Preliminary study on dose conversion factors for dental cone beam CT. *Joke Binst*
- Couch aluminium activation in high energy LINAC. workers exposure. *Cesare Gori*
- Towards optimization of restriction protocol for Lu-DOTATE patients. *Leticia Irazola Rosales*
- 3D diamond detectors for small field dosimetry. *Keida Kanxheri*
- Volumetric dose effect of internal shielding disks in IOERT. a Monte Carlo-based study. *Gabriele Magugliani*
- A task based dosimetric assessment of interventional cardiologist behaviour using a real-time active dosimetry system. *Bethany Mahady*
- A Large Area GEMPix detector for treatment plan verification in hadron therapy. *Andreia Maia Oliveira*
- Medical radiation protection. a century of governance, ethics, justification and optimisation? *Jim Malone*

Oral Communications on demand

- Shielding assessment for a shielded gantry accelerator. Halcyon. *Gema Martin Cale*
- Implementation of an in-vivo dosimetry system for VMAT. *Sofia Faustino, Sara Germano*
- Implementation and impact of the American College of Radiology (ACR) size-specific Diagnostic Reference Levels (DRL) in adult CT body examinations. *Marta Paiusco*
- Average glandular dose values and diagnostic reference levels in digital breast tomosynthesis. *Edoardo Petrucci*
- Internal dosimetry Monte Carlo study of TARE treatments. a comparison between GATE and GAMOS focused on lung dosimetry and background correction. *Daniele Pistone*
- Multicentric comparative study of dose indexes using an in vivo optical fiber detection system. *Christian Popotte*
- Ambient dose equivalent due to neutron contamination during a radiotherapy treatment. *Mariagrazia Quattrocchi*
- In-plane Saba shielding for dose reduction to the eye at head CT. *Valiallah Saba*
- Calibration radioprotection and dosimetry in ¹⁷⁷Lu-Lutathera® treatment. *Paola Saletti*
- Evaluation of glandular dose distribution in 2D and 3D x-ray breast imaging. *Antonio Sarno*
- Use of CMOS Image Sensor to characterize brachytherapy HDR afterloader. *Leonello Servoli*
- The importance of evaluating the effectiveness of lead-free X-ray protective aprons for worker safety. *Adriana Taddeucci*
- Flattening filter and flattening filter free dose comparison. in beam and entrance door measurement and Monte Carlo simulation. *Arpad Toth*
- Monte Carlo calculation for dedicated mean glandular dose estimates in commercial DBT scanners using homogeneous phantoms. *Raffaele Maria Tucciariello*
- Evaluation of the air kerma distribution at the breast surface in mammography and breast tomosynthesis. *Chiara Valero*

5 - Biomedical engineering (BE)

- MRI safety application of the magnetic resonance-based electric properties tomography. *Alessandro Arduino*
- CT textural features in multi-center analysis. an example of tuning effort. *Cristina De Mattia*
- Clinical validation of a segmentation tool for pulmonary nodules in lung cancer screening. *Noemi Garau*
- Micro-CT image segmentation of dental implants for the visualization of gaps. *Margarita Chevalier*
- Processing of Musculoskeletal Dynamic computer tomography images. a multi-atlas segmentation approach. *Benyameen Keelson*
- Radiomic analysis for prediction of nodal status in lung cancer simulated data. comparison of machine learning methods. *Giuliana Lo Presti*
- New frontiers in pre-operative planning of complex spinal deformities. *Alberto Mari*
- A novel deep learning model to differentiate IDH-mutant from IDH-wild type on cohort of GBM cases. *Antonio Napolitano*
- Towards accurate modeling and determination of dosing errors in multi-infusion. *Annemoon Timmerman*
- MRI and metallic implants. heating risk by radiofrequency and switching gradient fields. *Umberto Zanovello*

6 - Informatics (IT)

- Augmented reality supporting innovation and accuracy in advanced radiation therapy facilities. *Fabrizio Bello*
- Delineation bias in hand-crafted radiomic features. *Alessio Romita*
- A Machine-learning radiomics approach in prostate cancer studies. *Giorgio Russo*



Oral Communications on demand

7 - Professional issues (PR)

- Ethics in radiological protection for medical diagnosis and treatment. *Marie Claire Cantone*
- Transforming yourself into a strategic and robust medical physics leader. *Carmel J. Caruana*
- MR-guided Laser-induced thermal therapy. the role of medical physicist in implementation. *Maria Bernadetta Ferrari*
- Assessment of the scientific production of the Italian Association of Medical Physicists (AIFM) in the last 5 years. *Cristina Garibaldi*
- Images and reflections for medical physics. ten artworks to challenge and inspire. *Jim Malone*
- IAEA survey on image-guided radiotherapy protocols and doses in the European region. *Primoz Peterlin*

