



**2014 IEEE AUTUMN MEETING ON POWER, ELECTRONICS AND COMPUTING
XVI ROPEC INTERNATIONAL
TECHNICAL PROGRAM**



| | | | | |
|-------------|---|--------------------------|---------------|---------------|
| Time | WEDNESDAY November 5, 2014 | | | |
| 08:00-9:00 | Registration | | | |
| 09:00-9:30 | Opening Ceremony | | | |
| 09:30-10:30 | ROPEC 2104 Keynote Speech I- Dharshana Muthumuni, Ph.D. Wind Technology, grid integration problems and the role of modeling and simulations Venue: Main Conference Room | | | |
| 10:30-11:00 | Industrial Exhibition Opening | | Coffee Break | |
| 11:00-13:00 | FOUR PARALLEL SESSIONS | | | |
| | Venue: Room 1 | Venue: Room 2 | Venue: Room 3 | Venue: Room 4 |
| | Power | SS – Genetic Programming | Electronics | Electronics |
| 13:00-15:00 | Workshop - Dharshana Muthumuni, Ph.D. Selected PSCAD Applications with Illustrative Examples – Part 1 Venue: Main Conference Room | | | |





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|-------------|---|---------------|---------------|-----------------------|
| Time | THURSDAY November 6, 2014 | | | |
| 08:00-9:00 | Registration | | | |
| 09:00-11:00 | FOUR PARALLEL SESSIONS, | | | |
| | Venue: Room 1 | Venue: Room 2 | Venue: Room 3 | Venue: Room 4 |
| | Power | Computing | Electronics | SS – Renewable Energy |
| 11:00-11:30 | Coffee Break | | | |
| 11:30-12:45 | ROPEC 2104 Keynote Speech II – Luiz Augusto Barroso, Ph.D. The challenge of ensuring generation adequacy in South America: The experience of Brazil, Chile, Colombia and lessons for the Mexican electricity reform. Venue: Main Conference Room | | | |
| 13:00-14:20 | FOUR PARALLEL SESSIONS | | | |
| | Venue: Room 1 | Venue: Room 2 | Venue: Room 3 | Venue: Room 4 |
| | Power | Computing | Electronics | Electronics |
| 16:00-18:00 | Workshop - Dharshana Muthumuni, Ph.D. Selected PSCAD Applications with Illustrative Examples – Part 2 Venue: Main Conference Room | | | |





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|-------------|---|---------------|---------------------|---------------|
| Time | FRIDAY November 7, 2014 | | | |
| 08:00-9:00 | Registration | | | |
| 09:00-11:00 | FOUR PARALLEL SESSIONS | | | |
| | Venue: Room 1 | Venue: Room 2 | Venue: Room 3 | Venue: Room 4 |
| | Power | Computing | Electronics | Electronics |
| 11:00-11:30 | Robots Competition | | Coffee Break | |
| 11:30-12:45 | | | | |
| 13:00-14:00 | ROPEC 2104 Keynote Speech IV – Harold Enrique Castro Barrera Strategies to develop High Performance Computing in Latinoamerica Venue: Main Conference Room | | | |
| 14:00-14:30 | Closing Ceremony | | | |





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| WEDNESDAY PARALLEL SESSIONS (Time: 11:00 - 13:00) | | |
|--|---------------|--|
| Track: Power | Venue: Room 1 | Chair: Dr. Ricardo Alzáte |
| Time | Paper ID | Title/Author: |
| 11:00 - 11:20 | 138 | A Digital Control for a Three-Dimensional SV-PWM for a Multilevel Converter. José Luis Monroy Morales, Máximo Hernandez Angeles and Francisco Hernán Villa Vargas |
| 11:20 - 11:40 | 17 | Practical Implementation of a VSC-HVDC in WLS-based State Estimation. Arnoldo Zamora-Cárdenas, Claudio Fuerte-Esquivel, Alejandro Pizano-Martínez, Miguel Gómez-Martínez, José Lozano-García and Hector Estrada-García |
| 11:40 - 12:00 | 41 | MMC Technology and Its Participation in the Integration of Variable Renewable Energies and implementation of DC grids. Liza Gabriela Zuñiga-García, Alfredo Zaragoza-Hernández, José María Nadal-Martinez, Edgar Lenymirko Moreno-Goytia, Luis Eduardo Ugalde-Caballero, Vicente Venegas-Rebollar and Guillermo Adolfo Anaya-Ruiz |
| 12:00 - 12:20 | 51 | Inverse Optimal Control on Electric Power Conversion. Ricardo Alzate and Carlos Vega |
| 12:20 - 12:40 | 96 | Modeling and Analysis of Power Converters as Mixed Linear Complementary Systems. Francisco López and José Rico |
| 12:40 - 13:00 | 90 | Static Synchronous Series Compensator for Active Power Flow Control During Unconventional Operating Conditions. Helmut Jacobo Alvarez, Jorge Armando Ramirez, Pavel Zuniga and Fernando Mancilla-David |





