

# Schedule CCE 2019

The 16th International Conference on Electrical Engineering, Computing Science and Automatic Control (CCE 2019) is organized by the Departments of [Electrical Engineering, Automatic Control](#) and [LAFMIA -UMI](#) (Laboratoire Franco-Mexicain d'informatique et Automatique – Unite Mixte Internationale 3175 CNRS) of [CINVESTAV](#) .

The **CCE conference** will take place in Mexico City, Mexico at the premises of the [CINVESTAV](#) (Department of Electrical Engineering)

[CINVESTAV](#): Centro de Investigación y de Estudios Avanzados del I.P.N. (main building of the Department of Electrical Engineering)

Address: Av. Instituto Politécnico Nacional 2508 (corner with Av. Ticomán), Col San Pedro Zacatenco, C.P. 07360

Alcaldía Gustavo A. Madero

México City.

MÉXICO

## CONFERENCE

Wednesday September 11th, 2019			
CINVESTAV (Building of the Department of Electrical Engineering)			
Hour	Room 1	Room 2	Auditorium Jorge Suárez Díaz
8:00-9:00	Registration		
9:00-10:00	AE-AU		AC1
10:00-10:30	Coffee Break		
10:30-12:00			<b>Opening Ceremony and Plenary Prof. Qi Gong, PhD.</b> <i>(PLE1-AC : "Data-driven Computational Optimal Control for Uncertain Nonlinear Systems"). Professor and Chair of Department, Department of Applied Mathematics, University of California – Santa Cruz - USA</i>
12:00-12:30	Coffee Break		
12:30-14:30	CS1	SSM1	AC2
14:30-16:30	Lunch (not included)		
16:30-18:30	NANO	MEE	BIO1
18:30-20:30	Welcome event (included)		

<b>Thursday September 12th, 2019</b>			
<b>CINVESTAV (Building of the Department of Electrical Engineering)</b>			
<i>Hour</i>	<i>Room 1</i>	<i>Room 2</i>	<i>Auditorium Jorge Suárez Díaz</i>
8:00-9:00	Registration		
9:00-11:00	CS2	SSM2	AC3
11:00-11:30	Coffee Break		
11:30-12:30			<b>Plenary Prof. Leonid Fridman, PhD.</b> <i>(PLE2-AC : "Sliding Mode Controllers: stages of evolution"). Department of Control Engineering and Robotics, Engineering Faculty, National Autonomous University of Mexico (UNAM), Mexico</i>
12:30-13:00	Coffee Break		
13:00-14:20	BIO2	POW	AC4
14:30-16:00	Lunch (not included)		
16:00-17:00			Session in honor of Professor Roberto Muñoz Guerrero
17:00-18:00			Session in honor of Professor David Elías Viñas

<b>Friday September 13th, 2019</b>			
<b>CINVESTAV (Building of the Department of Electrical Engineering)</b>			
<i>Hour</i>	<i>Room 1</i>	<i>Room2</i>	<i>Auditorium Jorge Suárez Díaz</i>
8:00-9:00	Registration		
9:00-11:00	BIO3	MEC	AC5
11:00-11:30	Coffee Break		
11:30-12:30			<b>Plenary: Prof. Hebertt J. Sira Ramírez, PhD</b> <i>(PLE3-MEC : "Sliding Mode Control: A Frequency Domain Approach"). Department of Electrical Engineering, Mechatronics Section, Center for Research and Advanced Studies of the I.P.N. (CINVESTAV)</i>
12:30-12:50	Coffee Break		
12:50-14:10	BIO4		AC6
14:30-16:30	Closing and farewell ceremony (included)		

