

2009 52nd IEEE International Midwest Symposium on Circuits and Systems

(MWSCAS 2009)

**Cancun, Mexico
2-5 August 2009**

Pages 1-614



**IEEE Catalog Number: CFP09MID-PRT
ISBN: 978-1-4244-4479-3**

Amplifiers and Comparators

#	TITLE	AUTHOR	INSTITUTION	PAGES
1	A Pseudo Rail-to-Rail Chopper-Stabilized Instrumentation Amplifier in 0.13 μm CMOS	Fuding Ge	Intel Corporation, USA	1
2	Design of High-side Current Sense Amplifier with Ultra-wide ICMR	Yang Yang	Zhejiang University, China	5
		Wu Xiaobo	Zhejiang University, China	
3	Indirect Compensation Techniques for Three-Stage CMOS Op-amps	Vishal Saxena	Boise State University, USA	9
		R. Jacob Baker	Boise State University, USA	
4	Design Procedure and Performance Potential for Operational Amplifier using Indirect Compensation	Vaibhav Kumar	Texas Instrument, USA	13
		Degang Chen	Iowa State University, USA	
5	Low-Voltage CMOS Cross-Quad Implementation based on Dynamic Positive Feedback	Belen Calvo	University of Zaragoza, Spain	17
		Jaime Ramirez-Angulo	New Mexico State University, USA	
		Antonio Lopez-Martin	Univ. Pública de Navarra, Spain	
		Ramon G. Carvajal	University of Seville, Spain	
6	A Precision Architecture For High-Speed Amplifier Applications	Donald T. Comer	Brigham Young University, USA	21

Analog Circuits and Signal Processing

#	TITLE	AUTHOR	INSTITUTION	PAGES
7	Oscillation Controlled Electronic Systems Design Using Posicast-Based Pulse Pre-Shaping	M. Rasoulzadeh	Shahed University of Tehran, Iran	24
		M. B. Ghaznavi-Ghoushchi	Shahed University of Tehran, Iran	
8	A CMOS Voltage Reference Using Compensation Of Mobility and Threshold VoltageTemperature Effects	I.M. Filanovsky	University of Alberta, Canada	29
		Brenda Bai	Scanimetrics Inc., Canada	
		Brian Moore	Scanimetrics Inc., Canada	
9	A 12nV/ ÖHz Noise-Shaped Channel Select Filter for DVB-H Mobile-TV Tuners	Ahmet Tekin	Newport Media Incorporation, USA	33
		Hassan Elwan	Newport Media Incorporation, USA	
		Soliman Mamoud	German University of Cairo, Egypt	
		Kenneth Pedrotti	University of California Santa Cruz, USA	

10	Modeling of CFOA Based Non-Inverting Amplifier Using Standard Hardware Description Language	Rasha E. El-Queseny Soliman A. Mahmoud Magdy M. Ibrahim	The German University in Cairo, Egypt The German University in Cairo, Egypt Ain Shams University, Egypt	37
11	Balanced Transconductor-C Ladder Filters With Improved Linearity	Antonio Carlos M. de Queiroz	Federal University of Rio de Janeiro, Brazil	41
12	Fully Balanced Voltage Differencing Buffered Amplifier and its Applications	Viera Biolkova Zdenek Kolka Dalibor Biolek	Brno Univ. of Technology, Czech Republic Brno Univ. of Technology, Czech Republic FVT, Univ. of Defence. Czech Republic	45
13	Comparative Study on the Effects of PVT Variations Between a Novel All-MOS Current Reference and Alternative CMOS Solutions	Jindrich Windels Christophe Van Praet Herbert De Pauw Jan Doutreloigne	Ghent University, Belgium Ghent University, Belgium Ghent University, Belgium Ghent University, Belgium	49
14	A Flexible Hardware Encoder for Systematic Low-Density Parity-Check Codes	Hemesh Yasotharan Anthony Chan Carusone	University of Toronto, Canada University of Toronto, Canada	54
15	A Type III Fast Locking Time PLL with Transconductor-C Structure	Habib Adrang Hossein Miar Naeimi	Babol University of Technology, Iran Babol University of Technology, Iran	58
16	A Nanowatt Cascadable Delay Element for Compact Power-on-Reset (POR) Circuits	Suat U. Ay	University of Idaho, USA	62
17	A Spice Model for Magneto-Impedance Sensors	Carlos A. De La Cruz Blas Cristina Gómez-Polo Alfonso Carlesena Jesús Olivera	Public University of Navarre, Spain Public University of Navarre, Spain Public University of Navarre, Spain Public University of Navarre, Spain	66
18	A CMOS Low Complexity Gaussian Pulse Generator for Ultra Wideband Communications	Gregorio Valdovinos Fierro Guillermo Espinosa Flores-Verdad	National Institute of Astrophysics, Optics and Electronics, Mexico National Institute of Astrophysics, Optics and Electronics, Mexico	70
19	High-Speed Transmitter for Fully Differential Current-Mode Polyquaternary Signaling Scheme	Vijaya Sankara Rao P Mrigank Sharad	Indian Institute of Technology, India Indian Institute of Technology, India	74

		Pradip Mandal	Indian Institute of Technology, India	
20	The Design of Sub-threshold Reference Circuit Using Resistor Temperature Compensation	Luo Li Cai Xiaowei Li Zheyng	Beijing Jiao Tong University, China Beijing Jiao Tong University, China Beijing Union University, China	78
21	Design Tradeoffs in a Triode Transconductor for Low Voltage Zero-IF Channel Select Filters	John Richard Hizon Esther Rodriguez-Villegas	Imperial College, United Kingdom Imperial College, United Kingdom	82
22	A Modified Charging Algorithm for Comparator-Based Switched-Capacitor Circuits	Kim-Fai Wong Sai-Weng Sin Seng-Pan U R.P. Martins	University of Macau, China University of Macau University of Macau Instituto Superior Técnico of Lisbon, Portugal	86
23	A 3 mW/GHz Near 1-V VCO with Low Supply Sensitivity in 0.18- μ m CMOS for SoC Applications	Xiong Liu Alan N. Willson, Jr.	University of California, USA University of California, USA	90
24	Application of Active Current Mirrors to Improve the Speed of Analog Decoder Circuits	Shahaboddin Moazzeni Glenn E. R. Cowan	Concordia University, Canada Concordia University, Canada	94
25	Limitations of the Phase-to-Frequency-Detector in Fractional Frequency Synthesizers.	Victor R. Gonzalez-Diaz Guillermo Espinosa F. V. Miguel A. García-Andrade	National Institute for Astrophysics Optics and Electronics, México National Institute for Astrophysics Optics and Electronics, México Universidad Autónoma de Baja California, Mexico	98
26	A Self Tuning System for On-Die Terminators in Current Mode Off-Chip Signaling	Edgar López-Delgadillo Alejandro Díaz-Méndez Miguel A. García-Andrade Mario E. Magaña Franco Maloberti	National Institute for Astrophysics, Optics and Electronics, México National Institute for Astrophysics, Optics and Electronics, México Universidad Autónoma de Ciudad Juárez, Mexico Oregon State University, USA University of Pavia, Italy	102
27	A Multiple Loop Feedback Gm-C Bandpass Filter for Wavelet Transform Implementation	Wenshan Zhao Yichuang Sun	University of Hertfordshire, United Kingdom & Hunan University, China University of Hertfordshire, United Kingdom	106

28	Current Regenerative Schmitt Triggers with Tunable Hysteresis	Xi Zhu Yigang He	University of Hertfordshire, United Kingdom Hunan University, China	
29	Injection-Locked CMOS Active Transformer Voltage-Controlled Oscillators	Fei Yuan	Ryerson University, Canada	110
30	A Low-Power High-Sensitivity CMOS Voltage-to-Frequency Converter	F. Yuan Belen Calvo Nicolas Medrano Santiago Celma Maria Teresa Sanz	Ryerson University, Canada University of Zaragoza, Spain University of Zaragoza, Spain Instituto Nacional Astrofísica, Óptica y Electrónica, México	114
31	CMOS Compatible High Voltage Compliant MESFET Based Analog IC Building Blocks	Sungho Kim William Lepkowski Trevor J. Thornton Bertan Bakkaloglu	Arizona State University, USA Arizona State University, USA Arizona State University, USA Arizona State University, USA	118 122
32	Channel Charge Injection Analysis and Its Modeling in Z-Domain for Switched-Capacitor Integrators	Pooya Torkzadeh Mojtaba Atarodi	Sharif university of Technology, Iran Sharif university of Technology, Iran & Mix Core Design	126
33	Low Voltage Low Power Wide Range Fully Differential CMOS Four-Quadrant Analog Multiplier	Soliman A. Mahmoud	German University in Cairo, Egypt	130
34	A 0.13um CMOS Preamplifier for Low Level Signal Acquisition Systems	Andreas Larsson Sergio Solis	Intel Corporation, México Intel Corporation, México	134
35	Micropower Class AB CMOS Current Conveyor Based on Quasi-Floating Gate Techniques	Antonio J. Lopez-Martin Lucía Acosta Jose M. Algueta Jaime Ramirez-Angulo Ramon G. Carvajal	Public University of Navarra, Spain Universidad de Sevilla, Spain Public University of Navarra, Spain New Mexico State University, USA Universidad de Sevilla, Spain	140
36	A 1-GS/s 6-bit Flash ADC in 90 nm CMOS	Mohamed O. Shaker Soumik Gosh Magdy A. Bayoumi	University of Louisiana at Lafayette, USA University of Louisiana at Lafayette, USA University of Louisiana at Lafayette, USA	144
37	A 5Gb/s 7-Channel Current-mode Imaging Receiver Front-end for Free-Space Optical MIMO	Juan Zeng	Tufts University, USA	148

