XVIII Mexican Symposium on Medical Physics

March 20 – 22, 2024 University of Guanajuato

PROGRAM 18th MSMP

TIME	DAY		
	Wednesday 20	**Thursday 21**	**Friday 22**
	SESSION 01	**SESSION 04**	**SESSION 07**
9:00 – 10:00	**INAUGURATION**	**PLENARY CONFERENCE PC-03**	**PLENARY CONFERENCE PC-05**
10:00 – 10:30	**PLENARY CONFERENCE PC-01**	**Guest Lecture GL-03**	**Guest Lecture GL-06**
10:30 – 11:00		**Guest Lecture GL-04**	**Guest Lecture GL-07**
11:00 – 11:30	**Guest Lecture GL-01**	**COFFEE BREAK AND POSTER SESSION PS2**	**COFFEE BREAK**
		SESSION 05	**SESSION 08**
11:30 – 11:45	**Guest Lecture GL-02**	Oral Presentation OP2-08	Oral Presentation OP3-16
11:45 – 12:00		Oral Presentation OP2-09	Oral Presentation OP3-17
12:00 – 12:15	**COFFEE BREAK AND POSTER SESSION PS1**	Oral Presentation OP2-10	Oral Presentation OP3-18
12:15 – 12:30		Oral Presentation OP2-11	Oral Presentation OP3-19
	SESSION 02		
12:30 – 12:45	Oral Presentation OP1-01	Oral Presentation OP2-12	Oral Presentation OP3-20
12:45 – 13:00	Oral Presentation OP1-02	Oral Presentation OP2-13	Oral Presentation OP3-21
13:00 – 13:15	Oral Presentation OP1-03	Oral Presentation OP2-14	Oral Presentation OP3-22
13:15 – 13:30	Oral Presentation OP1-04	Oral Presentation OP2-15	**AWARDS AND CLOSING**
13:30 – 13:45	Oral Presentation OP1-05	**Guest Lecture GL-05**	
13:45 – 14:00	Oral Presentation OP1-06		
14:00 – 14:15	Oral Presentation OP1-07	**BREAK**	
14:15 – 16:00	**BREAK**		
	SESSION 03	**SESSION 06**	
16:00 – 17:00	**COFFEE BREAK AND POSTER SESSION PS1**	**COFFEE BREAK AND POSTER SESSION PS2**	
17:00 – 18:00	**PLENARY CONFERENCE PC-02**	**PLENARY CONFERENCE PC-4**	
18:00 – 18:30		**SYMPOSIUM PHOTOGRAPH**	
18:30 –		**DFM-SMF MEETING**	

XVIII Mexican Symposium on Medical Physics

March 20 – 22, 2024   **University of Guanajuato**

Plenary Conferences (PC)
March 20-22, 2024

Code	Name of the Author	Title of the Work
PC-01	Luis Fong de los Santos, Ph.D.	The role of physicists on the fight against cancer
PC-02	Agustín Martínez Ovalle, Ph.D.	Exploring research in medical physics and radioprotection: Responsibilities of the medical physicist
PC-03	Nikos Papanikolaou, Ph.D.	Overview of the total body irradiation technique and its applications
PC-04	Manuel Lores Guevara, Ph.D.	Biomedical Applications of Magnetic Resonance
PC-05	Panagiota (Yiota) Foka, Ph.D.	Hadrontherapy: Status and perspectives

Guest Lectures (GL)
March 20-22, 2024

Code	Name of the Author	Title of the Work
GL-01	María-Ester Brandan	The recently created Medical Physics clinical residencies in Mexico: The first 4 years
GL-02	Uvaldo Reyes Serrano	Clinical productivity percentage: A concept to evaluate the performance of a linear accelerator in radiotherapy
GL-03	Elsa Y. León Marroquín	Description of in vivo dosimetry for total body irradiation for bone marrow transplantation
GL-04	Gerardo Cerqueda Milán	Dose validation in total body irradiation using radiochromic film irradiated with 6 MV photon beam
GL-05	Blanca Olivia Murillo Ortiz	Concordance of different categories of breast density between electrical impedance mammography and X-ray mammography
GL-06	Juan Samuel Osnaya Estrada	Quality assurance program in the manufacturing of low cost mammography and radiography phantoms
GL-07	Miguel Ángel Moreles	Practical identifiability of parameters in a glucose-insulin regulation system from OGTT data