**AC:** AUTOMATIC CONTROL, **BIO:** BIOMEDICAL ENGINEERING/ BIOMIMETICS, **COMM:** COMMUNICATIONS SYSTEMS, **CS:** COMPUTER SCIENCE AND COMPUTER ENGINEERING, **MEC:** MECHATRONICS, **MEE:** MECHANICAL ENGINEERING, **NANO:** NANOTECHNOLOGY, **POW:** POWER ELECTRONICS, **SSM:** SOLID-STATE MATERIALS, ELECTRON DEVICES AND INTEGRATED CIRCUITS, **AE:** AERONAUTICS AND AEROSPACE ENGINEERING, **AU:** AUTONOMOUS NAVIGATION EXOSKELETONS

# TECHNICAL PROGRAM

ID	Hour	<b>Aeronautics and Aerospace Engineering (AE)/ Autonomous Navigation- Exoskeletons (AU)</b>
		<b>Session AE/AU</b> Wednesday September 11th, 2019 9:00-10:00 Room 1 Session Chair: <b>Dr. Sergio Salazar Cruz</b>
81	9:00-9:20	<b>Design and Construction of a UAV VTOL in Ducted-Fan and Tilt-Rotor Configuration</b> <i>Juan Manuel Bustamante Alarcon, Cindy Angélica Herrera, Eduardo Steed Espinoza Quesada, Carlos A. Escalante, Sergio Salazar Cruz and Rogelio Lozano Leal</i>
26	9:20-9:40	<b>Standing Mobility Exoskeleton Device</b> <i>Joel Hernández, J. Ricardo Lopez Gutierrez, Sergio Salazar Cruz and Rogelio Lozano Leal</i>
36	9:40-10:00	<b>Real-time people detection from thermal images by using an Unmanned Aerial System</b> <i>Alejandro Morfin-Santana, Filiberto Muñoz Palacios, Sergio Salazar Cruz, Iván González Hernández, Eduardo Steed Espinoza Quesada and Rogelio Lozano Leal</i>
ID	Hour	<b>Automatic Control (AC)</b>
		<b>Session AC 1 - NEURONAL NETWORK CONTROL</b> Wednesday September 11th, 2019 9:00-10:00 Auditorium Jorge Suárez Díaz Session Chair: <b>Dr. Wen Yu</b>
7	9:00-9:20	<b>Optimal contact force of Robots in Unknown Environments using Reinforcement Learning and Model-free controllers</b> <i>Adolfo Perrusquía, Wen Yu and Alberto Soria</i>
106	9:20-9:40	<b>Human Behavior Learning in Joint Space Using Dynamic Time Warping and Neural Networks</b> <i>Jorge Ramírez and Wen Yu</i>
107	9:40-10:00	<b>Short-term prediction of the earthquake through Neural Networks and Meta-Learning</b> <i>Mario Maya and Wen Yu</i>

## Session AC 2 - ROBOTICS

Wednesday September 11th, 2019

12:30-14:30

Auditorium Jorge Suárez Díaz

Session Chair: **Dr. Rubén Garrido Moctezuma**

- 2      12:30-12:50      **Servodrive chaotization: An MRAC approach using a nonlinear reference model**  
*Erick Asiain and Rubén Garrido*
- 17      12:50-13:10      **Simple Optimal Tracking Control for a Class of Closed-Chain Mechanisms in Task Space**  
*Adolfo Perrusquía, Juan Alejandro Flores Campos and Wen Yu*
- 32      13:10-13:30      **Parameter Estimation of a Linear Ultrasonic Motor Using the Least Squares of Orthogonal Distances Algorithm**  
*Luis A. Cantera Cantera, Luis Luna, Cristóbal Vargas-Jarillo and Rubén Garrido*
- 69      13:30-13:50      **Fixed-time robust output feedback control of a restricted state biped robot based on a tangent barrier Lyapunov function**  
*Karla Rincon, Isaac Chairez and Wen Yu*
- 74      13:50-14:10      **Output Adaptive Control of a Skid Steering Autonomous Vehicle**  
*Rubén Fuentes-Alvarez, Isaac Chairez, Kim Adams, Sergio Salazar and Ricardo López*
- 85      14:10-14:30      **Simple Direct MRAC of a Self-Balancing Robot mounted on a Ball**  
*Rubén Ontiveros-Guerrero and Francisco Jurado*

