CCE

2026 23rd International Conference on Electrical Engineering, Computing Science and Automatic Control

ROOM 1

ID Hour

Session NANO1 - Nanomaterials and Applications

Nanostructured and Two-Dimensional Semiconductor Films for Photocatalytic and Electronic Applications

Wednesday September 9, 2026 - 12:00-14:00 - Room 1

Session Chair: Dr. Refugio Rodríguez Vázquez

ID 81 12:00-12:20

Evaluation of Methyl Orange Degradation by Fluorine-Doped ZnO Thin Films Prepared via Ultrasonic Spray Pyrolysis

Gabriela Bobadilla Barrón, Eduardo Ramirez, Ángel Eduardo Zamora Suárez, Jaime Santoyo Salazar, Maria de la Luz Olvera Amador, Ivan Alvarez Samario

Speaker: Eduardo Benito Ramírez Martínez

ID 163 12:20-12:40

Nanostructured ZnO+TiO_2 heterostructures for methylene blue photodegradation

Jacobo Martínez Reyes, Laura Patricia Zárate Mendoza, María de la Luz Olvera Amador

Speaker: Laura Patricia Zárate Mendoza

ID 149 12:40-13:00

Tuning Electronic Coupling in Few-Layer Regime MoS2 via Organic Molecular Intercalation

Arely Cano, Brenda Hernández-Rodríguez, Hugo Martinez-Gutierrez

Speaker: Brenda Hernández-Rodríguez

ID 155 13:00-13:20

Influence of ethylene glycol as a binding agent in TiO2/g-C3N5 films for the photocatalytic degradation of levonorgestrel

Ximena Trujano, Pamela Trejo, Andrea Varela, Venkata Karthik, Srinivas Godavarthi

Speaker: Ximena Trujano González

ID 130 13:20-13:40

Photocatalytic degradation of methylene blue using zinc oxide (ZnO) films prepared from a milling zinc precursor

Luz Balcazar Villatoro, D. Mateus Torres-Herrera, G. B. Barron, Heberto Gomez-Pozos, M de la L. Olvera

Speaker: Luz Margarita Balcazar Villatoro

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ROOM 1

ID	Hour	Session NANO2 - Nanomaterials and Applications - From sustainable precursors to functional Nanomaterials Wednesday September 9, 2026 - 15:00-16:20 - Room 1 Session Chair: Dr. Sergio Armando Tomás Velásquez
ID 114	15:00-15:20	**Thermally-Driven Phase Separation and Formation of Silicon Nanoclusters in an a-ZnO Matrix Via Co-Sputtering and Low-Temperature Annealing** Javier Sotelo Medina, Erick I. Castro Ontiveros, Miguel Galván Arellano, Daniel Bahena Uribe, Ramón Peña Sierra **Speaker: Javier Sotelo Medina**
ID 118	15:20-15:40	**Adsorption and Diffusion Behavior of Malachite Green on Biomass-Derived Orange-Peel Carbon** Francisco Javier Cano, Odin Reyes Vallejo, Ashok Adhikari, P. J. Sebastian, Enrique Lima **Speaker: Francisco Javier Cano**
ID 128	15:40-16:00	**Development of Sustainable Design on Manufacturing Nanostructured Metal Oxide Materials** Ashok Adhikari, Francisco J. Cano, Mauricio Ortega-López, Odin Reyes-Vallejo, Jorge Evaristo Conde Diaz, Enrique Camarillo-García, Jacobo Martínez-Reyes **Speaker: Ashok Adhikari**

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ROOM 1

ID	Hour	Session BIO1- Biomedical Engineering/ Biomimetics Thursday September 10, 2026, 9:00-10:00, Room 1 Session Chair: Dr. Blanca Tovar Corona
ID 112	9:00-9:20	**Assessing Image-Adjusting Configurations in CNN-Based Breast Ultrasound Classification** Wilfrido Gomez-Flores, Pedro Crosara Motta, Wagner Coelho de Albuquerque Pereira **Speaker: Wilfrido Gómez-Flores**
ID 89	9:20-9:40	**Classification of Ovarian Cyst ultrasound images using Faster R-CNN and a hybrid architecture** Itsy Montes Martínez, Alvaro Anzueto-Rios, Lilia Martínez-Pérez **Speaker: Itsy Teri Montes Martínez**
ID 92	9:40-10:00	**Orthogonal Convolutional Autoencoder for Entamoeba histolytica Segmentation in Optical Microscopy** Estefania Figueroa-Acevedo, Alvaro Anzueto-Rios, Judith C. Pacheco-Yepez, Ivonne M. Arciniega-Martinez, Aldo A. Resendiz-Albor **Speaker: Estefania Figueroa-Acevedo**

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ROOM 1

Hour **Session BIO2 - Biomedical Engineering/ Biomimetics -**
Thursday September 10, 2026, 12:00-14:00, Room 1
Session Chair: Dr. Rafael Bayareh Mancilla

ID 42 12:00-12:20 **Computer Vision-Based Platform for Quantitative Bradykinesia Assessment in Parkinson's Disease**
Maria Alejandra Flores-Perez, Aylee Simeón-Quispe, Victoria E. Abarca, Dante A. Elias
Speaker: Maria Alejandra Flores-Perez

