



**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 Venue: Main Salon			
10:30-11:00	Industrial Exhibition Opening		Coffee Break	
11:00-13:00	FOUR PARALLEL SESSIONS, Venue:			
	Room 1	Room 2	Room 3	Room 4
	Power	SS – Genetic Programming	Electronics	Electronics
13:00-14:00	ROPEC 2104 Keynote Speech II Venue: Main Salon			





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Time	THURSDAY November 6, 2014			
08:00-9:00	Registration			
09:00-11:00	FOUR PARALLEL SESSIONS, Venue:			
	Room 1	Room 2	Room 3	Room 4
	Power	Computing	Electronics	SS – Renewable Energy
11:00-11:30	Coffee Break			
11:30-12:45	ROPEC 2104 Keynote Speech III Venue: Main Salon			
13:00-14:20	FOUR PARALLEL SESSIONS, Venue:			
	Room 1	Room 2	Room 3	Room 4
	Power	Computing	Electronics	Electronics





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Time	FRIDAY November 7, 2014			
08:00-9:00	Registration			
09:00-11:00	FOUR PARALLEL SESSIONS			
	Room 1	Room 2	Room 3	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 Venue: Main Salon			
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 Maria 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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THURSDAY PARALLEL SESSIONS (Time: 13:00 - 14:20)		
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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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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FRIDAY PARALLEL SESSIONS (Time: 09:00 - 11:00)		
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