8 - Education and training (ET)

- DQPRM. French model for the training of medical physicists. *Cecilia Coletta*
- Towards an updated ESTRO-EFOMP core curriculum for training of Medical Physics Experts in Radiotherapy. *Cristina Garibaldi*
- Chest radiography protocol optimization in neonatal intensive care unit. findings before and after staff training. *Lorenzo Nicola Mazzoni*

Posters

1 - Radiotherapy (RT)

- Radiobiological modelling of concomitant radiochemotherapy for patients with locally advanced non-small cell lung cancer. a tumour control probability perspective. *Mohammed Alaswad*
- Influence of radiotherapy dose uncertainty on local tumour control for locally advanced non-small cell lung cancer. *Mohammed Alaswad*
- A feasibility study of Simultaneous Integrated Boost (SIB) advanced techniques in the treatment of breast cancer and supraclavicular nodes. *Maria Chiara Angiocchi*
- Pre-treatment QA results of stereotactic plans against target volume and plan complexity. *George Antorkas*
- Dosimetric calculations of the imaging dose, quantification of the scattered radiation and realization of its origin in CyberKnife radiosurgery. *Panagiotis Archontakis*
- A beam monitor transmission detector for small and large fields dosimetry. *Veronica Ardu*
- Auto-planning evaluation of moderately hypofractionated prostate tumor radiotherapy treatment. *Antonietta Bartoli*
- Study of ion chamber dose calibration in kV-CBCT-based IGRT using different protocols. *Jose Bea Jilbert*
- Influence of magnets on 6 MV irradiation plans during ICD deactivation. *Larissa Blümlein*
- Assessment of delivered dose in prostate cancer radiation therapy through transit dosimetry and volumetric imaging. *Monica Bono*
- Deep Inspiration breath hold and free breathing techniques for left sided whole breast radiotherapy. a dosimetric evaluation. *Monica Bono*
- Characterization of an analysis tool for the picket fence. *Julien Boudet*
- Validation of a reference mechanical play of a portal imager for the rotating picket fence analysis. *Julien Boudet*
- Comparison of AAA (Anisotropic Analytic Algorithm) and AXB (Acuros-XB) calculation algorithms in heterogeneous medium with elementary geometry using radiochromic films. *Katrina Caikovska*
- Evaluation of patients setup accuracy and determination of planning target volume (PTV) margin in moderate hypofractionated volumetric arc therapy (VMAT) of localized prostate cancer using CBCT. *Paolo Caricato*
- Salvage stereotactic external beam re-irradiation for prostate cancer local failure. finding safe dose constraints for principal organs at risk. *Federica Cattani*
- IMRT beamlet intensity optimization with tensor network methods. *Samuele Cavinato*
- Error detection sensitivity of a commercial system for EPID based transit dosimetry. a single institution study in a thorax phantom. *Francesco Cesarini*
- SGRT tolerance table optimization through transit dosimetry in DIBH left-sided breast radiation therapy. a preliminary study. *Francesco Cesarini*
- Calibration of EBT3 Gafchromic film using HNN deep learning. *Liyun Chang*
- Comparison of the use of a Vision RT QA cube and a Winston-Lutz test phantom to verify the discrepancy between a linac radiation isocentre and its mechanical isocentr. *Ching Choi*
- Analysis of unscheduled downtime and most frequent breakdowns in a single institution. *Montserrat Colomer Truyols*
- Dosimetric influence of immobilization devices in external radiotherapy and dose calculation optimization. *Luís Cunha*
- FRED: a fast Monte Carlo code on GPU for treatment planning software. *Micol De Simoni*
- Backscattering in IOERT breast carcinoma treatment. *Silvia De Stefano*
- Bolus as a shaper in the superficial lesions treatment with an electron beam. *Felipe Arturo Derecho Torres*

