

## SCHEDULE CCE 2020

Wednesday November 11th, 2020			
CINVESTAV			
Hour	Room 1	Room 2	Room 3
10:00-11:30	Opening Ceremony and Plenary 1		
11:30-12:00	Break		
12:00-14:00	BIO 1	SSM 1	AC 1
14:00-16:00	Break		
16:00-18:20	BIO 2	SSM 2	AC 2

**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 EXOSKELETO

Thursday November 12th, 2020			
CINVESTAV			
Hour	Room 1	Room 2	Room 3
9:00-11:00	CS 1	NANO 1	AU
11:00-12:00	Break		
12:00-13:00	Plenary 2		
13:00-15:00	Break		
15:00-17:00	CS 2	NANO 2	COMM

**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 EXOSKELETO

Friday November 13th, 2020			
CINVESTAV			
Hour	Room 1	Room 2	Room 3
9:00-11:00	AC 3	SSM 3	MEC
11:00-11:30	Break		
11:30-12:30	Plenary 3		
12:30-13:00	Break		
13:00-13:40	AE	POW	
14:00-14:20	Closing ceremony		

**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 EXOSKELETO

# TECHNICAL PROGRAM

ID	Hour	<b>Aeronautics and Aerospace Engineering (AE)</b>
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Session AE - Aeronautics and Aerospace Engineering

Friday November 13th, 2020

13:00-14:00

Room 1

Session Chair: **Filiberto Muñoz Palacios**

- |              |                    |  |
|--------------|--------------------|--|
| <b>ID 71</b> | <b>13:00-13:20</b> | <i>Luz Maria Sanchez-Rivera, Yael Fernando Lopez Briones and Alfredo Arias-Montano.</i><br><b>Aerodynamic Analysis for the Mathematical Model of a Dual-System UAV</b>                   |
| <b>ID 12</b> | <b>13:20-13:40</b> | <i>Adrian.H. Martinez-Vasquez, Rafael Castro-Linares and A.E. Rodriguez-Mata.</i><br><b>Sliding Mode Control of a Quadrotor with Suspended Payload: a Differential Flatness Approach</b> |

ID	Hour	<b>Autonomous Navigation- Exoskeletons (AU)</b>
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Session AU - Autonomous Navigation- Exoskeletons

Thursday November 12th, 2020

9:00-11:00

Room 3

Session Chair: **Ricardo López Gutiérrez**

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|--------------|--------------------|--|
| <b>ID 32</b> | <b>9:00-9:20</b>   | <i>Arturo Gonzalez, Alberto Isaac Perez Sanpablo, Ricardo Lopez, Ivett Quiñones Urióstegui and Sergio Salazar Cruz.</i><br><b>Design and Development of an Elbow Exoskeleton for Home Therapy.</b>   |
| <b>ID 56</b> | <b>9:20-9:40</b>   | <i>Joel Hernandez Hernández, J. Ricardo López Gutiérrez López Gutiérrez, Sergio Salazar Cruz and Rogelio Lozano.</i><br><b>Umikpali Exoskeleton :Saddle-assistive device for Sit-to-Stand transfer. Mechanical Design and Simulation.</b>                        |
| <b>ID 92</b> | <b>9:40-10:00</b>  | <i>Luis Angel Arellano-Cruz, Giselle M. Galvan-Tejada and Rogelio Lozano-Leal.</i><br><b>Performance Comparison of Positioning Algorithms for UAV Navigation Purposes Based on Estimated Distances</b>   |
| <b>ID 96</b> | <b>10:00-10:20</b> | <i>Carlos Alexander Osorio Quero, Daniel Durini Romero, Ruben Ramos-Garcia, Jose de Jesus Rangel-Magdaleno and Jose Martinez-Carranza.</i><br><b>Towards a 3D Vision System Based on Single-Pixel Imaging and Indirect Time-of-Flight for Drone Applications</b> |