ID 43 12:20-12:40 **Wearable IoT-Based System for Ambulatory Inertial Gait Monitoring in Parkinson's Disease**
Juan Arturo Zavaleta Cavero, Aylee Simeón-Quispe, Victoria E. Abarca, Dante A. Elias
Speaker: Juan Arturo Zavaleta Cavero

ID 83 12:40-13:00 **Computation of brain activity changes after a transcranial direct current stimulation therapy for neuropathic pain in spinal cord injury**
Diego Fuentes-Baños, Jessica Cantillo-Negrete, Paul Carrillo-Mora, Carolina Herrera-Hernández, Ruben Carino-Escobar
Speaker: Diego Fuentes-Banos

ID 158 13:00-13:20 **Synthetic Multichannel Generation of EEG Signals with Spike-Slow Wave Morphology for Generalized Epileptic Seizures**
Claudia Rivas, Omar Ortiz, Laura Garay, Blanca Tovar, Martin Silva
Speaker: Claudia Andrea Rivas Marquez

ID 160 13:20-13:40 **Magnetic and Electric Field Characterization of High-Density Silver Coils for Transcranial Magnetic Stimulation**
Axel Uriel Martínez Jacobo, Viviana Guzman Castillo, Pedro Martínez Ortiz, José Alberto Pérez Benítez
Speaker: Axel Uriel Martinez Jacobo

ID 150 13:40-14:00 **Spatial influence of the electric field induced by TMS on neuronal activation in a 2D biological network arranged in a rectangular grid**
Viviana Guzmán Castillo, Axel Uriel Martinez Jacobo, Jose Alberto Pérez Benítez, Pedro Martínez Ortiz
Speaker: Axel Uriel Martinez Jacobo

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ROOM 1

ID	Hour	
		Session BIO3 - Biomedical Engineering/ Biomimetics **Friday September 11, 2026, 9:00-10:00, Room 1** **Session Chair: Dr. José Javier Reyes Lagos**
ID 144	9:00-9:20	**Discriminative Capability of Classical HRV Features for Ultra-Short-ECG Arrhythmia Classification** Juan Arturo Zavaleta-Cavero, Maria Alejandra Flores-Perez, Ana L. Espinoza-Quispe, John M. De Moura, Noe B. Bazán-Lavanda **Speaker: Juan Arturo Zavaleta-Cavero**
ID 115	9:20-9:40	**Dual-isolated bioimpedance system for simultaneous ICG and hand-to-hand IPG evaluation** Emiliano Rojano-Hernández, Jose A. Garcia-Limon, Jorge E. Baños-Bautista, Oscar Casas, Ramon Casanella, Carlos Alvarado-Serrano **Speaker: Emiliano Rojano-Hernández**
ID 171	9:40-10:00	**Machine Learning-Based Framework for Risk Factor Analysis of Pacemaker Exteriorization** Cristian Linaldi-Jacome, Benjamin Eduardo Aguilar-Arce, Kenia Soto-Rojas, Hugo Alejandro Ríos-Valenzuela, Gerardo Vera-Juárez, Ingrid Gutiérrez Villegas **Speaker: Cristian Linaldi-Jacome**

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ROOM 1

ID	Hour	Session BIO4 - Biomedical Engineering/ Biomimetics Friday September 11, 2026, 12:00-14:00, Room 1 Session Chair: Dr. Blanca Tovar Corona
ID 85	12:00-12:20	**Initial Design and Proposal of a Hybrid Microlaryngoscopy Simulator for Developing Surgical Skills** Valeria Viridiana Tellez Mayol, Daniel Lorias-Espinoza **Speaker: Valeria Viridiana Tellez Mayol**
ID 131	12:20-12:40	**Technical Development of the Endovascular Navigation Phase as an Initial Step Toward a Hybrid Training System for Patent Ductus Arteriosus Closure** Leobardo Elí Sánchez-Velasco, Daniel Lorias-Espinoza **Speaker: Leobardo Elí Sánchez Velasco**
ID 129	12:40-13:00	**Towards Hybrid Soft–Rigid Robotic Manipulation: FEM and Experimental Characterization of Pneumatic Elastomeric Artificial Muscles for a Bioinspired Hand** Daniel Gerardo Serrano Díaz, Osmar Alexis Ramírez Alquisires, María del Rosario Munguía Fuentes, Rafael Bayareh Mancilla **Speaker: Daniel Gerardo Serrano Díaz**
ID 102	13:00-13:20	**Flexible Inertial Sensing System for the Quantification of Motor Response in the Hindlimb of Wistar Rats: A Proof-of-Concept Study** Ramon Cortina, Arturo Minor, Fernando Pérez **Speaker: Ramon Cortina**
ID 106	13:20-13:40	**Development Of An Intelligent Cane System For Obstacle Detection** Diana Guevara Ballinas, Aldana Verónica Mata Fuentes **Speaker: Aldana Mata Fuentes**
ID 124	13:40-14:00	**Development of Ceramic Electrodes for Cardiac Biopotential Acquisition** Ernesto Suaste Gómez, Oscar Eduardo Aguilar Mejía, José de Jesús Agustín Flores Cuautle, Joel Méndez Ubaldo **Speaker: Oscar Eduardo Aguilar Mejía**