		Valencia Joyner	Tufts University, USA	
		Jun Liao	Rensselaer Polytechnic Institute, USA	
		Shengling Deng	Rensselaer Polytechnic Institute, USA	
		Zhaoran Huang	Rensselaer Polytechnic Institute, USA	
38	Statistical Criteria of Design for Chaotic Analog Noise Generators	R. Vázquez-Medina	National Polytechnic Institute, Mexico	152
		A. Díaz-Méndez	National Institute of Astrophysics, Optic and Electronics & National Polytechnic Institute, Mexico	
		M. Cruz-Irisson	National Polytechnic Institute, Mexico	
		J. L. Del-Rio-Correa	Metropolitan Autonomous University, México	
		J. López-Hernández	National Polytechnic Institute, Mexico	
39	Threshold-Based Voltage Reference with pn-Junction Temperature Compensation	Yen-Ting Wang	Tatung University, Taiwan	156
		Randall L. Geiger	Iowa State University, USA	
		Shu-Chuan Huang	Tatung University, Taiwan	
40	A Novel Divider using the Gilbert's cell with Floating Gate Feedback	Fernando Lara-Villa	Instituto Nacional de Astrofísica, Optica y Electronica, Mexico	160
		Fabian Yañez-Ortega	Instituto Nacional de Astrofísica, Optica y Electronica, Mexico	
		Ana L. Mota-Rodriguez	Instituto Nacional de Astrofísica, Optica y Electronica, Mexico	
		Ivan Padilla-Cantoya	Instituto Nacional de Astrofísica, Optica y Electronica, Mexico	
		Alejandro Diaz-Sanchez	Instituto Nacional de Astrofísica, Optica y Electronica, Mexico	
		Jose Miguel Rocha-Perez	Instituto Nacional de Astrofísica, Optica y Electronica, Mexico	
		Jesus Ezequiel Molinar-Solis	Universidad Autonoma del Estado de Mexico, México	
41	Psychoacoustic Bass Enhancement System on Reconfigurable Analog Signal Processor	Leung Kin Chiu	Georgia Institute of Technology, USA	164
		David V. Anderson	Georgia Institute of Technology, USA	
42	Mismatch Compensation in Winner-Take-All (WTA) Circuits	Anshu Sarje	University of Maryland, USA	168
		Pamela Abshire	University of Maryland, USA	

Bioengineering Circuits and Systems

#	TITLE	AUTHOR	INSTITUTION	PAGES
---	-------	--------	-------------	-------

43	A low power CMOS Biopotentiostat in a Low-Voltage 0.13 μm Digital Technology	J. Colomer P.Miribel-Català A. Saiz-Vela Ivón Rodríguez J. Samitier	Universitat de Barcelona, Spain Universitat de Barcelona, Spain Universitat de Barcelona, Spain Institut de Biotecnologia de Barcelona, Spain Institut de Biotecnologia de Barcelona, Spain	172
44	Dynamic Pupil Reacting to Incident Light Dedicated to Ocular Implants	Mohamad Wehbe, Mona Safi-Harb Mohamad Sawan	Ecole Polytechnique de Montreal, Canada Ecole Polytechnique de Montreal, Canada Ecole Polytechnique de Montreal, Canada	176
45	CMOS 12 bits 50kS/s Micropower SAR and Dual-Slope Hybrid ADC	Xiang Fang Vijay Srinivasan Jack Wills John Granacki Jeff LaCoss John Choma	University of Southern California, USA University of Southern California, USA	180
46	An Adaptive System to Stimulate Culture Cells	Ernesto Paredes Martínez Luís Niño de Rivera O Atlantida M. Raya-Rivera Daniel Robles Camarillo Raquel Vargas Jimenez	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico Federico Gomez Childhood Mexican Hospital, México National Polytechnic Institute, Mexico Federico Gomez Childhood Mexican Hospital, México	184
47	Automatic Heart Sound Analysis with Short-Time Fourier Transform and Support Vector Machines	Wen-Chung Kao Chih-Chao Wei Jen-Jui Liu Pei-Yung Hsiao	National Taiwan Normal University, Taiwan National Taiwan Normal University, Taiwan National Taiwan Normal University, Taiwan National University of Kaohsiung, Taiwan	188
48	A ±9 V Fully Integrated CMOS Electrode Driver for High-Impedance Microstimulation	Sébastien Ethier Mohamad Sawan El Mostapha Aboulhamid	Ecole Polytechnique, Canada Ecole Polytechnique, Canada Université de Montreal, Canada	192

		Mourad El-Gamal	McGill University, Canada	
49	Portable Transcorneal Electrical Stimulator System, Applied on Electrotherapy for Low Vision Patients	D. Robles-Camarillo L. Niño-de-Rivera H. Quiroz-Mercado M. J. López-Miranda	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico Denver Health Medical Center, University of Colorado, USA Hospital Dr. Luis Sánchez Bulnes, APEC, México	196
50	On-Chip Intrinsic Evolution Methodology for Sequential Logic Circuit Design	Fan Xiong Nader I. Rafla	Boise State University, USA Boise State University, USA	200

CAD and Layout

#	TITLE	AUTHOR	INSTITUTION	PAGES
51	Design of a CMOS Second Order Band-Pass Continuous Time Filter using Numerical Optimization	Luis Nathán Pérez-Acosta José Ernesto Rayas-Sánchez	Intel - Guadalajara Design Center, México Instituto Tecnológico y de Estudios Superiores de Occidente, México	204
52	Logical Clustering for Fast Clock Skew Scheduling	Liang Yang Jiye Zhao Baoxia Fan Ge Zhang	Institute of Computing Technology and Chinese Academic of Sciences, China Institute of Computing Technology, China Institute of Computing Technology and Chinese Academic of Sciences, China Institute of Computing Technology, China	208
53	Sensitivity Approach to Statistical Signal Integrity Analysis of Coupled Interconnect Trees	Zhigang Hao Guoyong Shi	Shanghai Jiao Tong University, China Shanghai Jiao Tong University, China	212
54	Computing Optimum Sizes of a Voltage Follower using Fuzzy Sets	S. Polanco-Martagón G. Flores-Becerra E. Tlelo-Cuautle	Instituto Tecnológico de Puebla, México Instituto Tecnológico de Puebla, México INAOE, Mexico	216
55	Decomposition-Based Multi-Objective Optimization of Second- Generation Current Conveyors	I. Guerra-Gómez E. Tlelo-Cuautle	INAOE, México INAOE, México	220

		T. McConaghy G. Gielen	Solido Design Automation Inc., Canada Katholieke Universiteit Leuven, Belgium	
56	Post-CTS Clock Skew Scheduling with Limited Delay Buffering	Jianchao Lu Baris Taskin	Drexel University, USA Drexel University, USA	224
57	Design of Reusable CMOS OTAs using CAD Tools	José Luis Chávez-Hurtado Esteban Martínez-Guerrero José Ernesto Rayas-Sánchez	Instituto Tecnológico y de Estudios Superiores de Occidente, México Instituto Tecnológico y de Estudios Superiores de Occidente, México Instituto Tecnológico y de Estudios Superiores de Occidente, México	228
58	Capacitive Load Balancing for Mobius Implementation of Standing Wave Oscillator	Vinayak Honkote Baris Taskin	Drexel University, USA Drexel University, USA	232
59	A Modified Branin Model of Lossless Transmission Lines	Josef Dobeš Libor Sláma	Czech Technical University in Prague, Czech Republic Czech Technical University in Prague, Czech Republic	236

Communications and Wireless Systems

#	TITLE	AUTHOR	INSTITUTION	PAGES
60	Perturbation Analysis of Whitening-Rotation-based Semi-Blind MIMO Channel Estimation	Feng Wan Wei-Ping Zhu M.N.S. Swamy	Concordia University, Canada Concordia University, Canada Concordia University, Canada	240
61	Design of a Costas Loop Down Converter	Mike Roddewig Seyed A. Zekavat Saeid Nooshabadi	Michigan Technological University, USA Michigan Technological University, USA Gwangju Institute of Science and Technology, Republic of Korea	244
62	System Architecture of an RF-DAC Based Multistandard Transmitter	Niklas Zimmermann Björn Thorsten Thiel Renato Negra Stefan Heinen	RWTH Aachen University, Germany RWTH Aachen University, Germany RWTH Aachen University, Germany RWTH Aachen University, Germany	248
63	An Ultra Wideband Data Modulation Technique	Gregorio Valdovinos F Guillermo Espinosa F-V.	National Institute of Astrophysics, Optics and Electronics, Mexico National Institute of Astrophysics, Optics and Electronics, Mexico	252

