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<th>Time</th>
<th>Room 1</th>
<th>Room 2</th>
<th>Room 3</th>
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<tbody>
<tr>
<td>10:00-11:30</td>
<td></td>
<td></td>
<td>Opening Ceremony and Plenary 1</td>
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<tr>
<td>11:30-12:00</td>
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<td>Break</td>
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<tr>
<td>12:00-14:00</td>
<td>BIO 1</td>
<td>SSM 1</td>
<td>AC 1</td>
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<tr>
<td>14:00-16:00</td>
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<td>Break</td>
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<tr>
<td>16:00-18:20</td>
<td>BIO 2</td>
<td>SSM 2</td>
<td>AC 2</td>
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**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

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<th>Time</th>
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<tr>
<td>9:00-11:00</td>
<td>CS 1</td>
<td>NANO 1</td>
<td>AU</td>
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<tr>
<td>11:00-12:00</td>
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<td>Break</td>
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<td>12:00-13:00</td>
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<td>Plenary 2</td>
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<td>13:00-15:00</td>
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<tr>
<td>15:00-17:00</td>
<td>CS 2</td>
<td>NANO 2</td>
<td>COMM</td>
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<td>9:00-11:00</td>
<td>AC 3</td>
<td>SSM 3</td>
<td>MEC</td>
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<td>14:00-14:20</td>
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<td>Closing ceremony</td>
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**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
ID 71 13:00-13:20  Luz Maria Sanchez-Rivera, Yael Fernando Lopez Briones and Alfredo Arias-Montano. Aerodynamic Analysis for the Mathematical Model of a Dual-System UAV


ID 92 9:40-10:00  Luis Angel Arellano-Cruz, Giselle M. Galvan-Tejada and Rogelio Lozano-Leal. Performance Comparison of Positioning Algorithms for UAV Navigation Purposes Based on Estimated Distances

ID 96 10:00-10:20  Carlos Alexander Osorio Quero, Daniel Durini Romero, Ruben Ramos-Garcia, Jose de Jesus Rangel-Magdaleno and Jose Martinez-Carranza. Towards a 3D Vision System Based on Single-Pixel Imaging and Indirect Time-of-Flight for Drone Applications
## Automatic Control (AC)

**Session AC 1 - New theoretical**  
*Wednesday November 11th, 2020*  
*12:00-14:00*  
*Room 3*  
**Session Chair:** Tonametl Sanchez

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<tr>
<th>ID</th>
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<th>Title</th>
<th>Authors</th>
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<tr>
<td>9</td>
<td>12:00-12:20</td>
<td>H∞ Control of Switched Affine Systems with Single Delay: a Lyapunov-Krasovskii Approach with Practical Applications</td>
<td>Adrián Ramírez, Tonametl Sanchez and Jesus Leyva.</td>
</tr>
<tr>
<td>58</td>
<td>12:40-13:00</td>
<td>Velocity trajectory tracking control: an Adaptive Ohnishi’s Disturbance Observer approach</td>
<td>Jose Luis Luna Pineda, Erick Asiain de la Luz, Ruben Alejandro Garrido Moctezuma and Mario Adrian Lopez Cuellar.</td>
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<tr>
<td>82</td>
<td>13:00-13:20</td>
<td>An Implicit Class of Robust Control System Characterized by a Convex-Type Matrix Constraints</td>
<td>Raymundo Juarez del Toro, Vadim Azhmyakov, Manuel Mera Hernandez and Francisco Guillermo Salas Pérez.</td>
</tr>
<tr>
<td>95</td>
<td>13:20-13:40</td>
<td>Discretization of the Robust Exact Filtering Differentiator Based on the Matching Approach</td>
<td>José Eduardo Carvajal Rubio, Juan Diego Sánchez-Torres, Michael Defoort, Alexander Loukianov and Mohamed Djemai.</td>
</tr>
<tr>
<td>104</td>
<td>13:40-14:00</td>
<td>Particles Swarm Optimization for Minimal Energy Consumption in Complex Networks Node Search</td>
<td>Jorge A. Lizarraga, Carlos J. Vega and Edgar N. Sanchez.</td>
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</tbody>
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**Session AC 2 - Robotics**  
*Wednesday November 11th, 2020*  
*16:00-18:20*  
*Room 3*  
**Session Chair:** Ofelia Begovich

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<th>ID</th>
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<th>Authors</th>
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<tbody>
<tr>
<td>3</td>
<td>16:00-16:20</td>
<td>Fault Diagnosis for a Three-Wheel Omidirectional Vehicle: A Geometric Approach</td>
<td>Adrian Lizarraga, Ofelia Begovich and Antonio Ramírez.</td>
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</tbody>
</table>
Viewing the provided document, the following data is observed:

**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
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∞ 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 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

**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**  
Artificial Neural Network for Classification of Possible Cardiovascular Risk Using Indexes of Heart Rate Variability

**ID 41 12:20-12:40**  
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**  
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

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**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**  
Detection of Temperature Contours on the Thermal Distribution Generated by Ablation Micro-coaxial Antennas
### Communications systems (COMM)

**Session COMM - Communications systems**  
**Thursday November 12th, 2020**  
**15:00-17:00**  
**Room 3**  
**Session Chair:** Giselle M. Galván-Tejada