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- A novel isodose surface-based method for patient specific QA analysis. *Stefanos Diamantopoulos*
- Could plan modulation complexity score replace pre-treatment QA during the COVID-19 pandemic? *Paul Doolan*
- Gold nanoparticles in external beam radiotherapy. a Monte Carlo study. *Efstathios Efstathopoulos*
- Scattered radiation loss in verification of long radiation fields with OCTAVIUS 4D. *Jesus Escobar-Cerezo*
- Off-isocenter positioning evaluation. a custom-made phantom study. *Rocío Estrada García*
- Automatic segmentation of prostate on TRUS images using convolutional neural networks. *Tobias Fechter*
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- A feasibility study. can DIBH reduce dose in left breast cancer radiotherapy? *Paolo Ferrari*
- Delivery and monitoring of particle therapy with a new integrated system. *Veronica Ferrero*
- Comparison between simulation PET-CT and fusion with diagnostic PET-CT in head and neck radiotherapy planning.
- Effects on target volume determination. *Alice Ferretti*
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- Do computed tomography radiomic features change according to toxicity grade for patients with early stage lung cancer underwent SBRT? *Elena Gallio*
- Registration modes of small lung lesions with asymmetric movement pattern. *Maria Jesus Garcia Hernandez*
- Initial experience with in vivo and pretreatment transmission detector for pre-treatment 2D and 3D dosimetric verification of volumetric arc therapy. Evaluation of correlation between gamma index and dose-volume histogram. *Diego Gaudino*
- Impact of anatomical characteristics of heart and lung to the outcome of 3DCRT left breast radiotherapy. *Ivan Gencel*
- Dosimetry accuracy of the Radixact® system with Synchrony®. *Francesca Romana Giglioli*
- Breast VMAT optimization using uniform equivalent dose (EUD) objectives at organs at risk. *María Gil Conde*
- A small field study for stereotactic radiosurgery volumetric modulated Arc therapy. *María Gil Conde*
- Head and neck district irradiation. vmat vs. tomotherapy. *Alessia Giuliano*
- Case study. 3D rapid manufactured bolus for breast cancer treatment with external beam radiotherapy. *Susana Gonçalves*
- Accumulated dose basing on Extended CBCT in adaptive radiotherapy for head and neck patients. *Marius Gruda*
- Assessment of SciMoCA as second dosimetry check in the clinical routine practice. *Federica Guida*
- External audit of a recently installed versa hd accelerator (ELEKTA). *Silvia Gutierrez Ramos*
- Development of chemoradiation therapy targeting EGFR for triple negative breast cancer. *Takamitsu Hara*
- VMAT dosimetry with dynamic thorax phantom. *Henna Hietala*
- 2D VMAT verification in dynamic thorax phantom. *Henna Hietala*
- Feasibility study. is TPS scripting able to automate part of the prostate treatment planning process without deteriorating plan quality? *Stefan Hofer*
- Assessment of the influence of shoulder movement on the plan quality of different Vmat techniques in head and neck cancer treatments. *Stefan Hofer*
- Leksell gamma knife icon. Quality assurance for CBCT and its clinical use. *Markéta Hurýchová*
- An end to end test for brachytherapy treatment. *Tatjana Ignjic*
- Breast skin dose evaluation using film based in vivo dosimetry. *Charoula Iliaskou*

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- Evaluation of a planar diode matrix for SRS patient-specific QA in comparison with GAFchromic films. *Erminia Infusino*
- Accounting for skin flashing in tomotherapy breast cancer treatment planning via organ motion based robust optimization. a feasibility study. *Francesca Itta*
- Verification of dose delivery for gated treatment using Clinac iX and True Beam. *Dražan Jaroš*
- Case report. SBRT treatment planning for a left breast oligo progression in prone position. *Aljasa Jenko*
- Commissioning of an independent dose calculation tool. *Gunnar Just*
- Dosimetry in 1.5T MR-linacs using plastic phantoms. the effect of air gaps for a variety of ionization chambers. *Pantelis Karaidos*
- On the use of OSLDs for in-vivo measurements of surface dose in breast radiotherapy treatments. *Pantelis Karaidos*
- Challenges in radiotherapy. bilateral breast irradiation with lymph nodes using 3D conformal technique. *Melinda Kirei*
- Dose rate mapping and radiobiological assessment of Helical TomoTherapy prostate and head and neck treatments. *Panagiotis Kouris*
- Evaluation of effect on dose due to displacement of bowel and target volume in SBRT treatment for oligorecurrent crastation sensitive prostate cancer patients. *Francesco La Fauci*
- Imitation of sino-nasal cavity cancer case irradiation with a high energy photons using individualized 3D printed bolus. *Jurgita Laurikaitiene*
- Validation of a Robust Optimization Approach for VMAT Treatment Planning of Stereotactic Ablative Radiation Therapy (SABR) in Lung Cancer. *Gianfranco Loi*
- Automatic feathering algorithm for VMAT craniospinal irradiation. A comprehensive comparison with other VMAT planning strategies. *Michele Maddalo*
- Metal Oxide Field Effect Transistors (MOSFETs) versus Optically Stimulated Luminescence Detectors (OSLDs). Technology in total body irradiation. *Eleonora Maggiulli*
- Machine Learning Models based on radiomic features extracted from lung cancer CT images. *Maurizio Marrale*
- Absolute dose measurements for ¹⁹²Ir high-dose-rate sources using micro-ionization chambers. *Miguel Martinez Albaladejo*
- Comparison of rigid and deformable co-registration between mpMRI and CT images in radiotherapy of prostate bed recurrence. *Marica Masi*
- Radiotherapy for breast cancer with the field-in-field technique. assessment of the probability for developing a secondary malignancy in the contralateral breast using linear and non-linear models. *Michalis Mazonakis*
- Patient-specific radiation-induced rectal cancer risk assessment due to volumetric modulated arc therapy for prostate cancer. *Michalis Mazonakis*
- Update of the Italian guidelines for intra-operative radiation therapy. *Loris Menegotti*
- $k_{[Q Q_o]}$ for Cyberknife from the assesment of $TPR_{[20 10]}=f(PDD_{[20 10]})$ in standard reference conditions. *Victoria Eugenia Morato García*
- A real world implementation of IPEM81 TPS QA recommendations, using a commercially available software platform. *Alexandros Mourounas*
- Relationships between bladder volumes in prostate cancer radiotherapy treatment with dose tracking. *Magdalena Murawska*
- Implementation of IAEA TRS 483 in small field dosimetry of Leksell Gamma Knife Icon. Transition from IAEA TRS 398 to IAEA TRS 483. *Josef Novotny*
- Use of an ion chamber array for the quality control of low-energy x-ray systems. *Albert Onsès-Segarra*
- Stereotactic radiosurgery for multiple brain metastases. Does MR/CT co-registration improve target localization accuracy compared to the MR-only approach? *Eleftherios Pappas*

