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 – Unité 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

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### CONFERENCE

#### Wednesday September 11th, 2019

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<th>Auditorium Jorge Suárez Díaz</th>
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<tr>
<td>8:00-9:00</td>
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<td>9:00-10:00</td>
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<td>10:30-12:00</td>
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<td>Opening Ceremony and Plenary Prof. Qi Gong, PhD. (PLE1-AC: &quot;Data-driven Computational Optimal Control for Uncertain Nonlinear Systems&quot;). Professor and Chair of Department, Department of Applied Mathematics, University of California – Santa Cruz - USA</td>
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<td>12:00-12:30</td>
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<td>12:30-14:30</td>
<td>CS1</td>
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<td>16:30-18:30</td>
<td>NANO</td>
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<td>18:30-20:30</td>
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<td>Welcome event (included)</td>
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### Thursday September 12th, 2019

**CINVESTAV** (Building of the Department of Electrical Engineering)

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<td>9:00-11:00</td>
<td>CS2</td>
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<td>Coffee Break</td>
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</table>
| 11:30-12:30|        |        | Plenary Prof. Leonid Fridman, PhD.  
(PLE2-AC: "Sliding Mode Controllers: stages of evolution"). Department of Control Engineering and Robotics, Engineering Faculty, National Autonomous University of Mexico (UNAM), Mexico |
| 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 Elias Viñas |

### Friday September 13th, 2019

**CINVESTAV** (Building of the Department of Electrical Engineering)

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<td>9:00-11:00</td>
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<td>11:00-11:30</td>
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<td>Coffee Break</td>
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</table>
| 11:30-12:30|        |       | Plenary: Prof. Hebertt J. Sira Ramírez, PhD  
(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) |
| 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

Aeronautics and Aerospace Engineering (AE)/Autonomous Navigation- Exoskeletons (AU)

Session AE/AU
Wednesday September 11th, 2019
9:00-10:00
Room 1
Session Chair: Dr. Sergio Salazar Cruz

81 9:00-9:20 Design and Construction of a UAV VTOL in Ducted-Fan and Tilt-Rotor Configuration
Juan Manuel Bustamante Alarcon, Cindy Angélica Herrera, Eduardo Steed Espinoza Quesada, Carlos A. Escalante, Sergio Salazar Cruz and Rogelio Lozano Leal

26 9:20-9:40 Standing Mobility Exoskeleton Device
Joel Hernández, J. Ricardo Lopez Gutierrez, Sergio Salazar Cruz and Rogelio Lozano Leal

36 9:40-10:00 Real-time people detection from thermal images by using an Unmanned Aerial System
Alejandro Morfin-Santana, Filiberto Muñoz Palacios, Sergio Salazar Cruz, Iván González Hernández, Eduardo Steed Espinoza Quesada and Rogelio Lozano Leal

ID  Hour  Session AC 1 - NEURONAL NETWORK CONTROL

Automatic Control (AC)

Session Chair: Dr. Wen Yu

7 9:00-9:20 Optimal contact force of Robots in Unknown Environments using Reinforcement Learning and Model-free controllers
Adolfo Perrusquia, Wen Yu and Alberto Soria

106 9:20-9:40 Human Behavior Learning in Joint Space Using Dynamic Time Warping and Neural Networks
Jorge Ramírez and Wen Yu

107 9:40-10:00 Short-term prediction of the earthquake through Neural Networks and Meta-Learning
Mario Maya and Wen Yu
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 Perrusquia, Juan Alejandro Flores Campos and Wen Yu

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

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

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 Ordáz-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

Esteban Jiménez-Rodriguez, 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. Joaquin 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 Joaquin Collado
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 Ibrahín 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 Ibrahín Gutiérrez, Citlalli Trujillo Romero, Arturo Vera Hernández, Daniel Martinez-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 Escamirosa, José Antonio Gutiérrez-Gnécci, Arturo Minor-Martínez 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 Escamirosa and José A. Gutierrez Gnécci

57  10:00-10:20  ON/OFF sEMG Switch for FES Activation
	Cinthya L Toledo-Peral, Gerardo Hernández-Nava, José Antonio Mejía-Licona, 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, Sarahi Soledad Franco Pérez, Marlene Alejandra Domínguez Sucre 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-Peñaño, 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
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

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 Arreguin, Efrén Gorrostieta Hurtado and José Emilio Vargas Soto