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| WEDNESDAY PARALLEL SESSIONS (Time: 11:00 - 13:40) | | |
|--|---------------|--|
| Track: SS- Evolutionary Computation | Venue: Room 2 | Chair/Organizer: Dr. Mario Graff |
| Time | Paper ID | Title/Author: |
| 11:00 - 11:20 | 137 | Tuning of Power System Stabilizer PSS Using Genetic Algorithm. Hugo Trujillo, Juan Silva and Francisco Cisneros |
| 11:20 - 11:40 | 121 | An Empirical Comparison of Two Crossover Operators in Real-Coded Genetic Algorithms for Constrained Numerical Optimization Problems. Adriana Cervantes-Castillo, Efrén Mezura-Montes and Carlos Coello Coello |
| 11:40 - 12:00 | 102 | Genetic Programming as a Feature Selection Algorithm. Ranyart Rodrigo Suárez, José María Valencia Ramírez and Mario Graff |
| 12:00 - 12:20 | 125 | Comparison between Genetic Programming and Full Model Selection on Classification Problems. José María Valencia Ramírez, Julio Raya, José Cedeño, Ranyart Rodrigo Suárez, Hugo Jair Escalante and Mario Graff |
| 12:20 - 12:40 | 65 | Evaluation of Local Feature Extraction Methods Generated through Genetic Programming on Visual SLAM. Víctor López-López, Leonardo Trujillo, Pierrick Legrand and Víctor Díaz-Ramírez |
| 12:40 - 13:00 | 118 | Towards Simultaneous Prototype and Feature Generation. Mauricio Alfonso García Limón, Hugo Jair Escalante Balderas and Eduardo Morales Manzanares |
| 13:00 - 13:20 | 122 | Memetic Modified Artificial Bee Colony for Constrained Optimization. Adan Enrique Aguilar-Justo, Efrén Mezura-Montes and Carlos Coello Coello |
| 13:20 - 13:40 | 83 | Genetic Programming: Semantic Point Mutation Operator based on the Partial Derivative Error. Mario Graff, Juan Flores and Jose Ortiz Bejar |





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| WEDNESDAY PARALLEL SESSIONS (Time: 11:00 - 13:00) | | |
|--|----------------------|--|
| Track: Electronics | Venue: Room 3 | Chair: M. C. Michel Lopez Franco |
| Time | Paper ID | Title/Author: |
| 11:00 - 11:20 | 21 | Discrete-Time Inverse Optimal Neural Control for a Tracked All Terrain Robot. Michel Lopez-Franco, Daniel Landa, Alma Alanis, Carlos Lopez-Franco and Nancy Arana Daniel |
| 11:20 - 11:40 | 15 | Aerodynamics Design and Longitudinal Stability of a Fixed-Wing UAV. Victor Martinez Herrera, Fernando Guerrero Velez, Octavio Garcia Salazar, Daniel Martinez Vazques and Luis Amezcuita Brooks |
| 11:40 - 12:00 | 100 | Linearization of Mass Spring Damper System for Apply Linear Control PID Techniques. Pedro Sebastián Contreras Ortiz, Byron Ricardo Naula Dutan, Luis Geovanny Torres Jaramillo, René Ávila Campoverde, Marco Alexander Carpio Aleman, Julio Montesdeoca Contreras and John Armando Morales Garcia |
| 12:00 - 12:20 | 13 | Virtual Speed Sensor for DC Motor using Back-Propagation Artificial Neural Networks. Julio Montesdeoca, Julio Zambrano, John Morales and René Ávila |
| 12:20 - 12:40 | 86 | Experimental characterization of a small and micro unmanned aerial vehicle propulsion systems. Roberto Fabela, Carlos Santana, Aryok Naranjo, Luis Amezcuita-Brooks and Eduardo Liceaga-Castro |
| 12:40 - 13:00 | 16 | A Multilevel Inverter Topology with DC-decoupling for Grid Tied Transformer-less PV Systems. Gerardo Vazquez Guzman, Jose Sosa, Martinez Raymundo, Mario Alberto Juarez Balderas and Gerardo Jesus Gonzalez Hernandez |