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ROOM 2

ID	Hour	
		Session SSM1 - Solid-state materials, Electron Devices and Integrated Circuits **Wednesday September 9, 2026, 12:00-14:00, Room 2** **Session Chair: Dr. Oliverio Arellano Cárdenas**
ID 64	12:00-12:20	**Impact of PFN thickness on Efficiency in Double ETL Organic Solar Cells** Jesus Solis, José Santos, Arturo Velazco, Latha Marasamy, Ma. Concepción Arenas, Francisco de Moure **Speaker: Jesús Fernando Solís Vivanco**
ID 120	12:20-12:40	**Spiking Convolutional Neural Network for Hand Movement Classification Using sEMG and Kinematic Data** Luis Elias Salgado Solano, Felipe Gómez Castañeda **Speaker: Luis Elias Salgado Solano**
ID 88	12:40-13:00	**A Reproducible, Sign-Off–Oriented RTL-to-GDSII Flow for Manufacturable Open-Source ASICs in the SkyWater 130 nm Process** Oliverio Arellano Cardenas, Carlos A. Hernández-Gutiérrez, Luis Martín Flores-Nava, Oscar Urbina-Burguete, Cesar A. Otamendi-Velázquez, Javier Ardila-Ochoa **Speaker: Cesar A. Otamendi-Velázquez**
ID 5	13:00-13:20	**Memristive In-Memory Computing Circuit for Solving Assignment Problems** Oliverio Arellano Cardenas, Felipe Gómez-Castañeda, Luis Martín Flores-Nava, Luis Elias Salgado-Solano, Carlos Alberto Hernández-Gutiérrez, Gerardo Marcos Tornez Xavier **Speaker: Luis Elias Salgado Solano**

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ROOM 2

ID	Hour	Session SSM2 - Solid-state materials, Electron Devices and Integrated Circuits Wednesday September 9, 2026 15:00-16:20 Room 2 Session Chair: Dr. Oliverio Arellano Cárdenas
ID 29	15:00-15:20	**Hardware Realization of Unsupervised Learning in SNNs Using RFET Technology** Raj Sharma, Ethan Gardner **Speaker: Ethan Gardner**
ID 105	15:20-15:40	**Numerical Evaluation of Lambert-W Approximation Strategies for Verilog-A Compact Modeling of 2D FETs** Yoanlys Hernandez Barrios, Ariel Fernandez Pirez, Salvador Ivan Garduño Vértiz, José Guadalupe Sánchez López **Speaker: Ariel Alejandro Fernández Pirez**
ID 108	15:40-16:00	**Daytime Energy Performance Diagnostic of a Photovoltaic System** Yasuhiro Matsumoto, Arturo Méndez, Aldo Díaz, Ramón Peña, René Asomoza **Speaker: Yasuhiro Matsumoto**

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ROOM 2

ID	Hour	
		Session POW1 - Power Electronics **Integration of Renewable Energies, Networks and Practical Applications** **Thursday September 10, 2026** **9:00-10:00** **Room 2** **Session Chair: Dr. José Luis Díaz Bernabe**
ID 50	9:00-9:20	**Maximizing Existing Energy Infrastructure through Wind–Solar Hybridization: Metrics and Evidence from Uruguay** Franciele Weschenfelder, Priscila Silveira Ebert, Jesús Hernández **Speaker: Franciele Weschenfelder**
ID 52	9:20-9:40	**PHIL-Based Experimental Validation of a Bidirectional Back-to-Back Interlink Converter for AC Grid Interconnection** Adriana Luna Hernández, Nelson L. Díaz A., Nelson Castañeda-Arias **Speaker: Adriana C. Luna Hernández**
ID 70	9:40-10:00	**Power Unbalance Mitigation at a Generating Station** Jose Hermilo Ceron Guerrero **Speaker: Jose Hermilo Ceron Guerrero**

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ROOM 2

ID	Hour	
		Session POW2 - Power Electronics **Advanced Control of Power Converters** **Thursday September 10, 2026, 12:00-14:00, Room 2** **Session Chair: Dr. José Luis Díaz Bernabe**
ID 39	12:00-12:20	**Continuous-Time MPC Strategy for Sinusoidal Voltage Regulation in a Single-Phase PWM-CSC** Angélica Mercedes Nivia-Vargas, Oscar Montoya Giraldo, Jesús C. Hernández **Speaker: Angélica Mercedes Nivia-Vargas**
ID 68	12:20-12:40	**PI-PBC Control of a PWM-CSC Supplying a CPL with dq-Frame Dynamic Assessment** Angélica Mercedes Nivia-Vargas, Oscar Montoya Giraldo, Walter Julián Gil-González **Speaker: Angélica Mercedes Nivia-Vargas**
ID 99	12:40-13:00	**Power control in a three-phase inverter using a PI controller designed through the pole-zero cancellation method** Cristian Barragan, Carlos Andres Rey, Nelson Leonardo Diaz, Jose Guarnizo **Speaker: Jose Guillermo Guarnizo**
ID 164	13:00-13:20	**FCS Model-Free Predictive Control of a SP-CHB 5-Level Inverter as Shunt Active Power Filter Based on Extended State Observer Using Ultralocal Model** Roberto Morales-Caporal, Andrés. A. Valdez-Fernández **Speaker: Roberto Morales-Caporal**