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- Stereotactic radiosurgery for multiple brain metastases. dosimetric performance of two planning techniques and two setup approaches. *Chryssa Paraskevopoulou*
- Assesment of different CT simulators used in radiotherapy treatment planning- regional multicentric study. *Borislava Petrovic*
- Error detection capability of a new transmission detector for patient-specific in-vivo VMAT delivery verification. *Edoardo Petrucci*
- Study of the correlation between the Gamma Approval Rate and the MCSv Complexity Index of External Radiotherapy treatment plans with dynamic MLC. *Diana Jorge Pimparel Alves Nuno Pinto*
- The dosimetric impact of applying a model based dose calculation algorithm for non-melanoma skin cancer interventional radiotherapy. *Elisa Placidi*
- Influence of the Agility MLC projected leaf positional offsets on the quality of VMAT-SRS for multiple brain metastases. *Georgia Prentou*
- SBRT planning ideas for spinal metastasis. *Giorgio Hamid Raza*
- Characterization of the energy response of microMOSFET detectors for in vivo dosimetry in high dose rate brachytherapy. *Catalina Rodriguez*
- Study of the influence of shoulder movement in treatment planning with Pinnacle 16.2. *Juan Román-Raya*
- Infinite solutions for an exact geometric matching in Breast and Supraclavicular fossa isocentric radiotherapy. *Nando Romeo*
- Absorbed dose due to daily CBCT positioning image on Halcyon 2.35.3.1 linear accelerator using size-specific dose estimates. *Desiree Roncero-Torres*
- Quality assurance for automatic 4D-CT mid-ventilation selection. *Hella Sand*
- Robustness of DIBH VMAT treatment plans of left breast cancer with SGRT. a comparison study in two French clinics. *Magali Sandt*
- A IOERT Geant4 Monte Carlo simulation for the computation of field Output Factors and 3D Dosimetry. *Sara Savatovic*
- Artificial Intelligence-based contouring and planning algorithms for prostate cancer radiotherapy. *Gwenaëlle Sidorski*
- Comparison of 3D, IMRT and VMAT in preoperative rectal cancer. Dosimetric and radiobiological evaluation. *Vasiliki Softa*
- Benchmarking the AlignRT surface deformation module for the early detection and the quantification of oedema in breast cancer radiotherapy. *Veronica Sorgato*
- Implementation of a software platform for comprehensive quality assurance in radiotherapy. *Aristotelis Spyridonidis*
- Tolerance and action limits determination for tighter patient specific qa acceptance criteria and comparison of the clinical relevance of 2D versus 3D gamma passing rates. *Despoina Stasinou*
- Re-irradiation. Estimating NTCP when only the dDVHs for an OAR from the first and the second treatments are available. *Pavel Stavrev*
- A user friendly Matlab code for TCP/NTCP estimation in HDR brachytherapy. *Pavel Stavrev*
- Modeling prolonged SBRT for prostate cancer. *Nadejda Stavreva*
- Automatic planning process for glioblastoma VMAT irradiation. *Cinzia Talamonti*
- Radiomic and dosiomic profiling of paediatric medulloblastoma tumours treated with intensity modulated radiation therapy. *Cinzia Talamonti*
- Evaluation of fractionation schemes in breast cancer radiotherapy and dosimetric study of the main organs at risk. *Pedro Teles*
- Comparing treatment plans qualities at two different radiotherapy institutions operating under the same medical physics department. *Alessandro Tofani*
- Plan quality versus anatomic structure mutual disposition in moderate hypofractionated prostate radiotherapy. *Sara Trivellato*