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| WEDNESDAY PARALLEL SESSIONS (Time: 11:00 - 13:00) | | |
|--|---------------|--|
| Track: Electronics | Venue: Room 4 | Chair: Dra. Adriana Del Carmen Tellez |
| Time | Paper ID | Title/Author: |
| 11:00 - 11:20 | 7 | Comparison of linear and nonlinear controller applied to an Antilock Braking System. Marcela Martinez-Gardea, Iordan Javier Mares-Guzman, Cuauhtemoc Acosta-Lua and Ivan Vazquez-Alvarez |
| 11:20 - 11:40 | 19 | A current mode control for a single phase full bridge Power Factor Compensator. Panfilo Raymundo Martínez Rodríguez, Gerardo Escobar Valderrama, José Miguel Sosa Zuñiga, Gerardo Vazquez Guzmán, José De Jesús Mendoza Mendoza and César Augusto Limones Pozos |
| 11:40 - 12:00 | 50 | Simulation and Real-Time Emulation of a Three-level and a Sevel-level Active Rectifiers. Kevin Cano Pulido, Ismael Araujo-Vargas, Andrew Forsyth and Sergio Salas-Duarte |
| 12:00 - 12:20 | 62 | Control law for transformerless converters connected to the grid through an L filter. José Sosa, Gerardo Escobar, Pánfilo Raymundo Martínez-Rodríguez, Gerardo Vázquez Guzmán, Mario Alberto Juárez Balderas, Andres Alejandro Valdéz-Fernández and Martín Diosdado Hernández |
| 12:20 - 12:40 | 47 | Experimental Verification of a One-step Ahead Current Control Scheme for an Active Rectifier. Sergio Salas, Ismael Araujo-Vargas, Onesimo Flores-Alcotzi, Kevin Cano-Pulido, Jazmin Ramirez-Hernandez and Basilio Del Muro-Cuellar |
| 12:40 - 13:00 | 119 | Real-Time Simulation of a Buck Converter for educational purposes in a LabVIEW®-programmed FPGA. Mario Heras Cervantes, María Del Carmen García Ramírez, Adriana Del Carmen Téllez Anguiano, Javier Correa-Gómez and Fernando Martínez-Cárdenas |





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| THURSDAY PARALLEL SESSIONS (Time: 09:00 - 11:00) | | |
|---|---------------|---|
| Track: Power | Venue: Room 1 | Chair: Dr. José Guardado |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 37 | Modelling and Simulation of a tubing's heating system using an electric resistance: Burner. Diego Fernando Monroy, Hernando Estévez and Jorge Leonardo Maldonado |
| 09:20 - 09:40 | 72 | Stability and Harmonic Assesment of a Controlled Microgrid using Newton Methods. Gibran David Agundis Tinajero, Juan Segundo Ramírez and Rafael Peña Gallardo |
| 09:40 - 10:00 | 87 | Simulating Power System Dynamic Phenomena in ATP/EMTP. Ruben Reyes and Jose Guardado |
| 10:00 - 10:20 | 113 | Mapped infinite elements for the solution of open electric and magnetic field problems. Enrique Melgoza |
| 10:20 - 10:40 | 78 | Wide area control in electric power systems incorporating FACTS controllers: Review. Aaron Esparza Gurrola, Juan Segundo Ramírez and Ciro Núñez Gutiérrez |
| 10:40 - 11:00 | 12 | Computation of Available Transfer Capability considering Transient Stability Constraints. Miguel Chávez-Lugo, Claudio Fuerte-Esquivel and Alejandro Pizano-Martínez |