		Mario E. Magaña	Oregon State University, USA	
64	Optimal Resource Allocation for Wireless Video Sensors with Power-Rate-Distortion Model of Imager	Malisa Marijan Wendi Heinzelman Gaurav Sharma Zeljko Ignjatovic	University of Rochester, USA University of Rochester, USA University of Rochester, USA University of Rochester, USA	256
65	Mobility Support for Wireless Sensor Networks Simulations for Road Intersection Safety Applications	Lars Hoehmann Anton Kummert	University of Wuppertal, Germany University of Wuppertal, Germany	260
66	RF Receiver and Transmitter for Insect Mounted Sensor Platform	Joseph Duperre Gordon Burgett Rajesh Garg Sunil P Khatri	West Virginia University, USA Texas A&M University, USA Texas A&M University, USA Texas A&M University, USA	264
67	Design and Implementation of the Baseband Section for a 900MHz Passive Tag in a 0.5µm CMOS Process	Omar R. Ávila-López R. Parra-Michel F. Sandoval-Ibarra M. Aguirre-Hernández	CINVESTAV Guadalajara, México CINVESTAV Guadalajara, México CINVESTAV Guadalajara, México & Universidad Panamericana, México Intel Corporation, Mexico	268
68	Sensitivity Analysis of Direct Conversion Receivers to Analog-to-Digital Converter Performance	Kye-Shin Lee Hochul Kim Joonsung Park	Sun Moon University, Korea Texas Instruments Inc., USA University of Texas at Austin, USA	272
69	Coding Efficiency for Different Switched-Mode RF Transmitter Architectures	Thomas Blocher Peter Singerl	Graz University of Technology, Austria Infineon Technologies Austria AG, Austria	276
70	Distributed Distribution-based Optimization for Sensor Fault Detection	Peng Zhuang Dan Wang Yi Shang	University of Missouri, USA University of Missouri, USA University of Missouri, USA	280
71	Communication infrastructures to facilitate regional voltage control of active radial distribution networks	Qiang Yang Javier A. Barria Carlos A. Hernandez Aramburo	Imperial College London, United Kingdom Imperial College London, United Kingdom Imperial College London, United Kingdom	284

	Memory-Configuration and Memory-			
72	Bandwidth in the Sliding-Window (SW) Switch Architecture	Alvaro Munoz	University of Texas at Dallas, USA	288
		Cyrus D. Cantrell	University of Texas at Dallas, USA	
73	A Tunable Pulse Generator for Sub-GHz UWB Systems	Youngjoong Joo	University of Texas at San Antonio, USA	292
		Hyunseok Kim	ETRI, Republic of Korea	
		Sungyong Jung	University of Texas at Arlington, USA	
74	A Hybrid Algorithm and its Re-configurable Architecture for MIMO Detector	Luo Dan	The Hong Kong University of Science & Technology, Hong Kong	297
		Chi-Ying Tsui	The Hong Kong University of Science & Technology, Hong Kong	
75	Global System Approach to Validate a Wireless System even with a Multi-antennas Receiver Structure	José Cruz Nuñez Pérez	CITEDI-Instituto Politécnico Nacional, México	301
		Jacques Verdier	Institut des Nanotechnologies de Lyon, France	
		Guillaume Villemaud	Centre d'Innovation en Télécommunications et Intégration de Services, France	
		Jean-Marie Gorce	Centre d'Innovation en Télécommunications et Intégration de Services, France	

Control Systems, Mechatronics and Robotics

#	TITLE	AUTHOR	INSTITUTION	PAGES
	Data Processing from a Laser Range Finder			
76	Sensor for the Construction of Geometric Maps of an Indoor Environment	Marcos Ogaz	Chihuahua Institute of Technology, México	306
		Mario Chacón	Chihuahua Institute of Technology, México	
		Rafael Sandoval	Chihuahua Institute of Technology, México	
77	Design And Implementation of an Android	Norma Elva Chávez Rodríguez	Universidad Nacional Autónoma de México, México	314
		Rodrigo Savage	Universidad Nacional Autónoma de México, México	
		José Iván Guevara Juarez	Universidad Nacional Autónoma de México, México	
		Marcial Roberto Leyva Fernández	Universidad Nacional Autónoma de México, México	
78	Experimental Comparison of Non-collision Strategies in Multi-Agent Robots Formation Control	E. G. Hernández-Martínez	CINVESTAV, México	321
		E. Aranda-Bricaire	CINVESTAV, México	

79	Concept validation of a MEMS powered, automatic multichannel pipetting device	Ana L. Quintanar-Meléndez C. Amnael Orozco-Díaz Rogelio Bustamante-Bello José R. Alvarez-Bada M. Karla Muguerza-Jiménez Jessica Nava-Rojas	Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México Instituto Tecnológico y de Estudios Superiores de Monterrey, Ciudad de México	325
80	Trajectory Tracking Control for the Planar Dynamics of a Thrust Vectored Airship	G. Murguía-Rendon H. Rodríguez-Cortés M. Velasco-Villa	CINVESTAV-IPN, México CINVESTAV-IPN, México CINVESTAV-IPN, México	329
81	Stand-alone station for deep space objects astrophotography	R. Suszynski	Koszalin University of Technology, Poland	333
82	Stabilization of High-Order Systems with Delay Using a Predictor Schema.	Y. Pedraza-Beltran O. Gonzalez-Nagera B. del Muro-Cuéllar	Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México	337

Data Converters

#	TITLE	AUTHOR	INSTITUTION	PAGES
83	Noise-Coupled Continuous-Time DΣ ADCs	Yan Wang Gabor C. Temes	Oregon State University, USA Oregon State University, USA	341
84	DΣ ADCs with Second-Order Noise-Shaping Enhancement	Yan Wang Gabor C. Temes	Oregon State University, USA Oregon State University, USA	345
85	Wideband DΣ ADCs Using Direct-Charge-Transfer Adder	Yan Wang Gabor C. Temes	Oregon State University, USA Oregon State University, USA	349
86	Track-and-Hold and Comparator for a 12.5GS/s, 8bit ADC	Shohreh Ghetmiri C. Andre T. Salama	University of Toronto, Canada University of Toronto, Canada	353
87	Complex Bandpass ΔΣAD Modulator with Noise-coupled Image Rejection	Hao San	Gunma University, Japan	357

		Haruo Kobayashi	Gunma University, Japan	
88	Novel sampling-timing background calibration for time-interleaved A/D converters	Takashi Oshima	Hitachi Ltd., Central Research Laboratory, Japan	361
		Tomomi Takahashi	Hitachi Ltd., Central Research Laboratory, Japan	
		Taizo Yamawaki	Hitachi Ltd., Central Research Laboratory, Japan	
89	Excess Loop Delay Compensation Technique For Tunable Bandpass Delta Sigma Modulators	M. Afifi	University of Freiburg Freiburg, Germany	365
		M. Keller	University of Freiburg Freiburg, Germany	
		Y. Manoli	University of Freiburg Freiburg, Germany	
		M. Ortmanns	University of Ulm, Germany	
90	A Continuously Trimmable Comparator-based Gain Stage	R. Rieger	National Sun Yat-Sen University, Taiwan	369
		L.-S. Chang	National Sun Yat-Sen University, Taiwan	
91	An On-chip Ramp Generator for Single-Slope Look Ahead Ramp (SSLAR) ADC	Sakkarapani Balagopal	University of Idaho, USA	373
		Suat U. Ay	University of Idaho, USA	
92	The Design of Low-Power CIFF Structure Second-Order Sigma-Delta Modulator	Pin-Han Su	National Chiao-Tung University, Taiwan	377
		Herming Chiueh	National Chiao-Tung University, Taiwan	
93	A Pipelined ADC Architecture for Low-Voltage CMOS Applications	Kent D. Layton	ON Semiconductor, USA	381
		Donald T. Comer	Brigham Young University, USA	
94	Improved Delta Sigma Modulators for High Speed Applications	David Gautier	ACCO SEMICONDUCTOR, France & Universite de Poitiers, France	385
		Michel Robbe	ACCO SEMICONDUCTOR, France	
		Stephan Doucet	ACCO SEMICONDUCTOR, France	
		Renaud Lemoine	ACCO SEMICONDUCTOR, France	
		Smail Bachir	Universite de Poitiers, France	
		Claude Duvanaud	Universite de Poitiers, France	
95	A Multi-bit Sigma-Delta Modulator Using Ratio-Independent Feedback DAC	Yu Song	University of Rochester, USA	389
		Eric C. Moule	ADVIS, Inc., USA	
96	Double-Sampling DΣ Modulator with Relaxed Feedback Timing	Weilun Shen	Oregon State University, USA	393
		Gabor C. Temes	Oregon State University, USA	
97	A SD CMOS ADC with 80-dB Dynamic Range and 31-MHz Signal Bandwidth	Mohamed Aboudina	University of California, USA	397
		Behzad Razavi	University of California, USA	
98	A Fast Simulator for Pipelined A/D Converters	Bibhu Datta Sahoo	University of California, USA	402