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- Plan quality in moderate hypofractionated prostate radiotherapy. a tool to facilitate and standardize plan quality and consistency. *Sara Trivellato*
- Radiomic features characterization in healthy and NSCLC tissues. *Valeria Trojani*
- GEANT4 simulation study of the feasibility of LINAC 4 (CERN) and Nuclotron (JINR) accelerators to provide beams suitable for investigation of FLASH therapy mechanism. *Ivan Tsanev*
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- HyperArc treatment verification using 3D-printed anthropomorphic phantom and ionization chamber. *Lucia Zirone*
- Validation of a brain VMAT treatment through multi-detector dosimetry in an anthropomorphic phantom. *Emmanouil Zoros*

2 - Diagnostic and therapeutic nuclear medicine (NM)

- PET Bayesian penalized likelihood reconstruction algorithm. application for target volume segmentation in the oropharyngeal district. *Cinzia Avigo*
- Acceptance test of a Cadmium-Zinc-Telluride dedicated cardiac gamma camera. *Claudia Bianchi*
- Hypoxia for head and neck cancer. automatic FMISO segmentation using the parotid contour from radiotherapy planning. *Montserrat Carles*
- Image-based dosimetry for hepatic Y90 radioembolization. PET spatial resolution impact. *Nuria Carrasco-Vela*
- Characterization of the saturation behavior of two different gamma cameras for Holmium-166. *Rocío Estrada García*
- SPECT/CT calibration for patient dosimetry in radiometabolic therapy with ¹⁷⁷Lu-DOTATE. *Ornella Ferrando*
- ⁶⁸Ga and ¹⁸F SUV harmonization in a last-generation PET/CT tomograph. analogies and differences. *Alice Ferretti*
- Comparison of mathematical models for red marrow dosimetry in ¹³¹I treatment of thyroid cancer. *Giovanni Intermite*
- Decision and detection thresholds for quantitative evaluation of the labeled leukocytes scan. *Pavel Karhan*
- Implementation of SPECT auto-contouring detector motion in GATE Monte Carlo simulation for ¹⁷⁷Lu and ¹³¹I Molecular radiotherapy (MRT) dosimetry. *Gunjan Kayal*
- Normal range estimation for standard uptake values (SUVmax, SUVmean) in liver SPECT/CT image of patients after administration of somatostatin analog ^{99m}Tc-HYNIC-Tyr3-octreotide (^{99m}Tc-Tektrotyd). *Sara Kurkowska*
- Optimization of digital mammography considering different glandularity. *Oscar Ariel Marti Villarreal*
- In vivo quantification of micro-balloon interventions (MBI) advantage. Retrospective study of SIRT vs. b-SIRT. *Marica Masi*
- Optimisation of attenuation & scatter correction in planar ^{99m}Tc- MAA imaging for improved accuracy in lung shunt fraction estimation. *Niamh McArdle*
- AIMN-SIE-AIFM and EANM pre-therapeutic dosimetry in the radioiodine treatment of hyperthyroidisms. a retrospective analysis of the differences. *Angelo Ostinelli*
- Amyloid PET. is there room for regional analysis? *Enrico Peira*
- Efficacy of Y90 resin microspheres treatments in patients affected by "large" HCC tumors. *Cinzia Pettinato*
- Impact of intensity discretization on radiomics analysis in ⁶⁸Ga-DOTATOC PET/CT for neuroendocrine tumor. *Osvaldo Rampado*

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- Dosimetry in nuclear medicine for therapy optimization and exposure verification. the Italian survey. *Elisa Richetta*
- National survey of diagnostic reference levels for nuclear medicine in Lithuania. *Kirill Skovorodko*
- PRRT in patients with neuroendocrine tumor. preliminary results of OAR dosimetry and dose-response relationship for NET hepatic metastases. *Eugenia Tonini*

3 - Diagnostic and interventional radiology (DR)