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| THURSDAY PARALLEL SESSIONS (Time: 09:00 - 11:00) | | |
|---|---------------|--|
| Track: Computing | Venue: Room 2 | Chair: Dr. Jaime Cerda Jacobo |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 115 | A new proposal based on Local Binary Patterns Histogram and Fourier Descriptors as support tool in presumptive diagnosis of hiatal hernia. Luis Serpa-Andrade, Vladimir Robles-Bykbaev, Eduardo Calle-Ortiz, Luis González-Delgado and Gabriela Guevara-Segarra |
| 09:20 - 09:40 | 89 | Multi focus Images Fusion Based on Linear Combination of Images. Felix Calderon and Adan Garnica-Carrillo |
| 09:40 - 10:00 | 116 | A Low Frequency Power-based Event Alignment Method for the Non-Intrusive Load Monitoring Systems Feature Extraction Task. Julio Raya and Jaime Cerda Jacobo |
| 10:00 - 10:20 | 29 | A novel reduced feature set for human action recognition based on the natural domain knowledge of the human figure. Gloria Castro, Jorge Martínez and Roberto Rosas |
| 10:20 - 10:40 | 112 | Dynamic Response of BLDC-Thruster for Small Scale Quadrotors under Aerodynamic Load Torque. Francisco J Ruiz-Sanchez, Ricardo Martinez-Alvarado, Anand Sanchez-Orta and Octavio Garcia-Salazar |
| 10:40 - 11:00 | 88 | Periodic Steady State Solution of Power Systems by Selective Transition Matrix Identification and Graphic Processing Units. Ernesto Magaña-Lemus, Aurelio Medina-Rios and Antonio Ramos-Paz |





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| THURSDAY PARALLEL SESSIONS (Time: 09:00 - 11:00) | | |
|---|---------------|---|
| Track: Electronics | Venue: Room 3 | Chair: Dr. Juan Anzúrez |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 22 | Design and evaluation of a 28W solid state lighting system. Gerardo Hernández Molina and Javier Correa Gómez |
| 09:20 - 09:40 | 43 | Current Reference For Energy Harvesting: 50µm Per Side, At 70 nW, Regulating To 125°C. Ali Far |
| 09:40 - 10:00 | 6 | Silicon-based Passive Inductors. Federico Sandoval |
| 10:00 - 10:20 | 141 | Sliding Mode Fuzzy Observers and Neural Networks applied to solve Fault Detection and Isolation Problem. Juan Anzures, Elisa Espinosa and Bernardino Castillo |
| 10:20 - 10:40 | 9 | Fault detection and isolation simulator: An Interpreted Petri net approach. Elvia Ruiz Beltrán, Jorge Luis Orozco Mora and Guillermo Ramirez Prado |
| 10:40 - 11:00 | 18 | Comparative evaluation of L and LCL filters in transformerless grid tied converters for active power injection. José Sosa, Gerardo Escobar, Panfilo Raymundo Martínez-Rodríguez, Gerardo Vázquez Guzmán, Mario Alberto Juárez Balderas and Martín Diosdado Hernández |





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| THURSDAY PARALLEL SESSIONS (Time: 09:00 - 11:00) | | |
|---|---------------|---|
| Track: SS - Adv. On Renew. Energy | Venue: Room 4 | Chair/Organizer: Dr. Fernando Ornelas-Tellez |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 85 | Wind Turbine Inverse Control: A Bond Graph Approach. Carlos Patiño, Roberto Tapia, Aurelio Medina and Claudio Fuerte |
| 09:20 - 09:40 | 63 | Feasibility Assessment of the Installation of a Photovoltaic System as a Battery Charging Center in a Mexican Mining Company. Diana Banda, Rafael Peña, Geydy Gutiérrez, Edith Juárez, Nancy Visairo and Ciro Núñez |
| 09:40 - 10:00 | 95 | Optimal Control for a Renewable-energy-based Micro-grid. Fernando Ornelas-Tellez |
| 10:00 - 10:20 | 134 | Active Power Control of Wind Farms in Mexico to Mitigate Congestion Energy Problems and Contribute to Frequency Regulation. Emilio Luna, Christian Perez Negron, Elton Fernandez and Gustavo Tequitlalpa |
| 10:20 - 10:40 | 67 | Technical and economic study for the integration of parabolic trough collectors coupled to a binary cycle. René Ramírez-Ferreira, Carlos Rubio-Maya, Crisanto Mendoza-Covarrubias, Laura Soto-Sánchez and Juan Belman-Flores |
| 10:40 - 11:00 | 59 | Preliminary Identification Study of the Wind Resource at the State of Michoacan. Gilberto Suárez and Norberto García |