ID	Hour	<b>Automatic Control (AC)</b>
		<p><b>Session AC 1 - New teoretical</b>  <b>Wednesday November 11th, 2020</b>  <b>12:00-14:00</b>  <b>Room 3</b>  <b>Session Chair: Tonametl Sanchez</b></p>
<b>ID 9</b>	<b>12:00-12:20</b>	<p><i>Adrián Ramírez, Tonametl Sanchez and Jesus Leyva.</i>  <b><math>H_\infty</math> Control of Switched Affine Systems with Single Delay: a Lyapunov-Krasovskii Approach with Practical Applications</b></p>
<b>ID 30</b>	<b>12:20-12:40</b>	<p><i>Jesús Alonso Díaz, Jorge Ibarra and Miguel Bernal.</i>  <b>Improving Robustness of Computed-Torque Schemes via LMI-Based Nonlinear Feedback</b></p>
<b>ID 58</b>	<b>12:40-13:00</b>	<p><i>Jose Luis Luna Pineda, Erick Asiain de la Luz, Ruben Alejandro Garrido Moctezuma and Mario Adrian Lopez Cuellar.</i>  <b>Velocity trajectory tracking control: an Adaptive Ohnishi's Disturbance Observer approach</b></p>
<b>ID 82</b>	<b>13:00-13:20</b>	<p><i>Raymundo Juarez del Toro, Vadim Azhmyakov, Manuel Mera Hernandez and Francisco Guillermo Salas Pérez.</i>  <b>An Implicit Class of Robust Control System Characterized by a Convex-Type Matrix Constraints</b></p>
<b>ID 95</b>	<b>13:20-13:40</b>	<p><i>José Eduardo Carvajal Rubio, Juan Diego Sánchez-Torres, Michael Defoort, Alexander Loukianov and Mohamed Djemai.</i>  <b>Discretization of the Robust Exact Filtering Differentiator Based on the Matching Approach</b></p>
<b>ID 104</b>	<b>13:40-14:00</b>	<p><i>Jorge A. Lizarraga, Carlos J. Vega and Edgar N. Sanchez.</i>  <b>Particles Swarm Optimization for Minimal Energy Consumption in Complex Networks Node Search</b></p>
		<p><b>Session AC 2 - Robotics</b>  <b>Wednesday November 11th, 2020</b>  <b>16:00-18:20</b>  <b>Room 3</b>  <b>Session Chair: Ofelia Begovich</b></p>
<b>ID 3</b>	<b>16:00-16:20</b>	<p><i>Adrian Lizarraga, Ofelia Begovich and Antonio Ramírez.</i>  <b>Fault Diagnosis for a Three-Wheel Omidirectional Vehicle: A Geometric Approach</b></p>
<b>ID 31</b>	<b>16:20-16:40</b>	<p><i>Juan-Eduardo Velázquez-Velázquez and Rosalba Galvan Guerra.</i>  <b>Robust Output Trajectory Tracking for Uncertain Mechanical Systems: a Continuous Integral Sliding Mode Approach</b></p>

- ID 39**    **16:40-17:00**    *Miguel Trujillo, David Gómez-Gutiérrez, Michel Defoort, Javier Ruiz-León and Héctor Becerra.*  
**Observer-based leader-follower consensus tracking with fixed-time convergence**
- ID 44**    **17:00-17:20**    *José Servín, Jorge Álvarez and Miguel Bernal.*  
**Trajectory Tracking of Parallel Robots: A Relaxed Differential-Algebraic-Equation Approach**
- ID 52**    **17:20-17:40**    *Jesús Salazar de León, Ramón García Hernández and Miguel Ángel Llama Leal.*  
**BFO-GA Interval Type-2 Fuzzy PD Control applied to a Magnetic Levitation System.**
- ID 79**    **17:40-18:00**    *Alejandro Malo Tamayo, Diego Raid Peredo Ortiz and Abraham E. Rivera Ugalde.*  
**Partial-State Feedback Control and Trajectory Specification for a Propeller-Driven Fixed-wing Aircraft**
- ID 88**    **18:00-18:20**    *Erick García, Wen Yu and Xiaou Li.*  
**Multi-robot manipulation using formation control and human-in-the-loop scheme**

