

# **2007 4th International Conference on Electrical and Electronics Engineering**

**Mexico City, Mexico  
5-7 September 2007**



<b>IEEE Catalog Number:</b>	<b>CFP07827-PRT</b>
<b>ISBN 10:</b>	<b>1-4244-1165-3</b>
<b>ISBN 13:</b>	<b>978-1-4244-1165-8</b>

# Table of Contents

<b>Chemical Composition and Resistivity of Sprayed CuInS<sub>2</sub> Thin Films for Solar Cells</b> .....	1
<i>Juan Manuel Peza-Tapia, Arturo Morales-Acevedo, Mauricio Ortega-López</i>	
<b>Thin Film Bulk Acoustic Wave Resonators for their Application in Microwave Filters</b> .....	5
<i>G. F. Pérez Sánchez, Arturo Morales-Acevedo, Brad R. Jackson, Carlos E. Saavedra</i>	
<b>Geometric Design of Lead/Lag Compensators Meeting a Hinf Specification</b> .....	9
<i>S. Saucedo Flores, A. Morgado Valle, B. Altamirano Castillejos</i>	
<b>Decentralized Fuzzy Gain Scheduling Control for an Open Irrigation Canal Prototype</b> .....	14
<i>O. Begovich, E. Martinez, V. M. Ruiz</i>	
<b>Crystallization of SbTe Phase Change Optical Films</b> .....	18
<i>E. Morales-Sánchez, E. Prokhorov, J. González-Hernández, M. A. Hernández-Landaverde, B. Chao</i>	
<b>Digital Channel Modeling through Chaotic Generators</b> .....	21
<i>M. Mijangos-Alquisires, V. Kontorovich, M. Lara-Barrón</i>	
<b>Steady-State Inductance Calculation of a Turbine Generator in the ABC Reference Frame</b> .....	25
<i>R. Escarela-Perez, E. Campero-Littlewood, A. L. Laureano-Cruces</i>	
<b>Estimation of Two-axis Synchronous Machine Parameters using Non-Deterministic Tools</b> .....	29
<i>R. Escarela-Perez, T. Niewierowicz, E. Campero-Littlewood, J. L. Hernandez-Avila</i>	
<b>Qubits structure and coherence in a one-way quantum computer</b> .....	33
<i>Manuel Avila Aoki</i>	
<b>Verilog –A Implementation of ICS Model for PD SOI Devices</b> .....	36
<i>E. Contreras, J. Alvarado, A. Cerdeira</i>	
<b>Realtss: a real-time scheduling simulator</b> .....	40
<i>Arnoldo Díaz, Ruben Batista, Oskardie Castro</i>	
<b>160 Gb/s XOR Gate Using Bulk SOA Turbo-Switched Mach-Zehnder Interferometer</b> .....	44
<i>R. Gutierrez-Castrejon</i>	
<b>Nonlinear Uncertain Servomechanism Tracking using an Integral Observer</b> .....	48
<i>Rubén Garrido, Ernesto Flores</i>	
<b>Modeling Chromatic Pupillary Responses in Healthy People</b> .....	52
<i>Dolores Rodríguez, Ernesto Suaste</i>	
<b>Fault diagnosis by means of sliding mode techniques</b> .....	56
<i>J. Juan Rincon-Pasaye, Rafael Martinez-Guerra</i>	
<b>Dynamical Sliding Mode Control of a MagLev System with 3 DOFs: Experimental Results</b> .....	60
<i>E. Alvarez-Sanchez, Ja. Alvarez-Gallegos, R. Castro-Linares</i>	
<b>Adaptive Signal Identification using LMS Filter with an Analog Memory Cell</b> .....	64
<i>Jesús de la Cruz-Alejo, Felipe Gómez-Castañeda, José A. Moreno-Cadenas, Juan C. Iglesias-Rojas</i>	
<b>Multi-Class Support Vector Machines for Large Data Sets via Minimum Enclosing Ball Clustering</b> .....	68
<i>Jair Cervantes, Xiaoou Li, Wen Yu, Javier Bejarano</i>	
<b>Sampling Reconstruction Procedure for a Markovian Gaussian Nonstationary Process in the presence of Jitter</b> .....	72
<i>V. A. Kazakov, J. A. Medina</i>	
<b>A method for designing CNN templates</b> .....	76
<i>Jose Antonio Medina Hernandez, Felipe Gomez Castaneda, Jose Antonio Moreno Cadenas</i>	
<b>Epoch Parameterization by Gabor Atom Density in Experimental Epilepsy</b> .....	80
<i>A. Sotelo, E. Guijarro, M. J. García, C. E. Vázquez</i>	