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| THURSDAY PARALLEL SESSIONS (Time: 13:00 - 14:20) | | |
|---|---------------|--|
| Track: Power | Venue: Room 1 | Chair: José Antonio Alvarez |
| Time | Paper ID | Title/Author: |
| 13:00 - 13:20 | 11 | Induced voltage unbalance on a permanent magnet motor with armature failures. José Antonio Álvarez, Edgar Peralta and Fermín Pascual Espino |
| 13:20 - 13:40 | 1 | Reduction of Stray Losses in Tertiary Voltage Bushings in Power Transformer Tanks. Salvador Magdaleno, Patricia Penabad, Juan Carlos Olivares, Serguei Maximov, Rafael Escarela-Perez and Eduardo Campero |
| 13:40 - 14:00 | 27 | Images Profiles Voltages on RLC Electric Grid with Frequency Dependent. Juan Ramon Morales and Felipe Alejandro Uribe |
| 14:00 - 14:20 | 81 | Transmission Expansion Planning Considering Energy Storage. Cameron MacRae, Melih Ozlen and Andreas Ernst |

| THURSDAY PARALLEL SESSIONS (Time: 13:00 - 14:20) | | |
|---|---------------|--|
| Track: Computing | Venue: Room 2 | Chair: M. C. José Ortiz Bejar |
| Time | Paper ID | Title/Author: |
| 13:00 - 13:20 | 131 | Scalable Proximity Indexing with the List of Clusters. Eric Sadit Téllez Ávila, Edgar Leonel Chávez González and Jose Ortiz Bejar |
| 13:20 - 13:40 | 101 | Efficient visual localization of landmarks in DLOs under robotic manipulation: a statistical approach. Rene Padilla-Calderon and Keny Ordaz-Hernandez |
| 13:40 - 14:00 | 104 | Qualitative Simulation over Two-Parameter Bifurcation Diagrams. Jose Ortiz Bejar, Juan Flores Romero and Garibaldi Pineda Garcia |
| 14:00 - 14:20 | 54 | Modeling and experimental studies on an indirect type natural convection solar food-dryer. Sergio Ramírez-Sandoval, Hugo Gutierréz-Sánchez, Gildardo Solório-Díaz, Sergio Galván-González, Cristanto Mendoza-Covarrubias and Victor López-Garza |





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|---|---------------|---|
| Track: Electronics | Venue: Room 3 | Chair: Mario Alberto Juárez |
| Time | Paper ID | Title/Author: |
| 13:00 - 13:20 | 53 | FUZZY CONTROLLERS DESIGNS INTO FPGAs. Yazmin Maldonado, Jose Angel Olivas and Jesus Humberto Duarte |
| 13:20 - 13:40 | 55 | Design of Self-Oscillating Electronic Ballast with High Efficiency and High Power Factor for Power LED's. Mario Alberto Juarez Balderas, Panfilo Raymundo Martinez Rodriguez, Gerardo Vazquez Guzman, Jose Miguel Sosa Zuñiga and Ignacio Villanueva |
| 13:40 - 14:00 | 57 | An Improved SVPWM Control Scheme for a Thirteen-Level Inverter. Onesimo Flores-Acoltzi, Ismael Araujo-Vargas, Jazmin Ramirez-Hernandez, Nancy Mondragon-Escamilla, Fermin Valencia-Figueroa and Mario Ponce-Flores |
| 14:00 – 14:20 | 124 | Modeling of high impedance faults in electric distribution systems. Vicente Torres, Hector Ruiz, Salvador Ramirez and Serguei Maximov |

| THURSDAY PARALLEL SESSIONS (Time: 13:00 - 14:00) | | |
|---|---------------|--|
| Track: Electronics | Venue: Room 4 | Chair: Dr. Juan Anzúrez |
| Time | Paper ID | Title/Author: |
| 13:00 - 13:20 | 111 | The Fault Diagnosis Problem: A comparative study based on Dedicated Observers and Unknown Inputs Observers. David Cortes and Juan Anzures |
| 13:20 - 13:40 | 93 | Analysis of Buck Converter Control for Automobile LED Headlights Application. Mario Alberto Juarez Balderas, Panfilo Raymundo Martinez Rodriguez, Gerardo Vazquez Guzman, Jose Miguel Sosa Zuñiga, Ricardo Martinez and Ximena Prieto |
| 13:40 - 14:00 | 103 | Optimal design of power electronics converters using the Extended Harmonic Domain. Miguel Esparza and Juan Segundo Ramirez |