**Session AC 3 - Applications**

**Friday November 13th, 2020**

**9:00-11:00**

**Room 1**

**Session Chair: Rita Q. Fuentes-Aguilar**

- ID 24**    **9:00-9:20**    *Juan Carlos Bello-Robles, Rita Q. Fuentes-Aguilar and Javier Ruiz-León.*  
**Reduced Order Finite Element Model Techniques for Setpoint Control**
- ID 28**    **9:20-9:40**    *Durvvin Rozo-Ibañez, Javier Ruiz-León, Daniel Guevara-Lozano, Carlos Vázquez and Y. Yuliana Ríos.*  
**Removing Omissions and Inconsistencies from the ISA 5.1 Narratives of Industrial Processes**
- ID 42**    **9:40-10:00**    *José Antonio Ortega Pérez, Rosalba Galvan Guerra, Yair Lozano Hernández, Juan Eduardo Velázquez Velázquez and Luis Armando Villamar Martínez.*  
**Charge of LiPo batteries via switched saturated super-twisting algorithm**
- ID 65**    **10:00-10:20**    *Andres Rodriguez-Torres, Jesus Morales-Valdez and Wen Yu.*  
**Active Vibration Control for Building Structures based on  $H_\infty$  Synthesis Problem**
- ID 103**    **10:40-11:00**    *Edgar N. Sanchez, Julio A. Florez, Luz A Vega and Alexander G. Loukianov.*  
**Quadrotor novel model for trajectory tracking using neural sliding modes in discrete-time**

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

**Session BIO 1 - Biomedical Engineering/ Biomimetics**

Wednesday November 11th, 2020

12:00-14:00

Room 1

Session Chair: **Blanca Tovar Corona**

- ID 43** 12:00-12:20 *Gabriel Vega-Martínez, Diego Mirabent-Amor, José Gilberto Franco-Sánchez, Francisco José Ramos-Becerril, Carlos Alvarado-Serrano, Arturo Vera-Hernández and Lorenzo Leija-Salas.*  
**Artificial Neural Network for Classification of Possible Cardiovascular Risk Using Indexes of Heart Rate Variability**
- ID 41** 12:20-12:40 *Cintha Lourdes Toledo-Peral, Gabriel Vega-Martínez, Raúl Peralta-Hernández, Jaime Horacio Guadarrama-Becerril, José Gilberto Franco-Sánchez, Josefina Gutiérrez-Martínez, Carlos Alvarado-Serrano, Arturo Vera-Hernández and Lorenzo Leija-Salas.*  
**Experience of Use of the BiTalino Kit for Biomedical Signals Recording during Ergometric Test**
- ID 50** 12:40-13:00 *Enrique Mena Camilo, Jorge Airy Mercado Gutiérrez, Omar Piña Ramírez, Josefina Gutiérrez Martínez, Arturo Vera Hernández and Lorenzo Leija Salas.*  
**A Functional Electrical Stimulation Controller for Contralateral Hand Movements Based on EMG Signals**
- ID 94** 13:00-13:20 *Leobardo Sánchez-Velasco and Daniel Lorias-Espinoza.*  
**Comparison of EMG signal classification algorithms for the control of an upper limb prosthesis prototype**
- ID 26** 13:20-13:40 *Leonardo Eliu Anaya Campos, Ivett Quiñones Urióstegui, Yannick Quijano González, Virginia Bueyes-Roiz, Victor Ponce and Enrique Chong.*  
**Clustering of Data that Quantify the Degree of Impairment of the Upper Limb in Patients with Alterations of the Central Nervous System**
- ID 17** 13:40-14:00 *Brenda Enriquez Rodríguez, Blanca Tovar Corona, Carlos Alberto Ramírez Fuentes and Martín Arturo Silva Ramírez.*  
**Typical Absence Epilepsy Identification on EEG**

**Session BIO 2 - Biomedical Engineering/ Biomimetics**

Wednesday November 11th, 2020

16:00-18:20

Room 1

Session Chair: **Blanca Tovar Corona**

- ID 6** 16:00-16:20 *Juanita Hernández-López and Wilfrido Gómez-Flores.*  
**Predicting the BI-RADS Lexicon for Mammographic Masses Using Hybrid Neural Models**
- ID 16** 16:20-16:40 *Texar Javier Ramírez Guzmán, Arturo Vera Hernández, Lorenzo Leija Salas and Citlalli Jessica Trujillo Romero.*  
**Detection of Temperature Contours on the Thermal Distribution Generated by Ablation Micro-coaxial Antennas**