# Table of Contents

<b>Improved Carrier Frequency Offset Estimation using Data-Dependent Superimposed Training</b> .....	84
<i>S. M. A. Moosvi, D. C. McLernon, A. G. Orozco-Lugo, M. M. Lara, E. Alameda-Hernandez</i>	
<b>Fragile Watermarking for Color Image Authentication</b> .....	88
<i>M. Monzoy-Villuendas, M. Salinas-Rosales, M. Nakano-Miyatake, H. M. Pérez-Meana</i>	
<b>Lowest temperature at thermoelectric cooling</b> .....	92
<i>Yu. G. Gurevich, G. N. Logvinov, O. A. Fragoso, J. L. V. del Rio</i>	
<b>Comparative analysis between the Stratix II (Altera) and Virtex 4 (Xilinx) for implementing a LVDS bus receiver</b> .....	96
<i>C. A. Lujan, F. J. Mora, J. D. Martínez</i>	
<b>Improved Direct Interface Circuit for Resistive Full- and Half-Bridge Sensors</b> .....	100
<i>E. Sifuentes, O. Casas, F. Reverter, R. Pallàs-Areny</i>	
<b>Reinforcement Learning and Dynamic Planning Applied to Virtual Humans Animation</b> .....	104
<i>M. Uc, A. Rodríguez, F. Ramos</i>	
<b>Assistant System for Locking Intramedullary Nails Used to Repair Fractures of the Long Bones</b> .....	108
<i>Martínez Rigoberto, Minor Arturo</i>	
<b>Computed-Torque Control of an Omnidirectional Mobile Robot</b> .....	111
<i>J. A. Vazquez, M. Velasco-Villa</i>	
<b>Modeling and inventory regulation of dynamic supply chains through ordering policies</b> .....	115
<i>A. Rodríguez-Angeles, A. Sanchez, M.A. Duarte-Lobo</i>	
<b>A <math>\mu</math>-Calculus Approach for the Synthesis of Discrete-Event Supervisors with Safety Specifications</b> .....	119
<i>J. A. Lopez, A. Sanchez, R. E. Gonzalez</i>	
<b>On the Implementation of Control Laws for Finite Spectrum Assignment: the Multiple Delays Case</b> .....	123
<i>Daniel Melchor-Aguilar, Beatriz Tristan-Tristan</i>	
<b>An Experimental Comparison of Clock Distribution Networks for Systems on Chip</b> .....	127
<i>Mónico Linares Aranda, Manuel Salim Maza, Daniel Pacheco Bautista</i>	
<b>Analysis of the Threshold Voltage BSIM-Model for a Short Channel PD-SOI DTMOS</b> .....	131
<i>A. Jiménez-P, F. J. De la Hidalga-W</i>	
<b>Sliding PID Control for Trajectory Tracking of a 2 DOF Robot Manipulator: Simulations and Experiments</b> .....	135
<i>D. Muro-Maldonado, A. Rodríguez-Angeles, C. A. Cruz-Villar</i>	
<b>An improvement on the Symbolic L* Algorithm</b> .....	139
<i>A. Aguilar, R. E. Gonzalez</i>	
<b>On the Output Feedback Control of a Completely Unknown DC-Motor: Fast Algebraic Based Adaptation</b> .....	143
<i>E. Barrios-Cruz, H. Sira-Ramirez, R. Marquez-Contreras</i>	
<b>A Hands Gesture System Of Control For An Intelligent Wheelchair</b> .....	147
<i>R. Posada-Gómez, L. H. Sánchez-Medel, G. Alor Hernandez, A. Martínez-Sibaja, A. Aguilar-Laserre, L. Leija-Salas</i>	
<b>HAP-Based Monitoring of the Emissions Produced by Terrestrial Microwave Systems</b> .....	151
<i>Giselle M. Galvan-Tejada, Victor H. Correa-Cid</i>	
<b>Model for a CMOS Bit-Level Product Cell</b> .....	155
<i>Yesenia E. González-Navarro, Felipe Gómez-Castañeda, José A. Moreno-Cadenas, Luis M. Flores-Nava, Oliverio Arellano-Cárdenas</i>	
<b>Study of the Crystallization Process of Cu<sub>2</sub>O Samples from Polycrystalline Copper Plates</b> .....	159
<i>H. Solache-Carranco, G. Juárez-Díaz, A. Esparza-García, M. Briseño-García, M. Galván-Arellano, J. Martínez-Juárez, G. R. Romero-Paredes, R. Peña-Sierra</i>	