		Behzad Razavi	University of California, USA	
99	$\Sigma\Delta$ Time Interleaved Current Steering DAC with Dynamic Elements Matching	Stefano Noli	University of Pavia, Italy	407
		Aldo Peña Perez	University of Pavia, Italy	
		Edoardo Bonizzoni	University of Pavia, Italy	
		Franco Maloberti	University of Pavia, Italy	
100	A K-Delta-1-Sigma Modulator for Wideband Analog to Digital Conversion	Vishal Saxena	Boise State University, USA	411
		Kaijun Li	Boise State University, USA	
		Geng Zheng	Boise State University, USA	
		R. Jacob Baker	Boise State University, USA	
101	An Oversampling Digital Pixel Sensor with a Charge Transfer DAC Employing Parasitic Capacitances	Danijel Maricic	University of Rochester, USA	415
		Zeljko Ignjatovic	University of Rochester, USA	
		Mark F. Bocko	University of Rochester, USA	
102	Low Power Current Mode Pipelined A/D Converter	Krzysztof Wawryn	Koszalin University of Technology, Poland	419
		Robert Suszyński	Koszalin University of Technology, Poland	
		Bogdan Strzeszewski	Koszalin University of Technology, Poland	
103	A 5-Bit 10GS/s 65nm Flash ADC with Feedthrough Cancellation Track-and-Hold Circuit	Gang Chen	University of New Hampshire, USA	423
		Yifei Luo	University of New Hampshire, USA	
		Allen Drake	University of New Hampshire, USA	
		Kuan Zhou	University of New Hampshire, USA	
104	A High Resolution Multibit D-S DAC using Noise Shaping	Swaran R. Singh	University of Alberta, Canada	427
		Vincent Gaudet	University of Alberta, Canada	
		Kambiz Moez	University of Alberta, Canada	

Digital Circuits

#	TITLE	AUTHOR	INSTITUTION	PAGES
105	FinFET Technology Development Guidelines for Higher Performance, Lower Power, and Stronger Resilience to Parameter Variations	Sherif A. Tawfik	University of Wisconsin-Madison, USA	431
		Volkan Kursun	The Hong Kong University of Science and Technology, Hong Kong	
106	A Novel CNTFET-Based Ternary Logic Gate Design	Sheng Lin	Northeastern University, USA	435
		Yong-Bin Kim	Northeastern University, USA	

		Fabrizio Lombardi	Northeastern University, USA	
107	A Quaternary Current Mode Bus Driver and Receiver Circuits	Cheung Cheuk Kit Cheong-Fat Chan Chiu-Sing Choy Kong-Pang Pun	The Chinese University of Hong Kong, Hong Kong The Chinese University of Hong Kong, Hong Kong The Chinese University of Hong Kong, Hong Kong The Chinese University of Hong Kong, Hong Kong	439
108	Pulse Width Variation Tolerant Clock Tree Using Unbalanced Cells for Low Power Design	Tarun Chawla Sebastien Marchal Amara Amara Andrei Vladimirescu	STMicroelectronics, France Institute Superior d'Electronique de Paris, France Institute Superior d'Electronique de Paris, France	443
109	Low-Power FPGA Routing Switches Using Adaptive Body Biasing Techniques	Kundan Nepal George V. Leming	Bucknell University, USA Bucknell University, USA	447
110	An Efficient Implementation of 1-D Median Filter	Vasily G. Moshnyaga Koji Hashimoto	Fukuoka University, Japan Fukuoka University, Japan	451
111	A Circuit Design and Fabrication Approach to Address Global Process Variation	Ardavan Aryanpour Glenn E. R. Cowan	Concordia University, Canada Concordia University, Canada	455
112	A Survey on Leakage Control Techniques in Wide-OR Domino Circuits	Farhad Haj Ali Asgari Majid Ahmadi Jonathan Wu	University of Windsor, Canada University of Windsor, Canada University of Windsor, Canada	459
113	The 90 nm Double-DICE Storage Element To Reduce Single-Event Upsets	Mahta Haghi Jeff Draper	University of Southern California, USA University of Southern California, USA	463
114	Optimization of Oversampling Data Recovery	Zdenek Kolka Michal Kubicek Dalibor Biolek Viera Biolkova	Brno University of Technology, Czech Republic Brno University of Technology, Czech Republic Brno University of Technology, Czech Republic Brno University of Technology, Czech Republic	467
115	Manufacturable Low-Power Latches for Standard Tied-Double-Gate FinFET Technologies	Sherif A. Tawfik Volkan Kursun	University of Wisconsin–Madison, USA The Hong Kong University of Science and Technology, Hong Kong	471

116	An Image Combiner and Acquisition Interface for Space Remote Sensing Applications	Tsan-Jieh Chen Herming Chiueh Hann-Huei Tsai Chin-Fong Chiu	National Chiao-Tung University, Taiwan National Chiao-Tung University, Taiwan National Applied Research Laboratories, Taiwan National Applied Research Laboratories, Taiwan	475
117	Design of Low Power Precharge-Evaluation Based One Bit Adder Cell	Krashna Nand Mishra	ATLab Inc., Republic of Korea	479
118	Switching-Voltage Detection and Compensation Circuits for Ultra-Low-Voltage CMOS Inverters	Kei Matsumoto Tetsuya Hirose Yuji Osaki Nobutaka Kuroki Masahiro Numa	Kobe University, Japan Kobe University, Japan Kobe University, Japan Kobe University, Japan Kobe University, Japan	483
119	A Novel All-Digital Phase-Locked Loop With Ultra Fast Frequency and Phase Acquisition	Jun Zhao Yong-Bin Kim	Northeastern University, USA Northeastern University, USA	487
120	SIMPLIFIED 3.3V TOLERANCE CIRCUIT FOR 2.5V I/O DESIGN IN PCI-X SIGNALING ENVIRONMENT	Akshaykumar Salimath Satyam Mandavilli	International Institute of Information Technology, India International Institute of Information Technology, India	491
121	A Digital-to-Frequency Converter Using Redundant Signed Binary Addition	Wickham Chen Mitchell A. Thornton Ping Gui	Southern Methodist University, USA Southern Methodist University, USA Southern Methodist University, USA	495
122	Speedup of a Large Word-Width High-Speed Asynchronous Multiply and Accumulate Unit	Liang Zhou Scott C. Smith	University of Arkansas, USA University of Arkansas, USA	499
123	Delay-Compensation Techniques for Ultra-Low-Power Subthreshold CMOS Digital LSIs	Yuji OSAKI Tetsuya Hirose Kei matsumoto Nobutaka Kuroki Masahiro Numa	Kobe University, Japan Kobe University, Japan Kobe University, Japan Kobe University, Japan	503
124	A Comparative Analysis of Coarse-grain and Finegrain Power Gating for FPGA Lookup Tables	Pradeep S. Nair Santosh Koppa Eugene B. John	University of Texas, USA University of Texas, USA University of Texas, USA	507
125	A New Bit-Serial Architecture of Rank-Order Filter	Takuya Yamamoto	Fukuoka University, Japan	511

		Vasily G. Moshnyaga	Fukuoka University, Japan	
126	Hardware Implementations of the SHA-3 Candidates Shabal and CubeHash	Markus Bernet Luca Henzen Hubert Kaeslin Norbert Felber Wolfgang Fichtner	Integrated Systems Laboratory ETH, Switzerland Integrated Systems Laboratory ETH, Switzerland Integrated Systems Laboratory ETH, Switzerland Integrated Systems Laboratory ETH, Switzerland Integrated Systems Laboratory ETH, Switzerland	515
127	Floating-Gate Energy Recovery Logic	Luis F. Cisneros-Sinencio Alejandro Diaz-Sanchez Jaime Ramirez-Angulo Carlos A. Gracios-Marin	National Institute for Astrophysics, Optics and Electronics, México National Institute for Astrophysics, Optics and Electronics, México New Mexico State University, USA Puebla Institute of Technology, Mexico	519
128	Exploration of Switching Activity Behavior of Addition Algorithms	Dursun Baran Mustafa Aktan Hossein Karimiyan Vojin G. Oklobdzija	University of Texas at Dallas, USA University of Texas at Dallas, USA University of Texas at Dallas, USA University of Texas at Dallas, USA	523
129	The Design of High Performance Elliptic Curve Cryptographic	Jin-Hua Hong Wei-Chung Wu	National University of Kaohsiung, Taiwan National University of Kaohsiung, Taiwan	527
130	Handshaking Quasi-Adiabatic Logic	Meng-Chou Chang Chia-Chang Tsai	National Changhua University of Education, Taiwan National Changhua University of Education, Taiwan	531
131	Performance Evaluation of Multi-Operand Fast Decimal Adders	Jeff Rebacz Erdal Oruklu Jafar Saniie	Illinois Institute of Technology, USA Illinois Institute of Technology, USA Illinois Institute of Technology, USA	535
132	A Transmission Gate Flip-Flop Based on Dual-Threshold CMOS Techniques	Linfeng Li Jianping Hu	Ningbo University, China Ningbo University, China	539
133	Low-Complexity Integrated Architecture of 4x4, 4x8, 8x4 and 8x8 Inverse Integer Transforms of VC-1	Yi-Jung Wang Chih Chi Chang	Industrial Technology Research Institute, Taiwan Industrial Technology Research Institute, Taiwan	543