## Session AC 3 - SLIDING MODES CONTROL

Thursday September 12th, 2019

9:00-11:00

Auditorium Jorge Suárez Díaz

Session Chair: **Dr. Edgar N. Sánchez**

- 23      9:00-9:20      **On the Discretization of a Class of Homogeneous Differentiators**  
*Jose Eduardo Carvajal Rubio, Alexander G. Loukianov., Juan Diego Sánchez Torres and Michael Defoort*
- 35      9:20-9:40      **Nonsingular Fast Terminal Sliding Mode Control for an Autonomous Underwater Vehicle**  
*Angel Eduardo Zamora, Miguel Angel Garcia, Adrian Manzanilla, Rogelio Lozano, Sergio Salazar and Filiberto Muñoz*
- 64      9:40-10:00      **Second Adaptive Sliding Mode Control Law for the Non-Inertial Acrobot on a Cart System**  
*Laura Trejo and Hussain Alazki*
- 67      10:00-10:20      **Decentralized sliding-mode control of robotic manipulator with constraint workspace: a finite-convergent barrier Lyapunov approach**  
*David Cruz-Ortiz, Isaac Chairez, Vadim Utkin and Alexander Poznyak*
- 76      10:20-10:40      **Velocity Field Description of the Cartesian Motion Induced by a Sliding Condition in Mechanical Systems**  
*Francisco J. Ruiz-Sanchez*
- 15      10:40-11:00      **Discrete-time neural sliding-mode pinning control for synchronization of complex networks**  
*Carlos J. Vega, Edgar N. Sanchez and Oscar J. Suarez*

### Session AC 4 - SYSTEMS WITH DELAY

Thursday September 12th, 2019

13:00-14:20

Auditorium Jorge Suárez Díaz

Session Chair: **Dr. Carlos Cuvas-Castillo**

- 12      13:00-13:20      **Relaxed Conditions for Stability and Stabilization of Takagi-Sugeno Fuzzy Systems with Time-Delay via Non-quadratic Functional**  
*Sara Angulo, Raymundo Márquez and Miguel Bernal*
- 34      13:20-13:40      **Nested Stabilization for Connected Cruise Control via the Delay Lyapunov Matrix**  
*Luis Juárez, Sabine Mondié and Leopoldo Vite*
- 40      13:40-14:00      **An efficient algorithm for the construction of a block matrix depending on the delay Lyapunov matrix for testing stability of time-delay systems**  
*Carlos Cuvas-Castillo, Alejandro Castaño-Hernández and Jesús Patricio Ordaz-Oliver*

### Session AC 5 - CONTROL THEORY

Friday September 13th, 2019

9:00-11:00

Auditorium Jorge Suárez Díaz

Session Chair: **Dr. Julio Clempner**

- 25      9:00-9:20      **Cell death induction in p53-Mdm2 network regulated by p300 and HDAC1 using pinning control**  
*Oscar J. Suarez, Carlos J. Vega, Edgar N. Sanchez and Ana E. González-Santiago*
- 62      9:20-9:40      **Backstepping Design for the Predefined-Time Stabilization of Second-Order Systems**  
*Esteban Jiménez-Rodríguez, Juan Diego Sánchez-Torres and Alexander Loukianov*
- 77      9:40-10:00      **Passivity-based output-feedback control for a class of 1-D semilinear PDE models**  
*Hugo A. Franco de Los Reyes, Alexander Schaum, Thomas Meurer and Jesús Álvarez*
- 78      10:00-10:20      **Non-Linear Control for PVTOL Without Algebraic Restrictions**  
*Sergio Salazar, Jonathan Flores and Rogelio Lozano*
- 101      10:20-10:40      **DC Motor Control based on Robust run-time Optimization Algorithm**  
*Cesar Solis, Julio Clempner and Alexander Poznyak*
- 102      10:40-11:00      **Tracking Regulator Design with Disturbance Rejection to the Reaction-Diffusion Equation**  
*Andrés A. Ramírez and Francisco Jurado*