# Table of Contents

<b>On the GPI balancing control of an uncertain Jeffcot rotor model .....</b>	<b>163</b>
<i>H. Sira-Ramirez, G. Silva-Navarro, F. Beltran-Carvajal</i>	
<b>Frequency Offset Estimation and Compensation Using Superimposed Training .....</b>	<b>167</b>
<i>Aldo G. Orozco-Lugo, Manuel M. Lara, Enrique Alameda-Hernández, Syed Moosvi, Desmond C. McLernon</i>	
<b>Projection-Based Coordination Control of Automated Manufacturing Systems .....</b>	<b>171</b>
<i>A. Sánchez, L. Llamas, R. González</i>	
<b>Observer Based Control for a Single Phase Active Rectifier .....</b>	<b>175</b>
<i>Manuel Flota, Ricardo Alvarez, Ciro Nunez</i>	
<b>Providing SIP services support on Mobile networks .....</b>	<b>179</b>
<i>J. A. Hurtado, F. Martinez, O. Caicedo, O. Ramirez</i>	
<b>Unknown Input Observer for Induction Experimental Evaluation .....</b>	<b>183</b>
<i>F. Romero, M. A. Gallegos, R. Alvarez, E. G. Rocha</i>	
<b>Stable synchronization control for two ball and beam systems .....</b>	<b>187</b>
<i>Saul Jimenez, Wen Yu</i>	
<b>Dispersion of Ratios of Ventricular Repolarization Intervals in Normal Subjects and Old Myocardial Infarction Patients .....</b>	<b>191</b>
<i>I. H. Landeros-Guzmán, G. Vega-Martínez, C. Alvarado-Serrano, J. Ramos-Castro, R. Pallàs-Areny</i>	
<b>Finite Element Analysis and Design of a CubeSat Class Picosatellite Structure .....</b>	<b>194</b>
<i>C. Quiroz-Garfias, G. Silva-Navarro, H. Rodriguez-Cortes</i>	
<b>On the Analysis and Control of a Flexible link robot .....</b>	<b>198</b>
<i>J. F. Peza-Solis, G. Silva-Navarro, R. Castro-Linares</i>	
<b>ELECTROCARDIOGRAPH OF TWELVE DERIVATIONS, LOW CURRENT CONSUMPTION, POWERED AND COMMUNICATED FOR USB .....</b>	<b>202</b>
<i>Juan Yarozvaldi Tránsito, T. R. Martinez-Memije, O. Infante</i>	
<b>On-line Simulation Tool for the Design and Analysis of Lower-limb Prosthetic Devices .....</b>	<b>206</b>
<i>A. Meléndez-Calderón, H. A. Caltenco-Arciniega, S. Doien, J. E. Chong-Quero</i>	
<b>An Efficient Architecture for Detection of Layered Space-Time Block Codes Based on QR Decomposition .....</b>	<b>210</b>
<i>Joaquin Cortez-Gonzalez, Miguel Bazdresch, Deni Torres-Roman</i>	
<b>Cathodoluminescence of Silicon Rich Oxide with nitrogen incorporated .....</b>	<b>214</b>
<i>R. López-Estopier, M. Aceves-Mijares, Z. Yu, C. Falcony</i>	
<b>Distributed Power Control Algorithms in the Uplink of Wireless Systems.....</b>	<b>218</b>
<i>F. J. Martinez-Lopez, D. U. Campos-Delgado, J. M. Luna-Rivera</i>	
<b>On the Generalized-Proportional-Integral Sliding mode Control of the "Boost-Boost" Converter.....</b>	<b>222</b>
<i>A. Franco-Gonzalez, R. Marquez, H. Sira-Ramirez</i>	
<b>Estimation of the Precursor Power and Internal Reactivity in a Nuclear Reactor by a Neural Observer .....</b>	<b>226</b>
<i>J. Humberto Pérez-Cruz, Alexander Poznyak</i>	
<b>Study of the influence of the complex carbon-hydrogen in GaAs films grown by MOCVD.....</b>	<b>230</b>
<i>J. Q. Author, S. Manrique-Moreno, G. Romero-Paredes, M. Galván-Arellano, R. Peña-Sierra</i>	
<b>Building an Infrastructure for DNSSECbis in Mexico.....</b>	<b>233</b>
<i>A. F. Martinez, S. D. Villarreal, J. C. Mex, G. Lozano</i>	
<b>Low Cost Ultrasonic Anemometer .....</b>	<b>237</b>
<i>Miguel Pérez del Valle, José Antonio Urbano Castelán, Yasuhiro Matsumoto, Raúl Cortés Mateos</i>	
<b>Experimental Results on the Semiactive Sliding-Mode Control of the Unbalance Response in a Rotor-Bearing System Supported on MR Dampers .....</b>	<b>241</b>
<i>A. Cabrera-Amado, G. Silva-Navarro</i>	