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ROOM 2

ID	Hour	Session ME– Mechanical Engineering (ME) Friday September 11, 2026 9:00-10:00 Room 2 Session Chair: Dr. Luis Martín Hernández Villa
ID 168	9:00-9:20	**On Multi-harmonic Vibration Control Using Virtual Delayed Resonators with Position and Velocity Feedback** Luis Hernandez-Villa, Gerardo Silva-Navarro, Daniel Melchor-Aguilar **Speaker: Luis Martin Hernandez Villa**
ID 170	9:20-9:40	**On the Application of Magnetic Springs for Nonlinear Vibration Absorption** Osnaider Alvarez Alvarez, Gerardo Silva-Navarro, Sebastian D. Valdés-Cerón **Speaker: Osnaider Alvarez Alvarez**

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ROOM 2

ID	Hour	
		Session MEC – Mechatronics **Friday September 11, 2026, 12:00-14:00, Room 2** **Session Chair: Dr. Alejandro Rodríguez Ángeles**
ID 35	12:00-12:20	**Uncertainty Estimation in Inertial Sensors Using a Bio-Inspired Approach: Application on a 1-Degree-of-Freedom Experimental Platform** Stephania Romero **Speaker: Stephania Romero**
ID 41	12:20-12:40	**Dynamic modeling of the flexion–extension and lateral flexion axes in a 3-DOF spherical robot using a lumped parameter approach.** Gabriela Aquino-Gonzalez, Sergio Vergara-Limon, M. Aurora D. Vargas-Treviño, Jesus Lopez-Gomez, Carlos L. Carreon.Diaz-De-Leon, Abril D. Castro-Sanchez **Speaker: Gabriela Aquino-González**
ID 116	12:40-13:00	**A small-plate deflection-based model for micro-sensors capacitance estimation** Jorge Mendoza Solana, Rogelio Portillo Vélez, Julio Tinoco Magaña **Speaker: Jorge Mahonri Mendoza Solana**
ID 154	13:00-13:20	**YOLOv11-CLIP Semantic Perception for Context-Aware Robotic Assembly** ISMAEL lopez juarez, Carlos Martínez-Miwa, Alfredo Reyes-Acosta, Daniel Arreguín-Jasso, Jose Aguirre-Flores, Ricardo Macías-Meza, Alan Maldonado-Ramirez, Carlos Anguiano-Gijon **Speaker: Ismael López-Juarez**
ID 172	13:20-13:40	**Collision Avoidance for First-Order Agents in 3D** Mariacamila Perdomo Mora, Eduardo Aranda-Bricaire, Juan Francisco Flores Resendiz **Speaker: Mariacamila Perdomo Mora**
ID 73	13:40-14:00	**Automatic Defect Detection in Translucent Materials Using Digital Photoelasticity and GLCM-Based Homogeneity Analysis** Alma Alejandra Luna-Gómez, José Fragoso Mandujano, Francisco Ronay López-Estrada, Jesús Alberto Flores-Luna **Speaker: José Armando Fragoso Mandujano**

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ROOM 3

Session AC1 - Automatic Control

Robotics

Wednesday September 9, 2026, 12:00-14:00, Room 3

Session Chair: Dr. Rubén Alejandro Garrido Moctezuma

ID	Hour	
ID 53	12:00-12:20	**Bearing Estimation on S^2 via Tangent-Space Measurements for UAV Formation Control** Julio Cesar Rodríguez Cervantes, Hector Manuel Becerra Fermin, José Javier Ruíz León **Speaker: Julio Cesar Rodríguez Cervantes**
ID 77	12:20-12:40	**Ethno-Swarm: A Cognitive-Cyber-Physical System for Culturally Adaptive Waste Management in High-Density Urban Enclaves** Shamik Mondal, Asif Ahmed Nejum, Hossain Ahammad, Noor-E -Sadman, Md Shirazim Munir, Mohammad Shidujaman **Speaker: Shamik Mondal**
ID 91	12:40-13:00	**Autonomous Navigation of Low-Cost Drones in GPS-Denied Environments Using Visual SLAM and OMPL-Based Motion Planning** Roman Velasquez, Gerardo Diaz, Arturo Sarmiento **Speaker: Román Velasquez Reyes**
ID 135	13:00-13:20	**Small flying wing aircraft control strategies under turbulence conditions** Alfredo Canto Perez, Héctor M. Becerra, Jorge A. Soto **Speaker: Alfredo Canto**
ID 136	13:20-13:40	**Multi Axis Flight Control Software for a Biomimetic Ornithopter in Confined Space Navigation** Vihaan Parikh **Speaker: Vihaan Parikh**
ID 95	13:40-14:00	**Braille for All: A 70 USD AI-Powered Braille Tutoring Robot That Erases the Literacy Gap with a Touch and a Voice** Shamik Mondal, Md Abdullah Hossien Molla, Fahim Mahtab, Most. Sunzida Akter, Md. Nasir Uddin Rabbi, Mohammad Shidujaman **Speaker: Md Abdullah Hossien Molla**