### Session AC 6 - SYSTEM MODELING

Friday September 13th, 2019

12:50-14:10

Auditorium Jorge Suárez Díaz

Session Chair: **Dr. Joaquín Collado**

- 27      12:50-13:10      **Rotary-Wing Aircraft Model for Control**  
*Alejandro J. Malo Tamayo, Diego R Peredo Ortiz and Abraham E Rivera Ugalde*
- 91      13:10-13:30      **Modelling and Analysis of Flow Rate and Pressure Head in Pipelines**  
*Sina Razvarz, Cristobal Vargas-Jarillo and Raheleh Jafari*
- 54      13:30-13:50      **Relationship between a Damped Discrete Hill's Equation and an associated Undamped Discrete Hill's Equation**  
*Luis Venegas and Joaquín Collado*

**ID**      **Hour**      **Biomedical Engineering/ Biomimetics (BIO)**

**Session BIO 1**

Wednesday September 11th, 2019

16:30 – 18:30

Auditorium Jorge Suárez Díaz

Session Chair: **Dr. Blanca Tovar Corona**

- 5      16:30-16:50      **Development of an electrocardiograph prototype for educational purposes**  
*Manuel Alejandro Ojeda Misses, Marlen Valdés Fuentes and Mauricio Díaz Muñoz*
- 28      16:50-17:10      **Emotion Recognition System Based on Electroencephalography**  
*Alma Areli Vicencio-Martínez, Blanca Tovar-Corona and Laura Ivoone Garay-Jiménez*
- 88      17:10-17:30      **VHDL Module for the R Wave Detection in Real Time Using Continuous Wavelet Transform**  
*Frank Martínez-Suárez and Carlos Alvarado-Serrano*
- 100      17:30-17:50      **ECG Signals Denoising and Features Extraction by Applying UFIR Smoothing with Optimal q-Lag in the State Space**  
*Carlos Mauricio Lastre Dominguez, Yuriy S Shmaliy Shmaliy, Oscar Gerardo Ibarra Manzano, Sandra Marquez Figueroa and Karen Julieth Uribe Murcia*
- 66      17:50-18:10      **Two Methods Applied to Computational Simulated A-Scan Signals for Glaucoma Diagnosis**  
*Ivonne Bazan and Alfredo Ramirez-Garcia*
- 71      18:10-18:30      **Comparison between CNA Estimators and WGS technology based on the Refinement of Breakpoints using the Confidence Masks**  
*Jorge Muñoz, Yuriy Shmaliy, Tatiana Popova, Rosa Janette Perez, Jose Lopez Robles and Misael Lopez Ramirez*

**Session BIO 2**

Thursday September 12th, 2019

13:00-14:20

Room 1

Session Chair: **Dr. Daniel Lorias Espinoza**

- 38      13:00-13:20      **Prototype of an Ambulatory ECG Monitoring System with R Wave Detection in Real Time Based on FPGA**  
*Frank Martínez-Suárez and Carlos Alvarado-Serrano*
- 16      13:20-13:40      **Frequency-Swept Electronic Driver for Wideband Applications of Air-Coupled Ultrasound Transducers**  
*Raul Daniel Casillas, Josefina Gutierrez, Lorenzo Leija, Arturo Vera and Mario Ibrahim Gutierrez*
- 61      13:40-14:00      **Frequency Swept to Optimize Focalization at the Substantia Nigra in a Rat Head Model using a Semi-Spherical Ultrasound Transducer**  
*Jorge Alberto Rodríguez Ramírez, Mario Ibrahim Gutiérrez, Citlalli Trujillo Romero, Arturo Vera Hernández, Daniel Martínez-Fong and Lorenzo Leija Salas*
- 63      14:00-14:20      **A Performance Evaluation of Machine Learning Techniques for Breast Ultrasound Classification**  
*Francisco Alejandro González-Luna, Juanita Hernández-López and Wilfrido Gómez-Flores*