**ID 36**    **16:40-17:00**    *Rafael Bayareh Mancilla, Christian Daul, Josefina Gutierrez Martínez, Arturo Vera Hernández, Didier Wolf and Lorenzo Leija Salas.*  
**Detection of sore-risk regions on the foot sole with digital image processing and passive thermography in diabetic patients**

**ID 40**    **17:00-17:20**    *Alejandro Rodriguez-Peña, Arturo Vera, Lorenzo Leija, Josefina Gutierrez, Javier Perez-Orive and Mario Ibrahim Gutierrez.*  
**Feasibility of Producing Acoustic Frozen Waves with Limited Number of Rings**

**ID**    **Hour**    **Communications systems (COMM)**

**Session COMM - Communications systems**

**Thursday November 12th, 2020**

**15:00-17:00**

**Room 3**

**Session Chair: Giselle M. Galván-Tejada**

**ID 11**    **15:00-15:20**    *Fernando Lopez-Marcos, Richard Torrealba-Melendez, Marco Antonio Vasquez-Agustin, Jesus Manuel Muñoz-Pacheco and Edna Iliana Tamariz-Flores.*  
**A fractal octagonal-shaped transparent antenna for C-band applications**

**ID 22**    **15:20-15:40**    *Lizeth Lopez-Lopez, Marco Cardenas-Juarez, Enrique Stevens-Navarro, Sami A. Aldalhmeh and Marcos Katz.*  
**On the Leverage of Superimposed Training for Energy-Efficient Spectrum Sensing in Cognitive Radio**

**ID 97**    **15:40-16:00**    *Timoteo Cayetano-Antonio, Mauricio Lara and Aldo Gustavo Orozco-Lugo.*  
**Self-localization of Sensor Node Using Monte Carlo Method Considering Shadowing**

**ID 38**    **16:00-16:20**    *Mario Alberto Mendoza-Barcenas, Giselle M. Galvan-Tejada, Omar Alvarez-Cardenas, Miguel Herraiz-Sarachaga and Alfonso Tamez-Rodriguez.*  
**Preliminary Study of Space Weather Effects on the HF and VHF Communications at Low Latitudes during an Early Stage of the Solar Cycle 25**

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

**Session CS 1 - Machine Learning Applications**

**Thursday November 12th, 2020**

**9:00-11:00**

**Room 1**

**Session Chair: Wilfrido Gómez Flores**

**ID 107**    **9:00-9:20**    *Waqar Mirza Muhammad, Nafees Ahmad, Muhammad Aslam and Ana Maria Martinez Enriquez.*  
**Cloud based Co-authoring platform for visually impaired people**

- ID 99**    **9:20-9:40**    *Antonio Luna-Álvarez, Dante Mújica-Vargas, Mauel Matuz-Cruz, Jean Marie Vianney Kinani and Eduardo Ramos-Díaz.*  
**Self-driving through a Time-distributed Convolutional Recurrent Neural Network**
- ID 67**    **9:40-10:00**    *Oscar Alejandro Soto Orozco, Juan Alberto Ramirez Quintana, Jesus Alonso Reyes Porras and Alma Delia Corral Sáenz.*  
**Efficient Joined Pyramid Network Applied to Semantic Segmentation for GPU Embedded System**
- ID 29**    **10:00-10:20**    *José Manuel Macías Macías, Juan Alberto Ramírez Quintana, Graciela Ramírez Alonso and Mario Ignacio Chacón Murguía.*  
**Deep Learning Networks for Vowel Speech Imagery**
- ID 80**    **10:20-10:40**    *Gerardo Mendizabal Ruiz and Roman Saldaña Alcalde.*  
**Deep Learning for Image to Sound Synthesis**
- ID 14**    **10:40-11:00**    *Francisco Javier Alvarez-Prieto, Mario I. Chacon-Murguia and Juan A. Ramirez-Quintana.*  
**Analysis of CNN Models to develop a New Appearance Model for Multiple-Object-Tracking**