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ROOM 3

ID	Hour	
		Session AE - Aeronautics and Aerospace Engineering – Autonomous Navigation (AE) **Wednesday September 9, 2026, 15:00-16:20, Room 3** **Session Chair: Dr. Eduardo Steed Espinoza Quesada**
ID 32	15:00-15:20	**Prompt-Based Lightweight LLM Navigation for GPS-Denied UAVs with Simulated Visual–Inertial Fusion** Carlos Osorio Quero; María Liz Crespo **Speaker: Carlos Alexander Osorio Quero**
ID 78	15:20-15:40	**Adaptive Predefined-Time Neural Tracking Control with Switching Event-Triggered Mechanism for 6-DOF Quadrotor UAV: A Comparative Study against Backstepping Adaptive MTN** Jairo Olguin, Jhonatan-Fernando Eulopa-Hernandez, Levi Emmanuel Cruz-Vazquez, Alondra Ruiz-Vidal **Speaker: Levi Emmanuel Cruz-Vazquez**
ID 103	15:40-16:00	**Modeling and Hierarchical PID Control of a Quad-Cyclocopter UAV with 3-RSS Swashplate Mechanism** Jorge Martínez Hernández, Christian Reyes Montiel Rafael, Castro Lineares; Rogelio Lozano Leal **Speaker: Jorge Alejandro Martínez Hernández**
ID 122	16:00-16:20	**Propulsion System Sizing and Flight Validation of a Coaxial Hexarotor UAV** Juan Bustamante Alarcon, Ximenna Alexey Saldivar Pedraza, Eduardo Steed Espinoza **Speaker: Juan Manuel Bustamante Alarcon**

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ROOM 3

	Hour	**Session AC2 - Automatic Control** **Fault Detection** **Thursday September 10, 2026** **9:00-10:00** **Room 3** **Session Chair: Dr. Roger Miranda Colorado**
ID 12	9:00-9:20	**Explainable Extreme Learning Machine for SCADA Pipeline Fault Detection** Brahim Rahmouni, Mounir Aouadj, Djamel Mouss, Tarek Berghout **Speaker: Tarek Berghout**
ID 25	9:20-9:40	**Deep and Explainable Gated Recursive Least Squares for Real-Time Gas Turbine Fault Detection** Brahim Rahmouni, Mounir Aouadj, Djamel Mouss, Tarek Berghout **Speaker: Tarek Berghout**
ID 113	9:40-10:00	**Augmented Extended Kalman Filtering With Hydraulic Pseudo-Measurements for Leak Diagnosis in Pressurized Pipelines** Cristel Amayrani Diaz Escalante, Francisco Ronay López Estrada, Leonardo Gomez Coronel, Ildeberto Santos Ruiz, Jesús Flores Luna **Speaker: Cristel Amayrani Diaz Escalante**

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ROOM 3

Session AC3 - Automatic Control

Control Applications 1

Thursday September 10, 2026, 12:00-14:00, Room 3

Session Chair: Dr. Rubén Alejandro Garrido Moctezuma

ID	Hour	
ID 4	12:00-12:20	**Integral Sliding Mode with Periodic Switching for Uncertain-Gain Scalar Systems: Application to DC-DC Boost Converter** Jesús González-Castro, Guillermo Javier Rubio-Astorga, David Enrique Castro-Palazuelos **Speaker: Jesús Ángel González-Castro**
ID 96	12:20-12:40	**Data-Driven Inverse Game Control for Experience Transference of Linear Time Invariant Systems** Adolfo Perrusquia, Weisi Guo **Speaker: Adolfo Perrusquia**
ID 111	12:40-13:00	**A Delay-Independent Stability Approach for Estimating the Critical Depth of Cut in Turning Processes** Hugo Castorena Minor, Belem Saldivar, Marco A. Gomez **Speaker: Hugo D. Castorena Minor**
ID 21	13:00-13:20	**Stator Current-Based Field-Oriented Control of Induction Motors with uncertainties using Active Disturbance Rejection Control** Author Names: Hebertt Sira-Ramirez, Juan Quecan Herrera, Ruben Garrido **Speaker: Juan Quecan-Herrera**