		Guo Zua Wu Oscal T.-C. Chen	Industrial Technology Research Institute, Taiwan National Chung Cheng University, Taiwan	
134	Performance of CNFET SRAM Cells under Diameter Variation Corners	Zhe Zhang Yanmin Liu Jabulani Nyathi José G. Delgado-Frias	Washington State University, USA Washington State University, USA Washington State University, USA Washington State University, USA	547
135	Design Techniques of P-Type CMOS Circuits for Gate-Leakage Reduction in Deep Sub-micron ICs	Weiqiang Zhang Linfeng Li Jianping Hu	Ningbo University, China Ningbo University, China Ningbo University, China	551

Digital Signal Processing

#	TITLE	AUTHOR	INSTITUTION	PAGES
136	All-Zero Block Detection in VC-1	Hisham Sliman Mohamed El-Sharkawy Paul Salama Maher Rizkalla Salwa El-Ramly	Purdue School of Engineering and Technology, USA German University, Egypt Purdue School of Engineering and Technology, USA Purdue School of Engineering and Technology, USA Ain Shams University, Egypt	555
137	3D Imaging Algorithm and Implement for Through-Wall Synthetic Aperture Radar	Jiabing Zhu Liang Tao Yi Hong	East China Research Institute of Electronic Engineering, China Anhui University, China East China Research Institute of Electronic Engineering, China	561
138	A tunable band-pass filter using a complex-arithmetic heterodyne approach	Michael A. Soderstrand Grace Yoona Cho	DeVry University Oklahoma City Center, USA Tellabs Wireless Group, USA	565
139	Design of Least-Square GCF Compensation Filter	Alfonso Fernandez-Vazquez Gordana Jovanovic Dolecek	National Institute of Astrophysics, Optics, and Electronics, Mexico San Diego State University, USA	569
140	DCGA Optimization of Lowpass FRM IIR Digital Filters Over CSD Multiplier Coefficient Space	Syed Bokhari Behrouz Nowrouzian	University of Alberta, Canada University of Alberta, Canada	573
141	A Computation Structure for 2-D DCT Watermarking	Shaofeng An	Concordia University, Canada	577

		Chunyan Wang	Concordia University, Canada	
142	A Novel Farrow Structure with Reduced Complexity	Matthew T. Hunter	DME Corporation, USA	581
		Wasfy B. Mikhael	University of Central Florida, USA	
143	Fast Mutual Coupling Compensation Algorithm for Large Adaptive Antenna Array	Viktor V. Zaharov	Polytechnic University of Puerto Rico, Puerto Rico	586
		Angel Lambertt Lobaina	Universidad Anáhuac Norte, México	
		Jaime L. Rodriguez	Polytechnic University of Puerto Rico, Puerto Rico	
		Ramon Albandoz Soto	Polytechnic University of Puerto Rico, Puerto Rico	
144	Conjugate Gradient Based Complex Block LMS Employing Time-Varying Optimally Derived Stepsizes	Ying Liu	University of Central Florida, USA	590
		Raghuram Ranganathan	University of Central Florida, USA	
		Matthew T. Hunter	DME Corporation, USA	
		Wasfy B. Mikhael	University of Central Florida, USA	
145	Low-Complexity Implementation of State-Space Structures in Linear DSP Synthesis	S. Vijay	Arizona State University, USA	594
146	Highly Directional and Selective Three Dimensional Adaptive IIR Filter	Santosh Singh	Siemens Information Systems Ltd, India	598
		Mehmet Celenk	Ohio University, USA	
147	A Robust Detection in the Presence of a Strong Unwanted Periodical Signal with Unknown Nonstationary Power	V. Golikov	Universidad Autónoma del Carmen, México	602
		O. Lebedeva	Universidad Autónoma del Carmen, México	
		F.J. Miguel Reyes	Universidad Autónoma del Carmen, México	
148	Power Aware Combination of Transposed-Form and Direct-Form FIR Polyphase Decimators for Sigma-Delta ADCs	Ahmed Shahein	University of Freiburg, Germany	607
		Markus Becker	University of Freiburg, Germany	
		Niklas Lotze	University of Freiburg, Germany	
		Yiannos Manoli	University of Freiburg, Germany	
149	Blind ISI Correction by Using CMA	Jorge Omar Pérez	Universidad Nacional de Tucumán, Argentina	611
		Hilda Noemí Ferrao	Universidad Nacional de Tucumán	
		Claudia F. Sayago	Universidad Nacional de Tucumán	
		Wenceslao Novotny	Universidad Nacional de Tucumán	
150	Digital Beam-forming Implementation for Downlink Smart Antenna System	Reza Abdolee	Concordia University, Canada	615
		Wei-Ping Zhu	Concordia University, Canada	
		Mohamad Sawan	Ecole Polytechnique de Montréal, Canada	

151	Overflow Analysis in the Fixed-Point Implementation of the First-Order Goertzel Algorithm for Complex-Valued Input Sequences	Modesto Medina-Melendrez Miguel Arias-Estrada Albertina Castro	Instituto Nacional en Astrofísica, Óptica y Electrónica, México Instituto Nacional en Astrofísica, Óptica y Electrónica, México Instituto Nacional en Astrofísica, Óptica y Electrónica, México	620
152	Residue-to-Decimal Converters for Moduli Sets with Common Factors	Kazeem Alagbe Gbolagade Sorin Dan Cotofana	Delft University of Technology, The Netherlands & University for Development Studies, Ghana Delft University of Technology, The Netherlands	624
153	Hybrid WHT-MRRNS Architectures for Fault Tolerant Adaptive Filters	C. Radhakrishnan W. K. Jenkins	The Pennsylvania State University, USA The Pennsylvania State University, USA	628
154	Realization of a Recursive 3-D Cone Filter for Video Processing Applications	Sam Schauland Jörg Velten Anton Kummert	University of Wuppertal, Germany University of Wuppertal, Germany University of Wuppertal, Germany	632
155	Comparison of Techniques for L2-Sensitivity Minimization Under L2-Scaling Constraints in State-Space Digital Filters	Takao Hinamoto Kensuke Kai Wu-Sheng Lu	Hiroshima University, Japan Hiroshima University, Japan University of Victoria, Canada	636
156	Complex Coefficient Adaptive IIR Notch Filter Tracking Characteristics	Aloys Mvuma Shotaro Nishimura Takao Hinamoto	University of Dodoma, Tanzania Shimane University, Japan Hiroshima University, Japan	640
157	A Wavelet-Based 128-bit Key Generator Using Electrocardiogram Signals	H. A. Garcia-Baleon V. Alarcon-Aquino O. Starostenko	Universidad de las Américas Puebla, México Universidad de las Américas Puebla, México Universidad de las Américas Puebla, México	644
158	Speech Enhancement Based on Adaptive Filter with Variable Step Size for Wideband and Periodic Noise	Naoto Sasaoka Koji Shimada Shota Sonobe Yoshio Itoh Kensaku Fujii	Tottori University, Japan Tottori University, Japan Tottori University, Japan Tottori University, Japan University of Hyogo, Japan	648
159	Low-Power Memory Addressing Scheme for Fast Fourier Transform Processors	Xin Xiao Erdal Oruklu	Illinois Institute of Technology, USA Illinois Institute of Technology, USA	653

		Jafar Saniie	Illinois Institute of Technology, USA	
160	Adaptive Noise Canceller using LMS algorithm with codified error in a DSP	J. Gerardo Avalos Daniel Espinobarro Jose Velazquez Juan C. Sanchez	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	657
161	An Adaptive Fast and Efficient Spatial Error Concealment Technique for Block-Based Video Coding Systems	Nourhan El Beheiry Mohamed El Sharkawy Mona Lotfy Said Elnoubi	Alexandria University, Egypt German University in Cairo, Egypt & Purdue School of Engineering and Technology, USA Alexandria University, Egypt Alexandria University, Egypt	663
162	Multiple-Sound-Source Localization Scheme Based on Feedback-Architecture Source Separation	Wen-Chih Wu Oscal T.-C. Chen	WuFeng Institute of Technology, Taiwan National Chung Cheng University, Taiwan	669
163	Design of Multiplierless Decimation Filters Based on Cyclotomic Polynomials	Massimiliano Laddomada Fabio Mesiti Marina Mondin	Texas A&M University Politecnico di Torino Politecnico di Torino	673