**Session BIO 3**

Friday September 13th, 2019

9:00-11:00

Room 1

Session Chair: **Dr. Ernesto Suaste**

- 31 9:00-9:20 **Antennas Design for Microwave Ablation in Bone Tissue: Simulation and Experimental Validation**  
*Texar Javier Ramírez Guzmán, Arturo Vera Hernández, Lorenzo Leija Salas and Citlalli Jessica Trujillo Romero*
- 48 9:20-9:40 **Three-dimensional recording system of the path of the surgical instrument type Jarit; Metric dispersión**  
*Daniel Lorias, Vicente González Carranza, Fernando Pérez Escamiroso, José Antonio Gutiérrez-Gnecchi, Arturo Minor-Martinez and Jonadab Ignacio Hernández Popo*
- 49 9:40-10:00 **Rehabilitation Paretic MMSS in a Patient with Traumatic Brain Injury/TBI: Efficacy of the use of Virtual Environments**  
*Hugo Gamboa Zuñiga, Daniel Lorias-Espinoza, Laura Delgado Rangel, Fernando Pérez Escamiroso and José A. Gutierrez Gnecchi*
- 57 10:00-10:20 **ON/OFF sEMG Switch for FES Activation**  
*Cinthy L Toledo-Peral, Gerardo Hernández-Nava, José Antonio Mejía-Licon, Jorge Airy Mercado-Gutiérrez, Ana Valeria Aguirre-Güemez, Jimena Quinzaños-Fresnedo, Arturo Vera-Hernández, Lorenzo Leija-Salas and Josefina Gutiérrez-Martínez*
- 99 10:20-10:40 **Procedure for Removing Artifacts from EMG Signals Envelope Assuming CMN**  
*Sandra Márquez, Yuriy S Shmaliy, Oscar Gerardo Ibarra, Carlos Lastre and Miguel Angel Vazquez*
- 103 10:40-11:00 **Analysis of Audio Vocalizations in the Context of the Teaching and Learning of Singing**  
*Luis Alberto Martínez, Gisela Gracida, Rafael Ángel Urrutia, Eladio Cardiel, Manuel Mauricio Lara and Pablo Rogelio Hernández*

**Session BIO 4**

Friday September 13th, 2019

12:50-14:10

Room 1

Session Chair: **Dr. Blanca Tovar Corona**

- 58 12:50-13:10 **Design and implementation of motion analysis system in swimming**  
*Norma Ramirez, Diana Laura Infante Ramirez, Sarahí Soledad Franco Pérez, Marlene Alejandra Domínguez Suces and Ilse Valeria Gómez Zavala*
- 51 13:10-13:30 **Muscular Activation during Low Resistance Elbow's Motion of Children with and without Cerebral Palsy**  
*Alberto Isaac Perez Sanpablo, Catherine Disselhorst-Klug, Alicia Meneses-Peñaloza, Elisa Romero Avila, Juan Manuel Ibarra Zannatha, Josefina Gutiérrez Martínez and Maria Elena Arellano-Saldaña*
- 94 13:30-13:50 **Head movements tracking during visual fixations in children while following a 2D pattern**  
*Nataly Garcia-Morales, Luis A. Gonzalez and Ernesto Suaste-Gómez*
- 44 13:50-14:10 **Upper Limb Musculoskeletal Modeling for Human-Exoskeleton Interaction**  
*Arturo Gonzalez, Ricardo Lopez, Alberto Isaac Perez Sanpablo, Sergio Salazar-Cruz, Ivett Quiñones Urióstegui, Marie-Christine Ho Ba Tho and Tien-Tuan Dao*