### Session CS 2 - Computer Applications

Thursday November 12th, 2020

15:00-17:00

Room 1

Session Chair: **Elsa Rubio Espino**

- ID 106**    **15:00-15:20**    *Román Pomares-Angelino and Ernesto Lopez-Mellado.*  
**Automated Modelling of Deadlock-free Petri nets using Duplicated Transition Labels**
- ID 45**    **15:20-15:40**    *Rodrigo Francisco and Guillermo Molero Castillo.*  
**Characterization of Objects in Indoor Spaces of Human Occupation Using Knowledge Graphs**
- ID 10**    **15:40-16:00**    *Yuriy S. Shmaliy, José A. Andrade-Lucio, Luis J. Morales-Mendoza, Mario González-Lee, Eli G. Pale-Ramon and Jorge A. Ortega-Contreras.*  
**Visual Object Tracking with Colored Measurement Noise using Kalman and UFIR Filters**
- ID 74**    **16:00-16:20**    *Marcos Rodríguez-Arauz, Lisbeth Rodríguez-Mazahua, Mario Leoncio Arrijoja-Rodríguez, María Antonieta Abud-Figueroa and Gustavo Peláez-Camarena.*  
**Horizontal Fragmentation of Multimedia Databases to Optimize Content-based Queries: A Review**
- ID 55**    **16:20-16:40**    *José A. Balbuena Palma, Mariana N. Ibarra Bonilla and Raúl Eusebio Grande.*  
**Lane Line Detection Computer Vision System Applied to a Scale Autonomos Car: AutoModelCar**
- ID 23**    **16:40-17:00**    *Juan Carlos Martinez Santos, Luz A. Magre and Jorge Carlos Alberto Franco Ibañez.*  
**Leveraging Emergency Response System Using the Internet of Things. A Preliminary Approach**

ID Hour **Mechatronics (MEC)**

**Session MEC - Mechatronics**

Friday November 13th, 2020

9:00-11:00

Room 3

Session Chair: **Francisco Beltrán**

- ID 2** 9:00-9:20 *Carlos A Perez-Ramirez, Juan Amezcua, Martin Valtierra-Rodriguez, Aurelio Dominguez-Gonzalez and Manuel Toledano-Ayala.*  
**Vibration Control of a Five-story Steel Structure using a Model Reference Neural Network**
- ID 15** 9:20-9:40 *Roberto Morales, Adrian Reyes, J. Federico Casco and Haydee P. Martínez.*  
**Development and Implementation of a Relay Switch Based on WiFi Technology**
- ID 27** 9:40-10:00 *Roberto Morales-Caporal, Miguel Angel Ramirez-Alva, José Francisco Pérez-Cuapio, José de Jesús Rangel-Magdaleno and Omar Sandre-Hernández.*  
**A Remote Immobilization System with GSM and GPS Technologies for Cargo Trailers**
- ID 101** 10:00-10:20 *Jose Ignacio Aguilar, Rafael Castro and Manuel Duarte.*  
**Robust formation of mobile robots with synchronization using fractional order sliding modes**

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

**Session NANO 1 - Synthesis, Structure and Processing**

Thursday November 12th, 2020

9:00-11:00

Room 2

Session Chair: **Atzin Celic Ferrel**

- ID 66** 9:00-9:20 *Karthick Sekar, Jose Jorge Rios-Ramirez and Velumani Subramaniam.*  
**Mechanical Stability Study of Bulk FAXM<sub>3</sub> Perovskites**
- ID 73** 9:20-9:40 *César Carrillo, Gricelda Betancourt, Ildemán Abrego and Velumani Subramaniam.*  
**Synthesis and characterization of zinc oxide nanowires on aluminium oxide substrate**
- ID 7** 9:40-10:00 *Josué David Hernández-Varela, José Jorge Chanona Pérez, Felipe Cervantes Sodi, Silvia Leticia Villaseñor Altamirano and Claudia Mendoza-Martínez.*  
**Changes of crystallinity index and crystallite size in cotton cellulose nanoparticles obtained by ball milling**
- ID 57** 10:00-10:20 *Manmohan Jain, Juan Ramon Ramos-Serrano, Ateet Dutt and Yasuhiro Matsumoto.*  
**Photoluminescence properties of thin film SiO<sub>x</sub>C<sub>y</sub> deposited by O-Cat CVD technique using MMS and TEOS**