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ROOM 3

ID	Hour	Session AC4 - Automatic Control Control Applications 2 Friday September 11, 2026 9:00-10:00 Room 3 Session Chair: Dr. Marco Antonio Gómez Álvarez
ID 3	9:00-9:20	**An Output-Feedback Adaptive RBF Controller for Level Regulation in a Three-Tank Cascade** Hugo Torres-Ruvalcaba, Eduardo Carvajal-Rubio, Aldo Muñoz-Vazquez, Juan Diego Sanchez-Torres **Speaker: Hugo Torres-Ruvalcaba**
ID 109	9:20-9:40	**Dynamic Coupling-based Trajectory-Tracking and Anti-Sway Control of 2D Cranes: Numerical and Experimental Analysis** Rafael Ferretiz Cabrera, Roger Miranda Colorado, Ruben Garrido **Speaker: Rafael Ferretiz Cabrera**
ID 161	9:40-10:00	**Robust Verification of Mercer-Sigmoid-Kernel Support Vector Machines** Luis González-Meza, Tran Anh-Tu Nguyen, Juan Diego Sanchez-Torres **Speaker: Luis Felipe Gonzalez Meza**

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2026 23rd International Conference on Electrical Engineering, Computing Science and Automatic Control

ROOM 4

Opening Ceremony

Wednesday September 9, 2026

10:00-10:20

Dr. Giselle M. Galvan-Tejada

Cinvestav-Unidad Zacatenco

Chair of Electrical Engineering Department

General Chair CCE 2026

Centro de Investigación y de Estudios Avanzados del Instituto Politécnico Nacional - Unidad Zacatenco

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ROOM 4

Plenary

Prof. Marcelo Antonio Pavanello, PhD

Centro Universitario FEI, Sao Paulo, Brazil

"Deep Cryogenic Operation of Planar and Tridimensional FD SOI MOSFETs for Quantum Computing"

Session Chair : **Dr. Arturo Escobosa Echavarría**

Date: September 9, 2026

Hour: 10:30 (Mexico City central time zone, UTC-6)

Short Biography:

Marcelo Antonio Pavanello (S´99-M´02-SM´05) received the Electrical Engineering degree from FEI University in 1993, receiving the award "Instituto de Engenharia" given for the best student among all the modalities of engineering programs offered at FEI. He received the M. Sc. and Ph. D. degrees in 1996 and 2000, respectively, in Electrical Engineering (Microelectronics) from University of São Paulo, Brazil. From August to December 1998 he was with Laboratoire de Microélectronique from Université Catholique de Louvain (UCL), Belgium, working in the fabrication and electrical characterization of novel channel-engineered Silicon-On-Insulator (SOI) transistors. From 2000 to 2002 he was with the Center of Semiconductor Components and Nanotechnologies, State University of Campinas, Brazil, where he worked as a post-doctoral researcher in the development of a CMOS n-well process. Since 2003 he joined FEI University where he is now Full Professor at Electrical Engineering Department. In 2008 he has been with UCL as a visiting professor. Dr. Pavanello is Senior member of The IEEE and Brazilian Microelectronics Society. He is also Research Associate to the National Council for Scientific Development (CNPq), Brazil. Since 2007 he serves as IEEE Electron Devices Society (EDS) Distinguished Lecturer and has been nominated to the Compact Modeling Technical Committee of EDS in 2018. He is author and co-author of more than 300 technical papers in peer-reviewed journals and conferences, and author/editor of 6 books. Dr. Pavanello coordinates several research projects fomented by Brazilian agencies like FAPESP, CNPq and Capes. He also supervised several Ph. D. dissertations, M. Sc. thesis and undergraduate projects in Electrical Engineering. His current interests are the compact modeling, fabrication, electrical characterization and simulation of SOI CMOS transistors with multiple gate configurations and silicon nanowires; the wide temperature range of operation of semiconductor devices; the digital and analog operation of novel channel-engineered SOI devices and circuits.

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2026 23rd International Conference on Electrical Engineering, Computing Science and Automatic Control

ROOM 4

ID	Hour	
		Session CS1 - Computer Science and Computer Engineering **Wednesday September 9, 2026, 12:00-14:00, Room 4** **Session Chair: Dr. Gerardo de la Fraga**
ID 107	12:00-12:20	**Edge-Based Real-Time Traffic Signal Optimization Using UAV Vision Data and Deep Reinforcement Learning** Murat Bakirci **Speaker: Murat Bakirci**
ID 20	12:20-12:40	**Fair Benefit Distribution in Local Energy Communities via Distributed Optimization** José Almeida, Fernando Lezama, Sérgio Ramos, Jesús C. Hernández, José C. Rolle, João Soares **Speaker: Jesús C. Hernández**
ID 11	12:40-13:00	**Automatic Identification of Butterfly Species for Ecological Monitoring Using Deep Learning** Miguel Diaz-Oviedo, Jhon Meneses-Viecco, Duverney Chaverra-Rodriguez, Jose Ruiz-Munoz, Richard Rios **Speaker: Miguel Diaz-Oviedo**
ID 22	13:00-13:20	**RetinaNet with Bayesian Optimization for the Detection of Marine Debris in Shallow Waters** Marco Moreno Armendariz, Halder Galdo-Navarro, Miguel Santiago Suárez-Castañón **Speaker: Halder Vladimir Galdo-Navarro**
ID 54	13:20-13:40	**An Interpretable Multimodal AI Framework to Support Psychological Follow-Up in Child Maltreatment Cases** Evelyn Vazquez Perez, Emiliano Arenas, Daniel Molina Pérez **Speaker: Ana Evelyn Vázquez Pérez**
ID 69	13:40-14:00	**Hybrid Exploration Strategy for Coverage Path Planning** Sergio Isahi Garrido-Castañeda, Irving Vasquez, Ivan Salgado **Speaker: Sergio Isahi Garrido-Castañeda**