ID Hour **Computer Science and Computer Engineering (CS)**

**Session CS 1**

Wednesday September 11th, 2019

12:30-14:30

Room 1

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

- 6 12:30-12:50 **Evaluation of a Recurrent Neural Network LSTM for the Detection of Exceedances of Particles PM10.**  
*Julio Alberto Ramírez-Montañez, Marco Aceves-Fernandez, Saul Tovar-Arriaga, Juan-Manuel Ramos-Arreguin and Giovanni Angelo Salini Calderon*
- 59 12:50-13:10 **Remaining Useful Life Prediction for Turbofan based on a Multilayer Perceptron and Kalman Filter**  
*Mario Alberto Alberto Olivares, Arturo González Gutiérrez, Saúl Tovar Arriaga and Efrén Gorrostieta Hurtado*
- 87 13:10-13:30 **Search for Dementia Patterns in Transcribed Conversations using Natural Language Processing**  
*Damian Solis, Marco Aceves and Saul Tovar*
- 29 13:30-13:50 **Classification of Motor Imagery Using Statistical Models**  
*Eduardo Rivas, Mario Ignacio Chacon-Murguia and Juan Alberto Ramirez-Quintana*
- 41 13:50-14:10 **Inferring Functional Dependencies through Similarity Functions in a Crime Database**  
*Zelzin Marcela Márquez Navarrete and Guillermo Benito Morales Luna*
- 30 14:10-14:30 **Markov Random Field Function minimized by Stochastic Gradient Descent**  
*Luis Rogelio Román Rivera, Jesús Carlos Pedraza Ortega, Marco Antonio Aceves Fernandez, Juan Manuel Ramos Arreguín, Efrén Gorrostieta Hurtado and José Emilio Vargas Soto*

**Session CS 2**

Thursday September 12th, 2019

9:00-11:00

Room 1

Session Chair: **Dr. Cuauhtémoc Mancillas López**

- 56 9:00-9:20 **Intelligent Interface for Fake Product Review Monitoring and Removal**  
*Ata-U Rehman, Danish Muhammad Nazir, Sarfraz Muhammad Tanzeel, Nasir Usama, Muhammad Aslam, Ana Maria Martinez Enriquez and Adrees Muhammad*
- 18 9:20-9:40 **A Tool to Solve Nonlinear Algebraic Equations Systems**  
*Gerardo Cesar Velez Lopez, Luis Hernandez Martinez, Gerardo Diaz Arango and Hector Vazquez Leal*
- 11 9:40-10:00 **Computational Interface to Automate Cognitive Memory Tests and Synchronize with Measured EEG Signals**  
*J. Armando Lara Ramos, Fanny.L Zavala-Santoyo, Adriana Del Carmen Téllez-Anguiano, María Esther Olvera-Cortés and Jorge Luis Díaz-Huerta*
- 3 10:00-10:20 **Microdroplet Formation in Microfluidic Channels by Multiphase Flow Simulation**  
*Aldo Yair Tenorio Barajas, María De La Luz Olvera Amador, Victor Altuzar Aguilar, Rubén Ruiz Ramos, Martha A. Palomino Ovando and Claudia Mendoza Barrera*



- 13 10:20-10:40 **2-D FDTD modeling of the Extraordinary Optical Transmission Phenomenon through gold film containing a subwavelength single slit**  
*Victor Altuzar, José Ortíz-Martínez, Severino Muñoz-Aguirre, Martha Palomino-Ovando and Claudia Mendoza-Barrera*
- 14 10:40-11:00 **A Harmony Search Variant Based on a Novel Synthesized Approach for Constrained Numerical Optimization**  
*Mario Barbosa-Mendez, Edgar Portilla-Flores, Eduardo Vega-Alvarado, Maria Calva-Yáñez and Gabriel Sepúlveda-Cervantes*