XVIII Mexican Symposium on Medical Physics

March 20 – 22, 2024   University of Guanajuato

Oral Presentations (OP1)
Wednesday, March 20, 2024

Code	Name of the Author	Title of the Work
OP1-01	Cassandra Yannina Islas Nava	Exploring human physiology through networks
OP1-02	Adamary Chaparro Mejía	Heart rate dynamic changes in patients before and during ventricular fibrillation
OP1-03	Luis Fernando Benítez Rodríguez	Physiological characteristics of individuals who are vulnerable to COVID-19
OP1-04	Ana Karina Cisneros Sánchez	A quality assessment tool for digital mammography images
OP1-05	María de los Ángeles Montes Rodríguez	Estimation of the inherent filtration as function of the electrical voltage applied to an X-ray tube
OP1-06	Wilmer Melo-Bernal	Production of low-energy electrons and nanoscale dose distribution around PEGylated gold nanoparticles
OP1-07	Modesto Sosa Aquino	Estimation of eye lens dose in chest CT studies in two hospitals in Leon, Gto.

Oral Presentations (OP2)
(STUDENTS)
Thursday, March 21, 2024

Code	Name of the Author	Title of the Work
OP2-08	Viridiana Guzmán Espinosa	Assessment of image quality metrics in Magnetic Resonance Imaging
OP2-09	Félix Iván Flores Álvarez	Development of a neonatal electrocardiogram device
OP2-10	Brenda Fernanda Noguez Ruiz	Artificial intelligence classifiers to detect cognitive impairment in older adults at rest, using fractal techniques
OP2-11	Diego Torres Sepúlveda	Electronic brachytherapy for breast cancer treatment: High spatial resolution dosimetric studies
OP2-12	Jorge Luis Lucho-Cervantes	Comparison of LD-V1 and XR-QA2 radiochromic films for x-ray dosimetry
OP2-13	Diana Itzel Ramírez Gutiérrez	Evaluation of commercial and custom-made phantoms for quality control in contrast-enhanced mammography.
OP2-14	Georgina C. Waldo-Benítez	Identification of tumoral region in CT images of cervical cancer
OP2-15	José Edgardo Arellano Hernández	Dosimetric Ceramic

XVIII Mexican Symposium on Medical Physics

March 20 – 22, 2024   **University of Guanajuato**

Oral Presentations (OP3)
Friday, March 22, 2024

Code	Name of the Author	Title of the Work
OP3-16	Zaira A. García-Nájera	Uncertainty analysis in dose determination with expired radiochromic films
OP3-17	M. Ángeles Montes Rodríguez	Determination of X-ray tube voltage potential: linearity of air kerma as a function of mAs and X-ray tube protection resistor
OP3-18	Daniel Arroyo-Portilla	Estimation of primary and scatter signal profiles in computed tomography using Geant4
OP3-19	Karla Adriana Bastidas Bonilla	Fluorescent organic particle doped polymer-based gel dosimeter for neutron detection
OP3-20	Janet Alejandra Elías Ángel	Radiation shielding with transparent glass
OP3-21	Ximena Marbán Guerrero	Analysis of pulmonary respiration obtained with electrical bioimpedance using Lissajous curves
OP3-22	Néstor Juan Rodríguez de la Cruz	Modelling proton magnetic relaxation in hemoglobin solutions: Spherical and ellipsoidal approaches