# Table of Contents

<b>Design and Characterization of Low Phase Noise C-band SiGe HBT Amplifier.....</b>	<b>245</b>
<i>Nicolas A. Shtin, Rubén Ortíz Loa, José Mauricio López Romero, Eugen Prokhorov</i>	
<b>On-Line Algebraic Identification of Eccentricity in Active Vibration Control of Rotor-Bearing Systems .....</b>	<b>249</b>
<i>A. Blanco-Ortega, F. Beltran-Carbajal, G. Silva-Navarro</i>	
<b>Development of lead-free (Bi1/2Na1/2)BaTiO3 Piezoelectric Ceramics for Clinical Applications in Ultrasound.....</b>	<b>253</b>
<i>R. Rodríguez Ruiz, A. Flores Cuautle, E. Suaste Gómez</i>	
<b>Voltage Source Circuit Based on CMOS Floating-Gate Memory .....</b>	<b>257</b>
<i>Jesús de la Cruz Alejo, Victor Ponce Ponce, Felipe Gómez Castañeda, José A. Moreno Cadenas</i>	
<b>From Desktop Applications Towards Ajax Web Applications.....</b>	<b>261</b>
<i>J. Sergio Zepeda, Sergio V. Chapa</i>	
<b>Phase Analysis of a Variable Gain Amplifier Controlled Through Matching Networks .....</b>	<b>265</b>
<i>M. J. Martínez Silva, M. S. Ruiz Palacios, J. L. Ramos Quirarte</i>	
<b>Programmable Inverter Based on Neuron MOS Transistor .....</b>	<b>269</b>
<i>A. S. Medina, M. A. Reyes-Barranca</i>	
<b>Field Emission from Palladium Oxide Nanostructures Grown on Si Substrates at Atmospheric Pressure.....</b>	<b>273</b>
<i>R. Baca-Arroyo, C. A. López Rodríguez, M. Galvan-Arellano, G. Romero-Paredes, R. Peña-Sierra</i>	
<b>Pupillary response interpretation to white noise audible stimuli .....</b>	<b>277</b>
<i>E. Martínez, D. Rodríguez, C. O. González, E. Suaste</i>	
<b>GRAPHICAL ANALYSIS OF TRANSFORMED FEEDBACK BILINEAR EXPRESSIONS APPLIED TO DIFFERENTIAL ACTIVE PHASE SHIFTERS DESIGN.....</b>	<b>280</b>
<i>M. A. López Consospó, J. E. González-Villarruel</i>	
<b>Development of an Educational Simulator and Graphical User Interface for Diabetic Patients .....</b>	<b>284</b>
<i>M. Hernandez-Ordóñez, O. Montano, D. U. Campos-Delgado, E. Palacios</i>	
<b>Distributed Power Control Performance in DS-CDMA Systems with Adaptive Quantization .....</b>	<b>288</b>
<i>F. J. Martínez-Lopez, D. U. Campos-Delgado, J. M. Luna-Rivera</i>	
<b>Basic Small Fixed Wing Aircraft Sizing Optimizing Endurance .....</b>	<b>292</b>
<i>Ezequiel Reyes Retana, Hugo Rodríguez-Cortés</i>	
<b>Linear Dispersion Codes Generation from Hybrid STBC-VBLAST Architectures.....</b>	<b>296</b>
<i>O. Longoria-Gandara, A. Sanchez-Hernandez, J. Cortez, M. Bazdresch, R. Parra-Michel</i>	
<b>On Force-Free Magnetic Fields with non-constant proportionality factor and their applications to High Temperature Superconductors Theory, applying quaternionic analysis.....</b>	<b>300</b>
<i>M. P. Ramírez Tachiúin, S. Cruz Bohorquez, R. Gómez Mendoza</i>	
<b>CT- Projections Hardware Raw Data Acquisition System for Image Reconstruction .....</b>	<b>304</b>
<i>A. Guzmán De León, J. A. Hernández Peralta, D. Rojas Montes De Oca, M. Cadena Méndez</i>	
<b>Design of a Transcutaneous Electrical Stimulator to Avoid the Postoperative Intestinal Effects .....</b>	<b>308</b>
<i>L. M. Alonso, A. Minor, C. Escamilla</i>	