- Identifying dynamic changes following traumatic brain injury using high resolution magnetic resonance images derived texture analysis. *Saleh Alanezi*
- Interventional radiologist experience effect on the radiation dose received by the patients during uterine artery embolization. *Salman Altmyat*
- Performance comparison of mammography systems with FFDM and DBT. An image quality study. *Simona Avramova*
- Optimizing the monitoring dose in contrast-enhanced CT. *Nesrine Ayari*
- Comparison between CT scanners with different Iterative Reconstruction techniques. *Alessandro Bellini*
- Impact of CT localizer and arm position to the patient's dose in neck CT scans. *Evelyn Bohrer*
- Transcranial magnetic resonance imaging-guided focused ultrasound treatment at 1.5 T. a retrospective study on treatment- and patient-related parameters obtained from 52 procedures. *Riccardo Filippo Borgese*
- Medical imaging in rural health centers and the challenge of Covid-19 patients. *Cari Borrás*
- Application and evaluation of the "linearity of the signal to noise ratio" parameter in quality assurance for Magnetic Resonance equipment. *Rossella Castiello*
- A Decade of Interventional Cardiology dose monitoring. Should there be a concern? *Vasileios Chatonidis*
- Synthetic 2D mammography. 4AFC experiment for image quality evaluation. *Margarita Chevalier*
- Patient dose and image quality assessment during digital chest imaging at different KV. *Fabiola Cretti*
- Geometric accuracy and precision of Cone Beam CT system in angiography used for radiosurgery and neurosurgery planning. *Denise Curto*
- Tissue-equivalent trimodal anthropomorphic phantom for radiomic studies. *Daniela D'Ambrosio*
- Comparison of 10 skin dose mapping software products in interventional cardiology following a common protocol. results of the VERIDIC project. *Jérémy Dabin*
- Cumulative effective dose from multiphase CT scans in a single episode of care. *Andea Dalessio*
- Class of effective dose for mammography with tomosynthesis in compliance to the new Italian regulation. *Paolo De Marco*
- Comparison of two different indirect flat panels through their characterizations. *Marcel Frederico*
- Characterization of two CT systems using a Channelized Hotelling Observer and NPS metric. *Caterina Ghetti*
- Characterizing iron deposition in healthy and multiple sclerosis patients using susceptibility weighted imaging in MR. *Giorgia Guerra*
- Investigation of tissue equivalency of 3D printing materials used for fabrication of anthropomorphic phantoms. *Antonio Jreije*
- Automatic head CT image quality quantification with deep learning. Phantom study. *Mika Kortensniemi*
- Evaluation of the CDMAM phantom in the determination of the contrast-detail threshold thickness in a digital mammography system. *Lucía Lado*
- Breast density characterization through convolutional neural networks and first order statistical features. *Francesca Lizzi*

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- Organ dose assessment and optimization in Brain Perfusion CT with 256 detector CT. *Alberto Mari*
- Dual Energy CT early evaluation of silicone samples from breast implants and assessment of best machine settings. *Alberto Mari*
- Iterative reconstruction algorithms in 256 MSCT and DSCT. *Alberto Mari*
- Multicenter comparison of MR scanners for quantitative diffusion weighted imaging. Apparent Diffusion Coefficient dependence on acquisition plan and spatial position. preliminary results. *Lorenzo Nicola Mazzoni*
- Evaluating the accuracy of Hounsfield Units in Interventional Radiology CBCT towards improved organ dosimetry estimation. *Nina McWilliams*
- Comparison between ultra-high (b1,600), high (b1,000) and standard (b500, b800) b-value diffusion weighted imaging in multi-parametric prostate cancer MRI. *Maria Michaliou*
- CT kernel for calcium quantification with arbitrary tube voltage. a phantom evaluation based on radiomic features. *Luca Moro*
- Split-filter Dual-Energy CT in the diagnosis of pulmonary embolism. a feasibility study. *Gaia Muti*
- MRI characterization of B-Lite® breast implants. *Giorgio Nissardi*
- Local Dose Reference Value Determination in Digital Breast Tomosynthesis. *Ornella Ortensia*
- A comprehensive approach to select CT tissue-equivalent 3D printable materials. *Francesco Padelli*
- Model observer. yes we “can”! *Nicoletta Paruccini*
- Task-based filter optimization for a dual-energy breast CT system. *Juan Pautasso*
- Photon Counting as a valuable technology for breast screening. low glandular doses and good image quality. *Massimiliano Porzio*
- Fully automated water equivalent diameter and SSDE computation for CT image in clinical workflow. *Massimiliano Porzio*
- Dose and image quality assessment for different chest examinations in paediatric patients with cystic fibrosis. a phantom study. *Veronica Rossetti*
- Pediatric X-ray radiation exposure. prospective survey results in a large non pediatric hospital. *Raffaella Soavi*
- Evaluation of size-specific normalized doses for partially irradiated liver tissue in thorax MDCT examinations using modern MC techniques. *John Stratakis*
- Multicentre comparison of MR scanners (1.5T, 3T) for MR T1-T2 relaxometry. *Paolo Tortoli*
- Dose comparison in maxillofacial CT between 64 slices CT and 256 slices CT. *Giovanni Tosi*
- Feasibility of bi-parametric MRI Delta-Radiomic features for assessing pathological complete response in locally advanced rectal cancer neoadjuvant chemoradiotherapy. *Alexandros Vamvakas*
- Radiation dose optimization for endomyocardial biopsies. *Claire Van Ngoc Ty*
- Cardiac angiographic protocols. a figure of merit approach. *Giovanna Venturi*
- How chest CT radiation dose of patients with confirmed COVID-19 will impact the cancer risk in the future. *Dafna Xhako*