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ROOM 4

ID	Hour	Session CS2 - Computer Science and Computer Engineering Wednesday September 9, 2026, 15:00-16:20, Room 4 Session Chair: Dr. Ana María Martínez-Enríquez
ID 134	15:00-15:20	**q-controlled Memristive Network used as an Edge Detection Video Processor** Arturo Sarmiento-Reyes, Juan Manuel Ugalde **Speaker: Juan Manuel Ugalde-Franco**
ID 137	15:20-15:40	**Generative Adversarial Networks in Natural Language: Variants and Emerging Trends** Kazim Ali Korejo, Ana Maria Martinez-Enriquez, Faaiza Zulfqar **Speaker: Kazim Ali Korejo**
ID 146	15:40-16:00	**Real-Time Collision-Avoidance Planner Based on the Enhanced Homotopy Continuation Method for Multi-Robot Systems** Daniel Yushed Ruiz Vera, Gerardo Ulises Díaz Arango, Hector Vazquez Leal, Luis Hernandez Martinez, Roberto Castañeda Sheissa **Speaker: Daniel Yushed Ruiz Vera**
ID 148	16:00-16:20	**Forecast of Global Warming Mitigation in Food Production with Sustainable-Dedicated Policies** Axel Felix-Jiménez, Matias Alvarado **Speaker: Axel Félix Jiménez**

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ID	Hour	Session CS3 - Computer Science and Computer Engineering Thursday September 10, 2026 9:00-10:00 Room 4 Session Chair: Dr. Brisbane Ovilla Martínez
ID 8	9:00-9:20	**Spatio-Temporal Wind Field Reconstruction via Squeeze-and-Excitation Recalibrated Residual Physics-Informed Neural Networks** Yue Li, Zhaozhao zhang, Kang Li, yingqin zhu, Wen Yu **Speaker: Yue Li**
ID 66	9:20-9:40	**Quality-Aware Reservoir State Trajectory Compensation for Echo State Networks with Missing Time Series Data** BoWen Jiang, Zhaozhao Zhang **Speaker: Bowen Jiang**
ID 87	9:40-10:00	**KrishiGhor: An AI-Powered Direct Trade Platform with Transparent Crop Pricing and Blockchain Integrated Supply Chain for Smallholder Farmers** Shamik Mondal, Md. Iftiab Mahmud Nabil, Md. Nahid Mahmud Liton, Mahady Hasan **Speaker: Md. Iftiab Mahmud Nabil**

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ROOM 4

Plenary

Prof. Romina Soledad Molina, PhD

KaleidoForge, Trieste, Italy

"Neural Networks on FPGAs: The Path to Edge AI with KalEdge"

Session Chair: **Dr. Brisbane Ovilla Martínez**

Date: September 10, 2026

Hour: 10:30-11:30 (Mexico City central time zone, UTC-6)

Short Biography:

Researcher and engineer specializing in Edge AI and embedded systems, with a PhD in Industrial and Information Engineering co-supervised by the University of Trieste, ICTP, and the National University of San Luis. Her work focuses on compressing and deploying machine learning models on FPGA and SoC platforms, with applications in nuclear instrumentation, precision agriculture, environmental monitoring, volcanology, and IoT. She is the founder of Kaleidoforge, an AI consultancy providing international training and development services, and actively collaborates with ICTP, IAEA, the University of Novi Sad, and the Ruđer Bošković Institute, among others.

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ID **Hour**

Session CS4 - Computer Science and Computer Engineering

Thursday September 10, 2026, 12:00-14:00, Room 4

Session Chair: Dr. Oliver Schütze

ID 74 12:00-12:20 **The relationship between digital media information and electricity demand: A comprehensive review**
Alfredo Candela Esclapez, Miguel López García, Sergio Valero Verdú, Carolina Senabre Blanes, Jesús de la Casa Hernández
Speaker: José Armando Fragoso Mandujano

ID 38 12:20-12:40 **Cost-Effective Energy Management of Battery Systems in AC Microgrids via Vortex Search**
Luis Fernando Grisales Noreña, Hugo Alessandro Figueroa-Saavedra, Oscar Danilo Montoya Giraldo
Speaker: Hugo Alessandro Figueroa-Saavedra

ID 6 12:40-13:00 **An FPGA-Assisted WiFi-CSI Framework for Human Pose Estimation in Search-and-Rescue Environments**
Carlos Osorio Quero, Jose Martinez-Carranza
Speaker: Carlos Osorio

ID 72 13:00-13:20 **Evaluation of Convolutional and Transformer-Based Detectors for Weed Detection in Tomato Plantations**
Alcides Toledo-Espinosa, Gerardo Antonio Alvarez-Hernandez, Ángel Eduardo Zamora-Suárez, Miguel Hernandez-Bolaños, Juan Irving Vasquez
Speaker: Alcides Toledo Espinosa