Posters Session (PS1)
Wednesday, March 20, 2024

Code	Name of the Author	Title of the Work
PS1-01	Erick Omar Iñiguez Gamboa	Analytical memory for the inclusion and production of 64Cu, 68Ga, and 89Zr, with the cyclone kiube accelerator at the cyclotron & radiopharmacy unit of INCan
PS1-02	Dionne Fonseca Sicairos	Comparing the efficacy of two radiotherapy schedules in eliminating cancer stem cells in triple negative breast cancer cell lines
PS1-03	Jonathan Álvarez-Martínez	Photoacoustic imaging through XY-Scan scan and Photoacoustic Phenomena
PS1-04	Flor de Liz Bahena Báez	Measuring device for compression bandage treatment for patients with lymphedema in the upper limb
PS1-05	Yanneth Tzitzin Chávez Gutiérrez	Implementation and analysis of a vision-based optical densitometer for clinical dosimetry with radiochromic film.
PS1-06	César Rafael Castillo Ochoa	Characterization of thermoluminescent response of flour and boron matrices irradiated with 6 MV photons
PS1-07	Lucas Alfredo Padilla Cedillo	Nonlinear optical properties of DNA in rodhamine using Z-scan
PS1-08	Michell Amaro Martínez	Dosimetric comparison for quality control in IMRT treatments using different measurement systems

PS1-09	Erika Muñoz Moral	Measurements of patient-specific quality assurance using Octavius 4D including the additional "chamber plate" component and a semiflex 3D ionization chamber.
PS1-10	Santiago Alvarado Orozco	Identification of egg cells on follicular liquid through optical coherence tomography and deep learning.
PS1-11	Julia Valeria Vignolia-Sánchez	Classification of electroencephalograms during epileptic seizures using machine learning based on complexity techniques
PS1-12	Daniel de la Cruz Hernández	Status of clinical dosimeter calibration services and Dw conformity assessment for external photon and electron beams ININ-IAEA 2012-2022
PS1-13	Johana Betzabé García Bustamante	RR time series analysis during different stages of a stress test
PS1-14	Manuel Abraham López Pacheco	Improving capillaroscopy diagnosis by enhancing light source
PS1-15	David Hernández Obín	Morphological parameters variability of photoplethysmographic signals registered on peripheral artery disease patients
PS1-16	Hamlet Nerey Hernández	Artificial intelligence from CT-based scans of pulmonary fibrosis due long COVID
PS1-17	Ricardo Espinosa-Thirión	Automated free liquid detection in the abdominal cavity for medical diagnosis
PS1-18	Daniel Vásquez López	Evaluation of quality assurance programs in magnetic resonance imaging (mri) facilities for medical diagnosis and quality control of equipment using acr accreditation phantom.
PS1-19	Miguel Ángel Díaz Núñez	Can bioelectrical impedance analysis to detect changes of bioelectrical parameters in breast ductal carcinoma females after radical mastectomy?
PS1-20	José Aarón Esquivel Ovilla	Synthesis and characterization of HfO2 nanoparticles suitable for biomedical applications.
PS1-21	Manuel I. León-Madrid	Determination of 18F-FDG organ absorbed dose during whole-body PET/CT scanning in a 12-years-old pediatric hybrid phantom.
PS1-22	Benjamín Hernández Reyes	Measurement of Correction Functions for 2D Portal Dosimetry with an EPID System
PS1-23	I. Martínez-Velis	Evaluation of rectal dosimetric efficacy in HDR brachytherapy with Co-60 source in patients with cervical cancer
PS1-24	Esmirna Cascaret-Fonseca	Principal component analysis for diagnostic-therapeutic variables in competitive sports with posttraumatic knee synovitis
PS1-25	Luis Mauricio López Jaramillo	Mano Tech
PS1-26	Hernán Olaya Dávila	Design, construction and evaluation of a skull physical simulator for quality assurance in computed tomography
PS1-27	Neil Aiken Granados Macías	Network system for dynamic joint characterization and real-time posture analysis using computer vision algorithms
PS1-28	AM Hoyos-García	Breast glandular density in contrast mammography with dual energy decomposition into 3 elements
PS1-29	Roberto Constantino Genis Sánchez	Quality control in mammography
PS1-30	Jorge Gutiérrez Correa	Diagnosis of osteoporosis by focused sound