ID Hour **Mechanical Engineering (MEE)**

**Session MEE**

Wednesday September 11th, 2019

16:30-18:30

Room 2

Session Chair: **Dr. Elsa Velázquez Miranda**

- 96 16:30-16:50 **Structural analysis of superficial cracks on structural elements**  
*Adriana Jimenez-Sanchez, Gerardo Silva-Navarro and Francisco Beltran-Carbajal*
- 97 16:50-17:10 **Application of Piezo-Shunt Absorbers for Damping Injection on a Square Plate**  
*Roberto A. Gudino-Alas and Gerardo Silva-Navarro*
- 98 17:10-17:30 **On the Semi-Active Lateral Control of Two Building-Like Structures**  
*Ismael Garcia-Trinidad and Gerardo Silva-Navarro*

ID Hour **Mechatronics (MEC)**

**Session MEC**

Friday September 13th, 2019

9:00-11:00

Room 2

Session Chair: **Dr. Gerardo Silva Navarro / Miguel Zempoalteca-Jiménez**

- 42 9:00-9:20 **Manipulation of a Constrained Circular Object avoiding Measuring of Angle**  
*R. Garcia-Rodriguez, L.E Ramos-Velasco, M. Reynoso, M.A. Vega Navarrete, C.A Dominguez Mayorga, P.A. Arizpe Carreon and Vicente Parra-Vega*
- 60 9:20-9:40 **Robust Nonlinear flight Control of a Power-Generating tethered kite**  
*Miguel Zempoalteca-Jimenez, Jaime Alvarez-Gallegos and Rafael Castro-Linares*
- 70 9:40-10:00 **Walk stability control for position-controlled servo actuated humanoid robot**  
*Alexis Ortiz and Juan Manuel Ibarra Zannatha*

ID Hour **Nanotechnology (Materials and Applications) (NANO)**

**Session NANO**

Wednesday September 11th, 2019

16:30-18:30

Room 1

Session Chair: **Dr. Araceli Romero Núñez**

10	16:30-16:50	<b>Interface Phenomena in <math>Mn_xO_y/ZnO</math> Thin Films for Oxide Electronics</b> <i>Karen Ailed Neri-Espinoza, Roberto Baca-Arroyo, Jose Alberto Andraca-Adame and Ramón Peña-Sierra</i>
46	16:50-17:10	<b>Optimal Length Determination of a Glass Waveguide to Maximize Ultrasound Transmission</b> <i>Joel Daniel Courtois Pérez, Ivonne Bazán Trujillo, Arturo Vera Hernández, Lorenzo Leija Salas, Citlali Jessica Trujillo Romero and Mario Ibrahín Gutiérrez</i>
68	17:10-17:30	<b>A Study by Finite Elements of the Transport of Magnetic Nanoparticles in a Straight Microchannel under the Influence of a Magnetic Field Generated by a Current Line</b> <i>Carlos López, Mario Ibrahín Gutierrez, Citlalli Trujillo, Goldie Oza, Arturo Vera, Lorenzo Leija and Jannu Ricardo Casannova</i>
79	17:30-17:50	<b>Effect of Thickness on the Photocatalytic Properties of ZnO Coatings based on Nanoparticles</b> <i>Gabriel García Zambrano, María De La Luz Olvera Amador and Arturo Maldonado Álvarez</i>

ID	Hour	<b>Power Electronics</b>
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Session POW

Thursday September 12th, 2019

13:00-14:20

Room 2

Session Chair: **Dr. Gerardo Silva Navarro**

1	13:00-13:20	<b>Noise Estimation in Measurements to Improve the State Estimation of Electric Power Systems</b> <i>Ricardo Martínez-Parrales and Claudio Fuerte-Esquivel</i>
45	13:20-13:40	<b>Crystalline Silicon Solar Module for Portable Applications</b> <i>Fredy Montalvo, Sandra Osiris Baez, Luis Hernandez, Mario Moreno, Pedro Rosales and María Teresa Sanz</i>
80	13:40-14:00	<b>Comparison of Two Internal Miller Compensation Techniques for LDO Regulators</b> <i>Fredy Montalvo, Gerardo Díaz, Carlos Ventura, Belen Calvo and María Teresa Sanz</i>
82	14:00-14:20	<b>High-Efficiency DCM Boost Converter for Solar Energy Harvesting</b> <i>Andrés Fernando Serrano Reyes, María Teresa Sanz Pascual and Pedro Rosales Quintero</i>