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| FRIDAY PARALLEL SESSIONS (Time: 09:00 - 11:00) | | |
|---|---------------|--|
| Track: Power | Venue: Room 1 | Chair: Miguel Chávez-Lugo |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 52 | Induced overvoltages produced by atmospheric discharges considering Jmarti and PI distribution lines models. John Armando Morales, Luis Zhunio, Claudio Patiño, Fernando Sivichay, Julio Montesdeoca and Roberto Cabral |
| 09:20 - 09:40 | 73 | Real-Time Direct Field-Oriented Control of Induction Motor for Electric Vehicles Applications. Eduardo Quintero, Edgar Sanchez and Ramon Felix |
| 09:40 - 10:00 | 117 | Wide-Area Distributed Cooperative Load-Frequency Consensus Control with Limited Information. Silvana Gamboa, Alberto Sanchez and Eduardo Orduña |
| 10:00 - 10:20 | 28 | Computation of the Voltage Oscillatory Stability Boundary by a Direct Method. Miguel Chávez-Lugo and Claudio Fuerte-Esquivel |
| 10:20 - 10:40 | 128 | Assessment of Voltage Sags in Electrical Networks by Applying a Parallelized Analytical Method. Armando Antunez-García, Antonio Ramos-Paz and Elisa Espinosa-Juarez |
| 10:40 - 11:00 | 79 | Beginning of the National Training Project for CFE's Distribution Operators. Angel Valdez, Nohemi Pacheco, Julio Suarez and Ignacio Luna |





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| FRIDAY PARALLEL SESSIONS (Time: 09:00 - 11:00) | | |
|---|---------------|--|
| Track: Electronics | Venue: Room 2 | Chair: Dr. Rodolfo Gonzalez |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 105 | Multispectral NDVI aerial image system for vegetation analysis by using a consumer camera. Nicolás Magne Tang, José Barreiros Flores, Danilo Chávez García and Eduardo Ávalos Cascante |
| 09:20 - 09:40 | 75 | Incident and Reflected Wave Analyzer Using Blood Pressure and Volume Pulse. Eder Hernandez, Alain Manzo, Edgar Cardenas, Edgar Casimiro and Rodolfo Gonzalez |
| 09:40 - 10:00 | 114 | SA3M: An Interactive Robot to Provide Support for the Elderly. David Valencia-Redrován, Luis González-Delgado, Vladimir Robles-Bykbaev, Ninfa González-Delgado and Todd Panzner |
| 10:00 - 10:20 | 77 | Heart Rate Variability Using Photoplethysmography with Green Wavelength. Luis Manuel Ruiz, Alain Manzo, Edgar Casimiro, Edgar Cardenas and Rodolfo Gonzalez |
| 10:20 - 10:40 | 109 | Sensitivity Analysis of Multi-Scroll Chaotic Oscillators at Circuit Level. Jesus Manuel Muñoz-Pacheco, Jesus García-Aguila, Olga Guadalupe Félix-Beltrán, Luz Del Carmen Gómez-Pavón and Arnulfo Luis-Ramos |
| 10:40 - 11:00 | 130 | Path Planning in Static Scenarios using Image Processing and Cell Decomposition. Iván Delgado, Oscar Casallas and Edwar Jacinto |





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|---|----------------------|--|
| Track: Electronics | Venue: Room 3 | Chair: M. C. Jorge Alberto Bonales Valencia |
| Time | Paper ID | Title/Author: |
| 09:00 - 09:20 | 136 | Instrumentation and Wireless Control for the Self-Balancing Mobile Robot on Two Wheels. Jorge Alberto Bonales Valencia, Juan Rincón Pasaye and Renato Gonzalez Bernal |
| 09:20 - 09:40 | 71 | Discovering Spectrum Holes in a Specific Indoor Environment for Cognitive Radio Application. Ricardo Meneses González and Laura Montes Peralta |
| 09:40 - 10:00 | 97 | Optimal tracking control for a three-phase power inverter. Paulina Orozco-Zavala, Fernando Ornelas-Tellez and Roberto Tapia-Sanchez |
| 10:00 - 10:20 | 82 | Liquid Level Nonlinear Control for a Serial Coupled Tank system. Miguel Angel Mancilla Morelos, Salvador Ramirez and Juan Anzures Marin |
| 10:20 - 10:40 | 123 | Parallel Inverters in Photovoltaic Systems for Isolated Applications. Luis Carlos Gallegos Hernández, Nimrod Vázquez Nava, Claudia Hernández, Mariela Serna Serna and Álvaro Hernández Sandoval |
| 10:40 - 11:00 | 34 | Initial Results from a Prototype Corresponding to an Induction Water Heater. Luis Felipe Quevedo Avila, Flavio Alfredo Quizhpi Palomeque, John Armando Morales, Roberto José Cabral and Arturo Bretas |