ID 159 13:20-13:40 **A Comparative Study of Linear Spectral Unmixing Methods in Open-Source Toolboxes**
Alejandro Reyes, Juan Nicolás Mendoza Chavarría, Daniel Ulíses Campos-Delgado
Speaker: Alejandro Reyes

ID 162 13:40-14:00 **Multikernel SVR With Kernel Weights Regularization**
Gregorio Alvarez, Anh-Tu Nguyen, Jimmy Lauber, Vicenc Puig, Juan Diego Sanchez Torres
Speaker: Gregorio Alberto Alvarez Alvarez

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ROOM 4

ID	Hour	Session COMM1 - Communications systems Friday September 11, 2026 9:00-10:00 Room 4 Session Chair: Dr. Ricardo Gómez Villanueva
ID 151	9:00-9:20	**1×4 Bowtie Shaped Dielectric Resonator Antenna Array for WLAN Application** Sistla V Sudheer Kumar, Banavathu V Naik **Speaker: Sistla V Sudheer Kumar**
ID 153	9:20-9:40	**Multi-band Textile Two - port MIMO Antenna for Wearable Applications** Dwarapu Lakshmi Narayana, Rongali Aneel Kumar, Sistla V Sudheer Kumar **Speaker: Dwarapu lakshmi Narayana**
ID 58	9:40-10:00	**Automated RSSI-Based Radiation Pattern Measurement for Angle-of-Arrival Estimation in RF Source Localization** Kevin Uriel Pérez Delgado, Aldo Gustavo Orozco Lugo, Moisés Bonilla Estrada **Speaker: Kevin Uriel Pérez Delgado**

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ROOM 4

Plenary

Prof. Hugo Plácido da Silva, PhD

University of Lisbon, Portugal

"Invisibles: A New Frontier in Biomedical Signal Acquisition and Processing"

Session Chair : **Dr. Javier Reyes Lagos**

Date: September 11, 2026

Hour: 10:30-11:30 (Mexico City central time zone, UTC-6)

Short Biography

Hugo Plácido da Silva is an award-winning inventor, researcher, and entrepreneur, having co-founded multiple innovative technology-based companies, operating in the fields of biomedical devices and data science for healthcare and quality of life. He obtained his Habilitation in Biomedical Engineering and completed his PhD in Electrical and Computers Engineering both from the Instituto Superior Técnico (IST), University of Lisbon (UL), where he is currently an Invited Assistant Professor. Hugo is also a Senior Researcher at the Instituto de Telecomunicações (IT), to which he is affiliated since 2004. Both at a technical and scientific level, he has actively contributed to more than 60 national and international projects, funded by grants from private and public institutions (e.g. Horizon Europe, Vodafone, or Nokia).

Hugo has 10 granted patents, co-authored 1 book, and published 260+ papers in peer reviewed journals, international refereed conferences, and as book chapters. His work has been distinguished both internationally and domestically with several awards, including the "IEEE Entrepreneurship Impact Award" and the "Career Award alumniIPS", just to name a few. Hugo is an IEEE Member since 2010 (Senior Member since 2018), affiliated with the IEEE Engineering in Medicine and Biology Society. Furthermore, he is an active member of IEEE Region 8, where he is currently Industry Relations Coordinator of the IEEE Portugal Section and a Vice-Chair of the IEEE EMBS Portugal Chapter. More recently, he has also been appointed Member of the European Laboratory for Learning and Intelligent Systems (ELLIS) / Lisbon Unit for Learning and Intelligent Systems (LUMLIS).

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ROOM 4

ID	Hour	Session COMM2 - Communications systems Friday September 11, 2026, 12:00-14:00, Room 4 Session Chair: Dr. Fernando L. Ramos Alarcón
ID 19	12:00-12:20	**IoT Applications in Distributed Generation: Integration with Artificial Intelligence, Blockchain, and Communication Protocols for Secure and Resilient Networks** Armando Taveras-Cruz, William Alfredo Ruiz Portorreal, Francisco José Peralta Polanco, Caroline Georgina de los Santos, Eduardo Enrique Espinosa Neira, Luis Fernando Grisales Noreña, Deyslen Mariano, Miguel Aybar-Mejía **Speaker: Armando J Taveras-Cruz**
ID 47	12:20-12:40	**Single-Wavelength 400 Gbps PAM4 10-km Data Center Link using CD Digital Pre-Compensation** Javier Molina-Luna, Ramón Gutiérrez-Castrejón, Daniel E. Ceballos-Herrera, Pablo Torres-Ferrera **Speaker: Javier Molina-Luna**
ID 127	12:40-13:00	**Index Modulation: A Review** Oscar Alvarez-Zamora, Aldo G. Orozco-Lugo, José Guadalupe Rodríguez-García **Speaker: Oscar E. Alvarez-Zamora**
ID 140	13:00-13:20	**Preliminary Experimental Evaluation of an Acoustic Reception System for Underwater Homing** Victor Perez-Andrade, Aldo G. Orozco-Lugo, Giselle M. Galvan-Tejada **Speaker: Victor H. Perez-Andrade**