Embedded Systems and Electronics

#	TITLE	AUTHOR	INSTITUTION	PAGES
164	A Novel Design Technique for Soft Error Hardening of Nanoscale CMOS Memory	Sheng Lin Yong-Bin Kim Fabrizio Lombardi	Northeastern University, USA Northeastern University, USA Northeastern University, USA	679
165	Hardware/Software Co-design Approach for a DCT-Based Watermarking Algorithm	Y. Morita E. Ayeh O. B. Adamo P. Guturu	University of North Texas, USA University of North Texas, USA University of North Texas, USA University of North Texas, USA	683
166	Hardware Implementation of Matrix Inversion for Raptor Decoder on Embedded System	Todor Mladenov Saeid Nooshabadi	Gwangju Institute of Science and Technology, South Korea Gwangju Institute of Science and Technology, South Korea	687

		Kiseon Kim	Gwangju Institute of Science and Technology, South Korea	
167	Analogue-Digital Interface for Low-Cost Sensors in Low-Power Sensing Networks	Nicolas Medrano A. Bayo Belen Calvo Santiago Celma Maria Teresa Sanz	University of Zaragoza, Spain University of Zaragoza, Spain University of Zaragoza, Spain University of Zaragoza, Spain Instituto Nacional Astrofísica, Óptica y Electrónica, México	691
168	A Low-Power Multiplication Algorithm for Signal Processing Wireless Sensor Networks	Ahmed Abdelgawad Sherine Abdelhak Soumik Ghosh Magdy Bayoumi	University of Louisiana at Lafayette, USA University of Louisiana at Lafayette, USA University of Louisiana at Lafayette, USA University of Louisiana at Lafayette, USA	695
169	Yield Gain with Memory BISR – A Case Study	Maddumage Karunaratne Bejoy Oomann	University of Pittsburgh, USA Genesys Testware Inc., USA	699

Image Processing and Multimedia Systems

#	TITLE	AUTHOR	INSTITUTION	PAGES
170	Multiple-filtering process and its application in edge detection	Jing Li Chunyan Wang	Concordia University, Canada	703
171	Algorithm of super-resolution in images and video sequences applying wavelets based on atomic functions	F.Gomeztagle V.F. Kravchenko E. Escamilla V. Ponomaryov	National Polytechnic Institute, Mexico Institute of Radio Engineering and Electronics, Russia National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	707
172	Modification to Fast and Efficient Spatial Error Concealment Technique for Block-Based Video Coding Systems	Nourhan El Beheiry Mohamed El Sharkawy Mona Lotfy Said Elnoub	Alexandria University, Egypt Purdue School of Engineering and Technology, USA and, German Universityin Cairo, Egypt Alexandria University, Egypt Alexandria University, Egypt	712
173	Edge-Adaptive Error Diffusion Using Chaotic Threshold Modulation	Chung-Yen Su	National Taiwan Normal University, Taiwan	718

		You-Lin Sie	National Taiwan Normal University, Taiwan	
174	Low-Power implementation of a 4x4 two-dimensional Discrete Pascal Transform	Kundan Nepal	Bucknell University, USA	722
		Branden Izumi	Bucknell University, USA	
175	Analysis of QIM-Based Audio Watermarking using LDPC Codes	Raúl Martínez-Noriega Mariko Nakano Brian Kurkoski Kazuhiko Yamaguchi Kingo Kobayashi	University of Electro-Communications, Japan National Polytechnic Institute, Mexico University of Electro-Communications, Japan University of Electro-Communications, Japan National Institute of Information and Communications Technology, Japan	726
176	A Method for Edge Detection in Gray Level Images, based on Cellular Neural Networks	José Antonio Medina Hernández Felipe Gómez Castañeda José Antonio Moreno Cadenas	CINVESTAV-IPN, México & Aguascalientes Autonomous University, México CINVESTAV-IPN, México CINVESTAV-IPN, México	730
177	CBIR for Image-Based Language Learning within Mobile Environment	O. Starostenko R. Contreras Gómez. V. Alarcon-Aquino O. Sergiyenko	Universidad de las Américas, Puebla, México Universidad de las Américas, Puebla, México Universidad de las Américas, Puebla, México Baja California Autonomous University, México	734
178	3D Color Video Conversion from 2D Video Sequence Using Stereo Matching Technique	Eduardo Ramos-Diaz Miguel Cruz-Irisson Luis Nino-de-Rivera Volodymyr Ponomaryov	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	739
179	A Theoretical Exposition to Apply LAMDA Methodology to Vector Quantization	Enrique Guzmán Juan G. Zambrano Antonio Orantes Oleksiy Pogrebnyak	Universidad Tecnológica de la Mixteca, México Universidad Tecnológica de la Mixteca, México Universidad Tecnológica de la Mixteca, México National Polytechnic Institute, Mexico	743
180	A Low Area Pipelined 2-D DCT Architecture for JPEG Encoder	Qihui Zhang	Henan University, China	747

#	TITLE	AUTHOR	INSTITUTION	PAGES
181	Fingerprint Verification applying Invariant Moments	Nan Meng J. Leon G. Sanchez G. Aguilar L. Toscano H. Perez J. M. Ramirez	Beijing University of Posts and Telecommunications, China National Polytechnic Institute, Mexico National Institute for Astrophysics, Optics, and Electronics, México	751
182	Energy adjustment RGB Images in Steganography Applications	Blanca E. Carvajal-Gámez Francisco J. Gallegos-Funes José L. López-Bonilla	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	758
183	Convolution Method for CCD Images Processing for DSO Astrophotography	R. Suszynski	Koszalin University of Technology, Poland	762
184	New Optimized Approach for Written Character Recognition Using Symlest Wavalet	R. Munguía K. Toscano G. Sánchez M. Nakano	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	766
185	Automatic Ringing Artifact Detection in Restoring Blurred Face Images	Wen-Chung Kao Chih-Hsiang Chiu Yueh-Yiing Yang	National Taiwan Normal University, Taiwan National Taiwan Normal University, Taiwan National Taiwan Normal University, Taiwan	770
186	Low Power Implementation of DCT for On-Board Satellite Image Processing Systems	S. Vijay D. Anchit	Arizona State University, USA Arizona State University, USA	774

Linear and Nonlinear Circuits and Systems, Theory and Applications

#	TITLE	AUTHOR	INSTITUTION	PAGES
187	Sinusoidal Oscillators and Multivibrators Are Not Separate Classes of Circuits	I.M. Filanovsky	University of Alberta, Canada	778

		C.J.M. Verhoeven	Electronics Research Laboratory, TU Delft, The Netherlands	
188	Systematic derivation of reference circuits for wave digital modeling of passive linear partial differential equations	Christiane Leuer Karlheinz Ochs	Ruhr-University Bochum, Germany Ruhr-University Bochum, Germany	782
189	Initialization of linear multistep methods in multidimensional wave digital models	Georg Hetmanczyk Karlheinz Ochs	Ruhr-University, Germany Ruhr-University, Germany	786
190	The Transient Response of a Duffing Resonator following a Parameter Change	Chenchen Deng Steve Collins	University of Oxford, United Kingdom University of Oxford, United Kingdom	790
191	Two-Dimensional Laplace, Hankel, and Mellin Transforms of Linear Time-Varying Systems	Shervin Erfani Nima Bayan	University of Windsor, Canada Esys Corporation, USA	794
192	Hybrid Equivalent Circuit, an Alternative to Thevenin and Norton Equivalents, Its Properties and Applications	Reza Hashemian	Northern Illinois University, USA	800
193	A CMOS Negative Supply for Large Dynamic Range High-Bandwidth Analog Circuits	Xiong Liu Alan N. Willson, Jr.	University of California, USA University of California, USA	804
194	An NMOS Low Dropout Voltage Regulator with Switched Floating Capacitor Gate Overdrive	Daniel Camacho Ping Gui Paulo Moreira	Southern Methodist University, USA Southern Methodist University, USA CERN, Switzerland	808
195	Analog Current-Mode Implementation of a Logistic-Map Based Chaos Generator	Juan López-Hernández Alejandro Díaz-Méndez Rubén Vázquez-Medina Ruben Alejos-Palomares	Instituto Politécnico Nacional, México Instituto Nacional de Astrofísica Óptica y Electrónica, México & Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Universidad de las Americas, Puebla, México	812
196	A Power-Efficient, High Data Rate Chaos-based Transceiver Design	D. Majumdar H. Leung B. J. Maundy	University of Calgary, Canada University of Calgary, Canada University of Calgary, Canada	815
197	On the Mode Analysis of Coupled Oscillators	Ahmad Mirzaei Mohammad E. Heidari	Broadcom Corporation, USA Wilinx Corporation, USA	819