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**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-Anguiiano, 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, Víctor Altuzar Aguilar, Rubén Ruiz Ramos, Martha A. Palomino Ovando and Claudia Mendoza Barrera
2-D FDTD modeling of the Extraordinary Optical Transmission Phenomenon through gold film containing a subwavelength single slit
Victor Altuzar, José Ortiz-Martinez, Severino Muñoz-Aguirre, Martha Palomino-Ovando and Claudia Mendoza-Barrera

A Harmony Search Variant Based on a Novel Synthesized Approach for Constrained Numerical Optimization
Mario Barbosa-Mendez, Edgar Portilla-Flores, Eduardo Vega-Alvarado, María Calva-Yáñez and Gabriel Sepúlveda-Cervantes

Session MEE
Wednesday September 11th, 2019
16:30-18:30
Room 2
Session Chair: Dr. Elsa Velázquez Miranda

Structural analysis of superficial cracks on structural elements
Adriana Jimenez-Sanchez, Gerardo Silva-Navarro and Francisco Beltran-Carbajal

Application of Piezo-Shunt Absorbers for Damping Injection on a Square Plate
Roberto A. Gudino-Alas and Gerardo Silva-Navarro

On the Semi-Active Lateral Control of Two Building-Like Structures
Ismael Garcia-Trinidad and Gerardo Silva-Navarro

Session MEC
Friday September 13th, 2019
9:00-11:00
Room 2
Session Chair: Dr. Gerardo Silva Navarro / Miguel Zempoalteca-Jiménez

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

Robust Nonlinear flight Control of a Power-Generating tethered kite
Miguel Zempoalteca-Jimenez, Jaime Alvarez-Gallegos and Rafael Castro-Linares

Walk stability control for position-controlled servo actuated humanoid robot
Alexis Ortiz and Juan Manuel Ibarra Zannatha

Session NANO
Wednesday September 11th, 2019
16:30-18:30
Room 1
Session Chair: Dr. Araceli Romero Núñez
Interface Phenomena in MnxOy/ZnO Thin Films for Oxide Electronics
Karen Ailed Neri-Espinoza, Roberto Baca-Arroyo, Jose Alberto Andraca-Adame and Ramón Peña-Sierra

Optimal Length Determination of a Glass Waveguide to Maximize Ultrasound Transmission
Joel Daniel Courtois Pérez, Ivonne Bazán Trujillo, Arturo Vera Hernández, Lorenzo Leija Salas, Citlali Jessica Trujillo Romero and Mario Ibrahin Gutiérrez

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
Carlos López, Mario Ibrahin Gutierrez, Citlalli Trujillo, Goldie Oza, Arturo Vera, Lorenzo Leija and Jannu Ricardo Casannova

Effect of Thickness on the Photocatalytic Properties of ZnO Coatings based on Nanoparticles
Gabriel Garcia Zambrano, Maria De La Luz Olvera Amador and Arturo Maldonado Álvarez

ID Hour Power Electronics

1 13:00-13:20 Noise Estimation in Measurements to Improve the State Estimation of Electric Power Systems
Ricardo Martinez-Parrales and Claudio Fuerte-Esquivel

45 13:20-13:40 Crystalline Silicon Solar Module for Portable Applications
Fredy Montalvo, Sandra Osiris Baez, Luis Hernandez, Mario Moreno, Pedro Rosales and Maria Teresa Sanz

80 13:40-14:00 Comparison of Two Internal Miller Compensation Techniques for LDO Regulators
Fredy Montalvo, Gerardo Diaz, Carlos Ventura, Belen Calvo and Maria Teresa Sanz

82 14:00-14:20 High-Efficiency DCM Boost Converter for Solar Energy Harvesting
Andres Fernando Serrano Reyes, Maria Teresa Sanz Pascual and Pedro Rosales Quintero

ID Hour Solid-state materials, Electron Devices and Integrated Circuits (SSM)

21 12:30-12:50 Proposal of a speed sensor based on FGMOS for a MEMS rotatory micromotor
Luis Sánchez-Márquez, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jiménez, Andrea López-Tapia, Luis Martín Flores-Nava and Oliverio Arellano-Cárdenas
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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 Martínez 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 Eleanor González-Navarro and Luis Martín Flores-Nava |
| 108 | 14:10-14:30 | Comparative Analysis of CdS Thin Films deposited by CBD and RF-Sputtering | David Santos Cruz, María De La Luz Olvera Amador, Francisco Javier de Moure Flores and Jose Santos Cruz |

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, Víctor R. Gonzalez Diaz, A. A. González-Fernández and Mariano Aceves-Mijares |