**ID 89**    **10:20-10:40**    *Carina Gutierrez Ojeda, Mario Moreno Moreno, Ponciano Rodriguez Montero, Leticia Tecuapetla, Armando Hernandez and Adrian Itzmoyotl.*  
**Photoluminescence emission under thermal annealing of Silica and Titania nanospheres arrays**

**ID 93**    **10:40-11:00**    *Maricela Meneses, Mario Moreno, Alfredo Morales and J. Cesar Mendoza.*  
**Effect of the thermal treatments on the emission of a-Si<sub>1-x</sub>C<sub>x</sub>:H films**

**Session NANO 2 - Healthcare and Environment**

Thursday November 12th, 2020

15:00-17:00

Room 2

Session Chair: **Nancy Vargas Becerril**

**ID 48**    **15:00-15:20**    *Victor Chuc, Goldie Oza, Lorenzo Leija and Arturo Vera.*  
**Design and Construction of a Magnetic Signal Detection Block for Magnetic Nanoparticles that Flow Through Straight Microchannels**

**ID 70**    **15:20-15:40**    *Drisyá Karathuparathottathil Damodharan, Christeena Theresa Thomas, Myriam Solis López, Araceli Romero Nuñez and Velumani Subramaniam.*  
**Characterization of BiVO<sub>4</sub> modified TiO<sub>2</sub> and its application in the water treatment**

**ID 72**    **15:40-16:00**    *Christeena Theresa Thomas, Drisyá Karathuparathottathil Damodharan, Myriam Solis Lopez, Araceli Romero Nuñez and Velumani Subramaniam.*  
**GO/BiVO<sub>4</sub> Nanocomposites for Escherichia coli K12 Photocatalytic Inactivation**

**ID**    **Hour**    **Power Electronics (POW)**

**Session POW - Power Electronics**

Friday November 13th, 2020

13:00-14:00

Room 2

Session Chair: **Richard Marquez**, Co-chair: **Jesús Linares**

**ID 87**    **13:00-13:20**    *Agustin Tobias, Victor Cardenas, Fernando Quiroz-Vazquez, Juan Gonzalez-Rivera and Daniel Martinez-Padron.*  
**Experimental Comparison of Control Strategies in a Single-Phase Grid-Feeding Converter for Microgrid Applications**

**ID 34**    **13:20-13:40**    *Juan Pablo Moreno Beltrán, Omar Sandre Hernandez, Roberto Morales-Caporal, Jesus Patricio Ordaz Oliver and Carlos Cuvas-Castillo.*  
**Model Predictive Torque Control of an Induction Motor with Discrete Space Vector Modulation**

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

### Session SSM 1 - Integrated Circuits and Electronic Devices

Wednesday November 11th, 2020

12:00-14:00

Room 2

Session Chair: Yasuhiro Matsumoto Kuwahara

- ID 1**    **12:00-12:20**    *Jose Enrique Ramirez, Agustin Santiago Medina and Ivan Rodrigo Padilla.*  
**Reduced low-voltage electromyographic signal acquisition system using subthreshold technique**
- ID 5**    **12:20-12:40**    *Francisco Plascencia, Santiago Medina, Edwin Becerra, Jose Arce and Sandra Flores.*  
**A method to model the volume charge density in a Multiple-Input Floating-Gate MOS transistor**
- ID 8**    **12:40-13:00**    *Jose J. Chagoya-Serna and Ivan R. Padilla-Cantoya.*  
**Reduced Capacitance Multiplier in Impedance-Mode with Large Scaling Factor and High Accuracy**
- ID 18**    **13:00-13:20**    *Jose Manuel Arce Zavala, Agustín Santiago Medina Vazquez, Ivan Rodrigo Padilla Cantoya and Fransico Javier Plascencia.*  
**A Gm-C Notch Filter Implemented with  $g_m$  over  $I_D$  Technique for Biosignal Acquisition Systems**
- ID 78**    **13:20-13:40**    *Mohammad Bagheri and Xun Li.*  
**Phase Noise Analysis of a Modified Cross Coupled Oscillator**
- ID 98**    **13:40-14:00**    *Omar López, Ismael Martínez, Daniel Durini, Edmundo Gutiérrez, Daniel Ferrusca, Miguel Velázquez, Francisco De la Hidalga and Victor Gómez.*  
**A Performance Comparative at Low Temperatures of Two FET Technologies: 65 nm and 14 nm**