MEMS/NEMS

#	TITLE	AUTHOR	INSTITUTION	PAGES
198	Design and Simulation of a RF MEMS Shunt Switch for Ka and V Bands and the Impact of Varying Its Geometrical Parameters	Y. Mafinejad A.Z. Kouzani K. Mafinezhad D. Azadi	Deakin University, Australia Deakin University, Australia Ferdowsi University, Iran Deakin University, Australia	823
199	Design and Fabrication of a Novel Microgripper Based on Electrostatic Actuation	J. Varona E. Saenz S. Fiscal-Woodhouse A. A. Hamoui	Universidad Panamericana-Bonaterra, México, Snowbush IP, México & McGill University, Canada Universidad Panamericana-Bonaterra, México & Snowbush IP, México Snowbush IP, México McGill University, Canada	827

Multimedia Security and Content Protection

#	TITLE	AUTHOR	INSTITUTION	PAGES
200	Improvement in Spread Spectrum Watermarking through Convolutional Codes	Mazay Jiménez-Salinas Francisco García-Ugalde	Universidad Nacional Autónoma de México, México Universidad Nacional Autónoma de México, México	833
201	Watermarking Based Document Authentication in Script Format	M. Gonzalez-Lee C. Santiago-Avila M. Nakano-Miyatake H. Perez-Meana	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	837
202	Adaptive JPEG Steganography Using Convolutional Codes and Synchronization Bits in DCT Domain	Carlos Velasco Mariko Nakano Hector Perez Raul Martinez	National Polytechnic Institute, México National Polytechnic Institute, México National Polytechnic Institute, México The University of Electro-Communications, Japan	842

		Kazuhiko Yamaguchi	The University of Electro-Communications, Japan	
203	Network Forensics with Neurofuzzy Techniques	Eleazar Aguirre Anaya Mariko Nakano-Miyatake Héctor Manuel Pérez Meana	Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México	848
204	VideoWatermarking Scheme resistant to MPEG Compression	Pedro A. Hernandez-Avalos Claudia Feregrino-Uribe Rene Cumplido Jose Juan Garcia-Hernandez	National Institute for Astrophysics, Optics and Electronics, México National Institute for Astrophysics, Optics and Electronics, México National Institute for Astrophysics, Optics and Electronics, México National Institute for Astrophysics, Optics and Electronics, México	853

Nanoelectronics

#	TITLE	AUTHOR	INSTITUTION	PAGES
205	Nanoelectronic properties of Si and Ge: A semi-empirical approximation	A. Miranda F. A. Serrano R. Vázquez-Medina M. Cruz-Irisson	Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México	859
206	Optical vibrational states of diamond nanocrystals	F. A. Serrano L. Niño de Rivera V. Ponomaryov M. Cruz-Irisson	Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México	864

Neural Networks and Fuzzy Systems

#	TITLE	AUTHOR	INSTITUTION	PAGES
207	Fuzzy Technique for Image Enhancement Using B-spline	A. Anzueto-Rios	CINVESTAV-IPN, México	869

	J. A. Moreno-Cadenas F. Gómez-Castañeda	CINVESTAV-IPN, México CINVESTAV-IPN, México	
208	Multistable Cellular Neural Networks and Their Application to Image Decomposition	José Antonio Medina Hernández Felipe Gómez Castañeda José Antonio Moreno Cadenas	CINVESTAV-IPN and Aguascalientes Autonomous University, México CINVESTAV-IPN, México CINVESTAV-IPN, México
209	An Interconnection Architecture for Integrated and Fire Neuromorphic Multi-Chip Networks	Fausto Sargeni Vincenzo Bonaiuto	University of Rome "Tor Vergata", Italy University of Rome "Tor Vergata", Italy
210	Programmable Non-Linearity for Neural Networks Applications	Fausto Sargeni Vincenzo Bonaiuto	University of Rome "Tor Vergata", Italy University of Rome "Tor Vergata", Italy
211	Learning and Recognition of Similar Temporal Sequences	Robert H. Fujii Taiichiro Hayashi	University of Aizu, Japan University of Aizu, Japan
212	An adaptive impedance matching approach based on fuzzy control	E. Arroyo-Huerta A. Díaz-Méndez J.M. Ramírez-Cortés J.C. Sánchez García	Instituto Nacional de Astrofísica Óptica y Electrónica, México Instituto Nacional de Astrofísica Óptica y Electrónica, México & Instituto Politécnico Nacional, México Instituto Nacional de Astrofísica Óptica y Electrónica, México Instituto Politécnico Nacional, México
213	Neural Fuzzy Digital Filtering: Properties	J. C. García Infante J. C. Sánchez García J. J. Medel Juárez	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico
214	An Approximation Method for Modeling a CMOS Bit-Level Product Cell	Yesenia E. González-Navarro Felipe Gómez-Castañeda José A. Moreno-Cadenas	CINVESTAV-IPN, México CINVESTAV-IPN, México CINVESTAV-IPN, México
215	AI Identification of New Hydro-Climate Models	J. Szczupak D. Sica D. Silva L. Pinto	ENGENHO, Brazil ENGENHO, Brazil ENGENHO, Brazil ENGENHO, Brazil

L. Macêdo	ENGENHO, Brazil
F. Savi	ENGENHO, Brazil

Optics and Photonics

#	TITLE	AUTHOR	INSTITUTION	PAGES
216	Femtosecond Laser Blackening of Metals	Anatoliy Y. Vorobyev Chunlei Guo	University of Rochester, USA University of Rochester, USA	905
217	Optical Properties of Femtosecond Laser-Induced Periodic Surface Structures on Metals	Anatoliy Y. Vorobyev Vladimir S. Makin Chunlei Guo	University of Rochester, USA The Research Institute for complex Testing of Optoelectronics Devices, Russia University of Rochester, USA	909
218	Chip-Scale Nanophotonic Chemical and Biological Sensors using CMOS Process	Lincoln Bollschweiler Alex English R. Jacob Baker Wan Kuang Zi-Chang Chang Ming-Hsiung Shih William B. Knowlton William L- Hughes Jeunghoon Lee Bernard Yurke Nankyoung Suh Cockerham Vance C. Tyree	Boise State University, USA Boise State University, USA Boise State University, USA Boise State University, USA National Chiao-Tung University, Taiwan National Chiao-Tung University, Taiwan Boise State University, USA Boise State University, USA Boise State University, USA University of Southern California, USA University of Southern California, USA	913
219	Fault tolerance of a dynamic optically reconfigurable gate array with a one-time writable volume holographic memory	Takayuk Mabuchi Kenji Miyashiro Minoru Watanabe Akifumi Ogiwara	Shizuoka University, Japan Takamatsu National College of Technology, Japan Shizuoka University, Japan Kobe City College of Technology, Japan	917

Power Electronics

#	TITLE	AUTHOR	INSTITUTION	PAGES
220	Modelling and Simulation of Power Electronic Converters Using the Component Connection Model	K. Mino J. Rico E. Barrera	Universidad Michoacana de San Nicolás de Hidalgo, México Universidad Michoacana de San Nicolás de Hidalgo, México Universidad Michoacana de San Nicolás de Hidalgo, México	921
221	A Supply and Process-Insensitive 12-Bit DPWM for Digital DC-DC Converters	Huey Chian Foong Meng Tong Tan Yuanjin Zheng	Nanyang Technological University, Singapore Nanyang Technological University, Singapore Institute of Microelectronics, Singapore	929
222	Low-Ripple Skipping-based Regulation System for a Two-Phase Voltage Doubler Charge Pump	Albert Saiz-Vela Pere Miribel-Català Jordi Colomer Josep Samitier	University of Barcelona, Spain University of Barcelona, Spain University of Barcelona, Spain University of Barcelona, Spain	933
223	A Class of Optimal Multilevel Inverters Based on Sectionalized PWM (S-PWM) Modulation Strategy	Hirak Patangia Dennis Gregory	University of Arkansas, USA University of Arkansas, USA	937
224	Current-mode DC-DC Buck Converter with Reliable Hysteretic-Mode Control and Dual Modulator for Fast Dynamic Voltage Scaling	Jungmoon Kim Hyunho Chu Chulwoo Kim	Korea University, Korea Korea University, Korea Korea University, Korea	941
225	Embedded Hybrid DC-DC Converter with Improved Power Efficiency	Kaushik Bhattacharyya P. V. Ratna Kumar Pradip Mandal	Indian Institute of Technology-Kharagpur, India Indian Institute of Technology-Kharagpur, India Indian Institute of Technology-Kharagpur, India	945
226	Self-Biased Indicator Lamp Driver Circuits for High Reliability Applications	Benjamin Amey	Texas Instruments Inc., USA	949
227	A Capacitor-Free LDO Using a FD Si-MESFET Pass Transistor	W. Lepkowski S. J. Wilk S. Kim B. Bakkaloglu T.J. Thornton	Arizona State University, USA & SJT Micropower INC., USA Arizona State University, USA & SJT Micropower INC., USA Arizona State University, USA Arizona State University, USA Arizona State University, USA & SJT Micropower INC., USA	953