Posters Session (PS2)
Thursday, March 21, 2024

Code	Name of the Author	Title of the Work
PS2-31	Leticia González Zamora	Construction and analysis of patch antennas with pre-fractal geometry
PS2-32	F.E. Trujillo-Zamudio	Morphological and textural analysis in digital mammograms classifieds with artificial neural networks to support breast cancer detection: A pilot study
PS2-33	Rodrigo Ruiz Nava	Noise factor in a chain mail birdcage coil for enhanced preclinical MRI at 7 Tesla
PS2-34	Jaime Torres Juárez	Study of cardiac muscle fibers *in vivo* using the Diffusion Tensor technique
PS2-35	Sergio Solís-Nájera	Comparative analysis of surface coil performance for metamaterial-enhanced traveling-wave magnetic resonance imaging at 7 T
PS2-36	J. Sabino-Campechano	Remote quality control in digital mammography. Two experiences.
PS2-37	Kenia María Ojeda Soto	Characterization of radiochromic films EBT-XD and MD-V3 with a clinical flatbed scanner
PS2-38	Fernando Gonzalo Moncada Gutiérrez	Deep learning-based attenuation correction in brain PET studies
PS2-39	Olga Olinca Galván De La Cruz	Complexity metrics in volumetric modulated arc therapy and the effect on quality control
PS2-40	Raúl Osorio-Durán	Generating a database for deep learning-based applications in multimodal tomography of the human brain
PS2-41	Gerardo Uriel Pérez Rojas	Use of convolutional neural networks to quantify iron in liver: A preliminar study
PS2-42	H. E. Vázquez-Hernández	Preliminary evaluation of a positron emission mammography prototype developed at the Instituto de Física, UNAM
PS2-43	Gemma Aiddé Osorio-Durán	Evaluation of dose reduction methods in cone beam X-ray microtomography
PS2-44	Anayeli León Álvarez	Quantification of tumor uptake in positron emission mammography
PS2-45	Joaquín Ignacio Escobar Arias	Determination of dosimetric functions of a Ir-192 source and dose distribution verification for gynecological applicators
PS2-46	Geraldinne Vallejo	Irradiation of gold nanoparticles and rhodamine 6G with continuous Nd:YAG laser for application in photodynamic therapy.
PS2-47	Estefanía Reyes Soto	Deep learning application in the classification of magnetic resonance imaging of brain tumor in pediatric patients
PS2-48	Alondra Itxel Hernández Gutiérrez	Detection of structural changes observed in graphene oxide irradiated with 6 MV photons.
PS2-49	Córdova Fraga Jessica Paola	Analysis of Electrical Characteristics and Crystalline Structure Modifications in Graphite Exposed to UV Radiation and LINAC

PS2-50	Lisset Franco Martínez	Bladder volume monitoring using electrical bioimpedance technique. Calibration equations.
PS2-51	Guadalupe Monserrat Gutiérrez Hidalgo	Design of a biomechanical and electrical prototype for the rehabilitation and detection of muscular fatigue in individuals with paraplegia
PS2-52	Roger Chiu-Coutino	Neural network for vessel's structure detection in laser speckle contrast imaging: A preliminary study in vitro
PS2-53	Luis Alberto Pérez Martínez	Lithiasis and classification models using convolutional networks in computerized tomography
PS2-54	Carlos Pinedo Guadarrama	Development of a two-wire electrical bioimpedance system
PS2-55	Torres Garay Zurisadai Harim	Three-dimensional visual representation of electrocardiogram and photoplethysmography tracings beat by beat during rest in patients with peripheral arterial disease
PS2-56	Eric Reyes Rivera	Monte Carlo and experimental dosimetry of Varian HDR surface applicators
PS2-57	Xóchitl Quetzally Pichardo Rodríguez	IR system for monitoring esophageal peristalsis
PS2-58	Fernando Yaferth Castillo Negrete	High Frequency Selectable Magnetic Hyperthermia Device
PS2-59	Roberto Alexander Hernández Rodríguez	Implementation and Design of a Blood Vessels IR Viewer
PS2-60	Justa Carmen Columbié Regüeiferos	Bioelectrical impedance analysis for the integral characterization in newly diagnosed lung cancer adult patients