### Session SSM 2 - MEMS and thin film deposition

Wednesday November 11th, 2020

16:00-18:20

Room 2

Session Chairs: Miguel García Rocha ,Karthick Sekar

- ID 4**    **16:00-16:20**    *Rosa Nava-Sánchez, Gaspar Casados-Cruz and Arturo Morales-Acevedo.*  
**Study of  $ZnS_xO_{1-x}$  Prepared by Thermal Oxidation of ZnS Films Deposited from a Chemical Bath**
- ID 19**    **16:20-16:40**    *Luis Sánchez-Márquez, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jiménez, Andrea López-Tapia and Luis Martín Flores-Nava.*  
**Proposal for a rotary micromotor structure based on CMOS-MEMS technology**
- ID 20**    **16:40-17:00**    *Andrea López-Tapia, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jiménez, Luis Sánchez-Márquez and Luis Martín Flores-Nava.*  
**Design of position sensor of a linear micromotor based on CMOS-MEMS technology**

- ID 33** 17:00-17:20 *Jose Manuel Juarez Lopez, Maylu Guadalupe Romero Sanchez, Iryna Ponomaryova, Gustavo Castillo Hernandez, Jose Santos Cruz and Francisco Javier De Moure Flores.*  
**Structural characterization of the  $\text{YBa}_2\text{Cu}_3\text{O}_\sigma$  superconductor with phases  $[\sigma=6.87, 6.89 \text{ and } 6.9]$  obtained by solid state reaction**
- ID 59** 17:20-17:40 *Onyekachi Nwakanma, Velumani Subramaniam and Arturo Morales-Acevedo.*  
**Properties Of Ultra Thin Radio frequency Sputtered Aluminum Doped Zinc Oxide Thin Films For Solar Cell Applications**
- ID 63** 17:40-18:00 *Ganesh Regmi, Ashok Adhikari and Velumani Subramaniam.*  
**Large Area (10 x10 cm<sup>2</sup>) Production of CdS Buffer Layer for Solar Cells by Chemical Bath Method**
- ID 64** 18:00-18:20 *Ashok Adhikari, Ganesh Regmi and Dr. Velumani Subramaniam.*  
**Growth of  $\text{In}_2\text{Se}_3$  Thin Films Prepared by the Pneumatic Spray Pyrolysis Method for Thin Film Solar Cells Applications**

### Session SSM 3 - Algorithms and Systems

Friday November 13th, 2020

9:00-11:00

Room 2

Session Chair: **Ganesh Regmi** co-chair : **Benito Granados**

- ID 25** 9:00-9:20 *José de Jesús Morales Romero, Mario Alfredo Reyes Barranca, Luis Martín Flores Nava and Emilio Rafael Espinosa Gracia.*  
**Proposal for training a Cellular Neural Network using a Hybrid Artificial Bee Colony and Nelder-Mead Algorithms**
- ID 61** 9:20-9:40 *Álvaro Anzueto-Ríos, Felipe Gómez-Castañeda and José Antonio Moreno-Cadenas.*  
**Spiking Neural Network Architecture Comparison by Solving the Non-linear XOR Problem**
- ID 75** 9:40-10:00 *Carlos Sánchez-López and Luis Abraham Sánchez-Gaspariano.*  
**Generalized Admittance Matrix Model of Transformers**
- ID 84** 10:00-10:20 *Jesús Enríquez-Gaytán, Felipe Gómez-Castaneda, Jose Antonio Moreno-Cadenas and Luis Martin Flores-Nava.*  
**A Clustering Method Based on the Artificial Bee Colony Algorithm for Gas Sensing**
- ID 69** 10:20-10:40 *Benito Granados-Rojas, Mario Alfredo Reyes-Barranca, Griselda Stephany Abarca-Jimenez, Yesenia Eleonor Gonzalez-Navarro, Miguel Angel Aleman-Arce and Luis Martin Flores-Nava.*  
**On Balanced Tradeoffs between Stiffness and Design Area in CMOS-MEMS Accelerometer Springs**