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<tr>
<td>36</td>
<td>16:40-17:00</td>
<td>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</td>
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<td>40</td>
<td>17:00-17:20</td>
<td>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</td>
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</table>

### 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

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<tr>
<td>107</td>
<td>9:00-9:20</td>
<td>Waqar Mirza Muhammad, Nafees Ahmad, Muhammad Aslam and Ana Maria Martinez Enriquez. Cloud based Co-authoring platform for visually impaired people</td>
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<pre><code>   |              | Self-driving through a Time-distributed Convolutional Recurrent Neural Network |
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| 67   | 9:40-10:00  | Oscar Alejandro Soto Orozco, Juan Alberto Ramírez Quintana, Jesús Alonso Reyes Porras and Alma Delia Corral Sáenz.  
       |              | Efficient Joined Pyramid Network Applied to Semantic Segmentation for GPU Embedded System |
| 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 |
| 80   | 10:20-10:40 | Gerardo Mendizabal Ruiz and Roman Saldaña Alcalde.  
       |              | Deep Learning for Image to Sound Synthesis |
| 14   | 10:40-11:00 | Francisco Javier Álvarez-Prieto, Mario I. Chacon-Murguia and Juan A. Ramírez-Quintana.  
       |              | Analysis of CNN Models to develop a New Appearance Model for Multiple-Object-Tracking |
| 106  | 15:00-15:20 | Román Pomares-Angelino and Ernesto Lopez-Mellado.  
       |              | Automated Modelling of Deadlock-free Petri nets using Duplicated Transition Labels |
| 45   | 15:20-15:40 | Rodrigo Francisco and Guillermo Molero Castillo.  
       |              | Characterization of Objects in Indoor Spaces of Human Occupation Using Knowledge Graphs |
| 10   | 15:40-16:00 | Yuriy S. Shmaliy, José A. Andrade-Lucio, Luis J. Morales-Mendoza, Mario González-Lee, Eli G. Palé-Ramón and Jorge A. Ortega-Contreras.  
       |              | Visual Object Tracking with Colored Measurement Noise using Kalman and UFIR Filters |
| 74   | 16:00-16:20 | Marcos Rodríguez-Arauz, Lisbeth Rodríguez-Mazahua, Mario Leoncio Arrioja-Rodríguez, María Antonieta Abud-Figueroa and Gustavo Peláez-Camarena.  
       |              | Horizontal Fragmentation of Multimedia Databases to Optimize Content-based Queries: A Review |
       |              | Lane Line Detection Computer Vision System Applied to a Scale Autonomos Car: AutoModelCar |
| 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 |
### 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 Amezquita, 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 Ramírez-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

### 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 Celci Ferrel

**ID 66  9:00-9:20**  
Karthick Sekar, Jose Jorge Rios-Ramirez and Velumani Subramaniam.  
Mechanical Stability Study of Bulk FAXM₃ 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 SiOₓCₓ deposited by O-Cat CVD technique using MMS and TEOS
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<tbody>
<tr>
<td>89</td>
<td>10:20-10:40</td>
<td>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</td>
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<tr>
<td>93</td>
<td>10:40-11:00</td>
<td>Maricela Meneses, Mario Moreno, Alfredo Morales and J. Cesar Mendoza. Effect of the thermal treatments on the emission of a-Si$_{1-x}$C$_x$:H films</td>
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**Session NANO 2 - Healthcare and Environment**  
Thursday November 12th, 2020  
15:00-17:00  
Room 2  
Session Chair: Nancy Vargas Becerril

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<tr>
<td>48</td>
<td>15:00-15:20</td>
<td>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</td>
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<td>70</td>
<td>15:20-15:40</td>
<td>Drisya Karathuparathottathil Damodharan, Christeena Theresa Thomas, Myriam Solis López, Araceli Romero Nuñez and Velumani Subramaniam. Characterization of BiVO$_4$ modified TiO$_2$ and its application in the water treatment</td>
</tr>
<tr>
<td>72</td>
<td>15:40-16:00</td>
<td>Christeena Theresa Thomas, Drisya Karathuparathottathil Damodharan, Myriam Solis Lopez, Araceli Romero Nuñez and Velumani Subramaniam. GO/BiVO$_4$ Nanocomposites for Escherichia coli K12 Photocatalytic Inactivation</td>
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**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

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<tr>
<td>87</td>
<td>13:00-13:20</td>
<td>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</td>
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**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

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\textsubscript{x}O\textsubscript{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
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 $[\sigma=6.87, 6.89, 6.9]$ obtained by solid state reaction.


Ganesh Regmi, Ashok Adhikari and Velumani Subramaniam. Large Area $(10 \times 10 \text{ cm}^2)$ Production of CdS Buffer Layer for Solar Cells by Chemical Bath Method.

Ashok Adhikari, Ganesh Regmi and Dr. Velumani Subramaniam. Growth of In$_2$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

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.

Álvaro Anzueto-Ríos, Felipe Gómez-Castañeda and José Antonio Moreno-Cadenas. Spiking Neural Network Architecture Comparison by Solving the Non-linear XOR Problem.


Jesús Enríquez-Gaytán, Felipe Gómez-Castaneda, Jose Antonio Moreno-Cadenas and Luis Martín Flores-Nava. A Clustering Method Based on the Artificial Bee Colony Algorithm for Gas Sensing.

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.