ID	Hour	<b>Solid-state materials, Electron Devices and Integrated Circuits (SSM)</b>
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Session SSM 1

Wednesday September 11th, 2019

12:30-14:30

Room 2

Session Chair: **Dr. Mario Alfredo Reyes Barranca**

21	12:30-12:50	<b>Proposal of a speed sensor based on FG MOS for a MEMS rotatory micromotor</b> <i>Luis Sánchez-Márquez, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jiménez, Andrea López-Tapia, Luis Martín Flores-Nava and Oliverio Arellano-Cárdenas</i>
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- 22      12:50-13:10      **Design and analysis of the mechanical structure of a linear micromotor based on CMOS-MEMS technology**  
*Andrea López-Tapia, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jiménez, Luis Sánchez-Márquez, Luis Martín Flores-Nava and Oliverio Arellano-Cárdenas*
- 33      13:10-13:30      **A new Tunable Pseudo-Resistor for Extremely/Ultra Low Frequency applications**  
*Luis Fernando Martinez Pantoja, Alejandro Díaz Sánchez and José Miguel Rocha Pérez*
- 72      13:30-13:50      **Effect of Thickness on Photocatalytic Properties of ZnO thin films Deposited by RF Magnetron Sputtering**  
*Zulema Rebollar Rivera, Arturo Maldonado Álvarez and María De La Luz Olvera Amador*
- 86      13:50-14:10      **Composition of Metal Layers in CMOS-MEMS Micromachining Process**  
*Benito Granados-Rojas, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jiménez, Miguel Ángel Alemán-Arce, Yesenia Eleonor González-Navarro and Luis Martín Flores-Nava*
- 108      14:10-14:30      **Comparative Analisis of CdS Thin Flims deposited by CBD and RF-Sputtering**  
*David Santos Cruz, María De La Luz Olvera Amador, Francisco Javier de Moure Flores and Jose Santos Cruz*

**Session SSM 2**

Thursday September 12th, 2019

9:00-11:00

Room 2

Session Chair: **Dr. Felipe Gómez Castañeda**

- 4      9:00-9:20      **Development and Characterization of a Recycled Plastic Based Ion-Selective Electrode (PB-ISE) Using CNT Ink as Ion-To-Electron Transducer**  
*Josué David Hernández-Varela, Francisco Javier Bejarano Santiago, José Jorge Chanona-Pérez and Juan Vicente Méndez Méndez*
- 24      9:20-9:40      **ECG Arrhythmia Classification based on Fuzzy Cognitive Maps**  
*Oliverio Arellano Cardenas, Luis Martin Flores Nava, Felipe Gomez Castañeda and Jose Antonio Moreno Cadenas*
- 39      9:40-10:00      **Electromagnetic analysis of via arrays for different RF-CMOS technological nodes**  
*Carlos Sanabria and Mónico Linares-Aranda*
- 47      10:00-10:20      **Improved Algorithm for Time-Multiplexing with Digital CNN's Applied in Image Processing, Synthesized in a FPGA**  
*José De Jesús Morales-Romero, Mario-Alfredo Reyes-Barranca and Luis Martín Flores-Nava*
- 65      10:20-10:40      **CMOS design of the power and modulation stage for a light emitting capacitor (LEC)**  
*Fausto Orozco Coy, A. Díaz-Méndez, Victor R. Gonzalez Diaz, A. A. González-Fernández and Mariano Aceves-Mijares*