4 - Radiation protection and dosimetry (RP)

- Development of a silicon-based thermal neutron system. *Mohammad Alsulimane*
- Operational evaluation of a new equipment for radiological protection in interventional cardiology. *Esther Angulo Pain*
- Evaluation of radiation exposure risk from 90Y in the light of Internal Bremsstrahlung emission. *Lucrezia Auditore*
- Fricke Dosimetry study for dose ranges used in radiotherapy. *Yolma Banguero*
- Collective effective dose from medical radiation exposures for the Tuscan population in 2016. *Eleonora Bortoli*

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- Postal dosimetric audits using the TLD method in Poland. 2020 results. *Wojciech Bulski*
- Management of patients with implantable medical devices who are candidates for MRI examinations. *Federica Campanaro*
- Effectiveness of five radioprotective protective devices for staff in interventional procedures. Results of the MEDIRAD project. *Jérémie Dabin*
- Intraoperative uterine iliac artery embolization in planned caesarean for accreta placenta. estimation of foetal radiation dose in a case report. *Adriano De Maggi*
- Setting up an Italian end-to-end dosimetric audit for IMRT and VMAT. the experience of the OPRORA project. *Sara Della Monaca*
- Evaluation of effectiveness of surgical drapes in interventional cardiovascular procedures. *Felipe Arturo Derecho Torres*
- Image quality parameters and DQE vs. average glandular dose in digital mammography. can we improve patient safety without sacrificing image quality? *Magdalena Dobrzynska*
- Monte Carlo simulation of the large area PantherPix detector. *Denis Dudas*
- New approaches for detection of wide energy spectrum of neutrons by nuclear emulsion detectors. *Alieza Ehtesham*
- Medical staff dosimetry in interventional radiology and cardiology practices. EURADOS working group 12 recent studies. *Paolo Ferrari*
- Independent validation of Monte Carlo simulations within in-house dosimetry software. *Paul Gape*
- Superheated nanodroplets as an in-vivo range verification tool. experimental verification by means of Monte Carlo simulations. *Andrea Giammanco*
- Non-uniformity error (noise) reduction of reflective type radiochromic films. *Toshizo Katsuda*
- Development of optical computed tomography system for polymer gel dosimetry. *Hiraku Kawamura*
- RF-EMF exposure levels in municipal waste collection service and ELF-EMF exposure levels at the electric railway system of Greece. *Yiannis Kiouvrekis*
- Unsupervised machine Learning and EMF radiation in schools. a study of 205 schools in Greece. *Yiannis Kiouvrekis*
- Effective finger dose for the staff performing in house production of ⁶⁸Ga-PSMA and ⁶⁸Ga-DOTATOC. *Efi Koutzouveli*
- Estimation of CBCT doses to target and healthy tissues during radiotherapy imaging. *Milana Marjanovic*
- The impact of contrast agent on radiation dose in conventional and dual-energy abdominal CT (DECT). *Mahta Mazloumi*
- Accredited dosimetry services. importance of participating to inter-laboratory comparisons. *Linhsia Noferini*
- Termoluminescent dosimeter (TLD) for accurate dose measurement. a case study with tomotherapy. *Linhsia Noferini*
- Determining acceptance criteria for geometric accuracy of magnetic resonance imaging scanners used in radiotherapy planning. *Katri Nousiainen*
- A method for estimating a local dose in biological tissues after implantation of a positron flux. *Angelo Ostinelli*
- Computed tomography dose measurements using Gafchromic® XR-QA2 and EBT-3. *Martina Pace*
- Blood and red marrow dosimetry in ¹³¹I therapy. two different methods to evaluate in-blood residence time. *Martina Pace*
- Has covid-19 made the difference in the justification of the pediatric computed tomography exams? *Evangelia Papageorgiou*
- Estimating the need for eye dosimeters in interventional radiology. *Antti Pekkarinen*
- The role of table and mattress forward scattering in the evaluation of peak skin dose in fluoroscopy guided interventional procedures. *Elisa Pilloni*
- Effective and eye lens dose evaluation in fluoroscopic-guided procedures. *Serena Proietti Cignitti*

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- Calibration of TLD-100 using LINAC, tomotherapy and HDR. *Mariagrazia Quattrocchi*
- Optimisation of paediatric chest x-rays in the Intensive Care Unit (ITU). a local study. *Caroline Renaud*
- Magnetic resonance thermometry implementation for safety assessment in ultra-high-field magnetic resonance imaging. *Alessandra Retico*
- Radioactive waste management in a general hospital with a nuclear medicine department with cyclotron. *Emanuele Roberto*
- Light dependent resistances as dosimeters in radiotherapy. dose rate, energy and angular dependences. *Juan Román-Raya*
- Saba shielding. Composition primary radiation attenuation properties and dose reduction values during CT examinations. *Valiallah Saba*
- French diagnostic reference levels in radiology. analysis of data collected over the period 2016-2018. *Julie Sage*
- Measurement of scattered radiation spectrum during X-ray fluoroscopy for the precise estimation of examiner's lens exposure. *Daisuke Shimao*
- Radiofrequency exposure measurements in Greece. *Vasiliki Softa*
- A dose management group project. Giovanni Tosi
- Conversion coefficients for estimation of effective dose from Kerma area product during X-ray radiography of pelvis and abdomen. *Ivan Tsanev*
- Contrast enhancement digital mammography dosimetry. preliminary evaluation of dose increase in thick/dense breast. *Elena Maria Vaccara*
- Monitoring of the topology of the distribution of radon isotopes and their decay products near tectonic faults in Almaty, Kazakhstan. *Yuliya Zaripova*

5 - Biomedical engineering (BE)

- MRgFUS System. a novel phantom for temperature evaluation during sonication. *Giuseppe Acri*
- An approach for creation of a contrast-enhanced phantom for breast imaging. *Kristina Bliznakova*
- Characterization of an MRI phantom for relaxation times maps harmonization and optimization. *Davide Cicolari*
- 3D-CNN denoising of low-count whole-body [18F]Fluorodeoxyglucose and [89Zr]cetuximab PET scans. *Bart de Vries*
- Positron annihilation spectroscopy for fundamental studies of living cells. *Paola Folegati*
- Feasibility study of using iodine-based mixtures in the production of anthropomorphic breast phantom. *Tihomir Georgiev*
- Pelvic and femoral osteotomies in children. surgical planning and technique. *Alberto Mari*
- Temporal electrical conductivity mapping during temperature Increase using bSSFP. *Jessica A. Martinez*
- IoT phonometer prototype. *Luciano Mondini*
- Application of the finite element method for modeling of the esophagus function. *Dimitrios Samaras*
- Three-dimensional and mesoscopic scale fine structures of human upper abdominal organs revealed by micro refraction-contrast X-ray CT. *Daisuke Shimao*
- Thermo radiotherapy treatment of superficial sarcoma. experimental 3D field assessment of HT antenna applicator. *Antonella Soriani*
- Heating of metallic implants in MRI. the European project MIMAS. *Luca Zilberti*

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- Updating S-IBEX compliancy to IBSI. *Andrea Bettinelli*
- Skull extraction for analysis of brain damage in magnetic resonance imaging. *Marcela de Oliveira*
- Deep learning based HPV status prediction on CT-images. *Daniel Lang*
- WISDoM: a framework for the analysis of wishart distributed matrices for neuroinformatics. *Carlo Mengucci*
- Robustness analysis of radiomic features extracted from CT images of lung nodules in lesion segmentation and image acquisition parameters variability. *Gaetano Vitagliano*

7 - Professional issues (PR)

- Measurement of time varying magnetic fields gradient using pocket dosimeters. *Giuseppe Acri*
- Cath labs GEMBA walk findings. Are we still not there yet? *Andreea Dohatcu*
- A survey based comparison between clinical training pathways of Irish MPEs and the RP174 "European Guidelines on Medical Physics Expert". *Margaret Moore*

8 - Education and training (ET)

- The Role of the Medical Physicist in Clinical Trials. *Natalie Abbott*
- Use of a RDIM software for automatic transmission of the exposure data in the radiological report in compliance with the Italian transposition of the 2013/59/EURATOM directive. *Paola Enrica Colombo*
- Course and participant assessment using online based clicker software. *Jens Edmund*
- Training for the future: 8 years of Master of Advanced Studies in Medical Physics in Trieste. *Renata Longo*
- An EBAMP accredited Python data analysis course for medical physicists. *Eric Pace*
- ENEN+ project-attract, retain and develop new nuclear talents beyond academic curricula. *Csilla Pesznyak*



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