228	Operation-Based Signal-Flow AC Analysis of Switching DC-DC Converters in CCM and DCM	Dongwon Kwon Gabriel A. Rincón-Mora	Georgia Institute of Technology, USA Georgia Institute of Technology, USA	957
229	A DLL-Regulated SIMO Power Converter for DVS-Enabled Power-Aware VLSI Systems	Rajdeep Bondade Dongsheng Ma	The University of Arizona, USA The University of Arizona, USA	961

Reconfigurable Computing

#	TITLE	AUTHOR	INSTITUTION	PAGES
230	Testing Faults in SRAM Memory of Virtex-4 FPGA	Mohammed Niamat Manoj Lalla Junghwan Kim	University of Toledo, USA University of Toledo, USA University of Toledo, USA	965
231	A multi-context programmable optically reconfigurable gate array without a beam splitter	Shinya Kubota Minoru Watanabe	Shizuoka University, Japan Shizuoka University, Japan	971

RF, Microwave Circuits

#	TITLE	AUTHOR	INSTITUTION	PAGES
232	Design Optimization and Modeling of on-Chip RF Inductors in 0.13µm and 90nm Standard CMOS	Fan Zhang Zhihua Wang Xin Wang He Tang Qiang Fang Albert Wang Gary Zhang Xingang wang Wei Chen Lee Yang Bin Zhao	Tsinghua University, China Tsinghua University, China University of California, USA University of California, USA University of California, USA University of California, USA Skyworks Solutions Inc., USA Skyworks Solutions Inc., USA Semiconductor Manufacturing International Corporation, China Semiconductor Manufacturing International Corporation, China Freescale Semiconductor, USA	975
233	Analysis of a 3-5 GHz UWB CMOS Low-Noise Amplifier for Wireless Applications	Babak Ansari Hosein Shamsi Ali Shahhoseini	Islamic Azad University, Iran K. N. Toosi University of Technology, Iran Islamic Azad University, Iran	979

	A 0-90° Low-Loss Miniaturized Reflective-Type CMOS Phase Shifter Using Active Inductors	Kamran Entesari Ahmad Reza Tavakoli	Texas A&M University, USA Texas A&M University, USA	983
234	A Model of Multi-Walled Carbon Nanotube Interconnects	Yau Xu Ashok Srivastava Ashwani K. Sharma	Louisiana State University, USA Louisiana State University, USA Electronics Foundations Group, AFRL/VSSE, USA	987
235	On I/Q-Mismatch in Active Interference Cancellation Schemes	Tobias D. Werth Ralf Wunderlich Stefan Heinen	RWTH Aachen University, Germany RWTH Aachen University, Germany RWTH Aachen University, Germany	991
236	A 3-GHz Fully-Integrated CMOS Class-AB Power Amplifier	Yuen Sum Ng Lincoln Lai Kan Leung Ka Nang Leung	The Chinese University of Hong Kong, Hong Kong The Chinese University of Hong Kong, Hong Kong The Chinese University of Hong Kong, Hong Kong	995
237	A CMOS Receiver with Single RF Channel for SMILE Applications	C. E. Capovilla A. Tavora L. C. Kretly	University of Campinas, Brazil University of Campinas, Brazil University of Campinas, Brazil	999
238	CMOS Colpitts LC Reference Oscillator with 70ppm Absolute Frequency Accuracy within 0 – 80 °C	Erdogan Ozgur Ates Devrim Yilmaz Aksim Pinar Basak Basyurt	Mikroelektronik RD Design Center, Turkey Istanbul Technical University, Turkey Istanbul Technical University, Turkey	1002
239	CMOS Distributed Paraphase Amplifier Employing Derivative Superposition Linearization for Wireless Communications	Ziad El-Khatib Leonard MacEachern Samy A. Mahmoud	Carleton University, Canada Carleton University, Canada Carleton University, Canada	1006
240	Design Optimization of Voltage Controlled Oscillators in Consideration of Parasitic Capacitance	Rui Murakami Shoichi Hara Kenichi Okada Akira Matsuzawa	Tokyo Institute of Technology, Japan Tokyo Institute of Technology, Japan Tokyo Institute of Technology, Japan Tokyo Institute of Technology, Japan	1010
241	A Wide-Band QPSK Modulator Using Branch-line coupler and MESFET Switches	Muhammad Kashan Mobeen	SUPARCO, Pakistan	1014

		Farhan Abdul Ghaffar	SUPARCO, Pakistan	
		Sharjeel Qamar	SUPARCO, Pakistan	
		Muhammad Hasan	SUPARCO, Pakistan	
243	A 3-5GHz Frequency Tunable Ultra Wideband LNA for OFDM Applications	Fei Gong	The Ohio State University, USA	1018
		Kin Fung Lam	The Ohio State University, USA	
		Mohammed Ismail	The Ohio State University, USA	
		Seok-Bae Park	The Ohio State University, USA	
		Joanne De Groat	The Ohio State University, USA	
244	A CMOS Passive Mixer for Direct-Conversion Receivers	Sherif A. Mohamed	University of Freiburg, Germany	1022
		Yiannos Manoli	University of Freiburg, Germany	
		Maurits Ortmanns	University of Ulm, Germany	
245	A Differential Common-Gate Class-E Power Amplifier with Positive-Negative Feedback	Sherif A. Mohamed	University of Freiburg, Germany	1026
		Yiannos Manoli	University of Freiburg, Germany	
		Maurits Ortmanns	University of Ulm, Germany	
246	Analysis of the Electrical Performance of Multi-Coupled High-Speed Interconnects for SoP	Víctor H. Vega-González	INAOE, México	1030
		Reydezel Torres-Torres	INAOE, México	
		Adan S. Sánchez	Intel Mexico Research Center, México	
247	27.1GHz CMOS Distributed Voltage Controlled Oscillators With Body Bias for Frequency Tuning of 1.28GHz	Kalyan Bhattacharyya	Indian Institute of Technology, India	1034
		J. Mukherjee	Indian Institute of Technology, India	
		M. Shojaei Baghini	Indian Institute of Technology, India	
248	A 1-V 14.6-dB gain LNA for WiMAX 2~6 GHz Applications	Chia-Wei Chang	National Changhua University of Education, Taiwan	1039
		Zhi-Ming Lin	National Changhua University of Education, Taiwan	
249	A 1-V 11.6-dBm IIP3 Up-Conversion Mixer for UWB Wireless System	Wen-Shan Hxiao	National Changhua University of Education, Taiwan	1042
		Zhi-Ming Lin	National Changhua University of Education, Taiwan	
250	A 1V Low Power 2~11 GHz Direct-Conversion Mixer for WiMAX System	Yan-Cheng Pan	National Changhua University of Education, Taiwan	1047
		Zhi-Ming Lin	National Changhua University of Education, Taiwan	
251	A 1.6 GHz Switch Mode Power Amplifier with Continuous-Time Bandpass Delta-Sigma Modulator	Manfred Berroth	University of Stuttgart, Germany	1051
		Martin Schmidt	University of Stuttgart, Germany	

		Stefan Heck	University of Stuttgart, Germany	
		Alexander Braeckle	University of Stuttgart, Germany	
		Markus Groezing	University of Stuttgart, Germany	
252	A Wide Frequency Range CMOS Active Inductor for UWB Bandpass Filters	Md. Mahbub Reja	University of Alberta, Canada	1055
		Kambiz Moez	University of Alberta, Canada	
		Igor Filanovsky	University of Alberta, Canada	
253	Multi-Standard Carrier Generator with CMOS Logic Divider	Seonghan Ryu	Hannam University, Souht Korea	1059
254	A 10-GHz 0.88-mW Low-Phase-Noise CMOS VCO	Jin-Rong Syu	National Changhua University of Education, Taiwan	1063
		Zhi-Ming Lin	National Changhua University of Education, Taiwan	

Real Time Systems Modeling and Applications

#	TITLE	AUTHOR	INSTITUTION	PAGES
255	A Metric for the Evaluation of the Efficiency in Scheduler of Concurrent Real-Time Tasks	Pedro Guevara López José Carlos Quezada Quezada Asdrúbal López Chau	Instituto Politécnico Nacional, México Universidad Autónoma del Estado de Hidalgo, México Instituto Politécnico Nacional - CICATA, México	1067
256	An Electric Energy Distribution Systems Protection Microprocessor Based Relay	Israel Olguín Carbajal Enrique Cisneros Sedano Blanca Alicia Rico Jiménez	Sistemas Eléctricos de Potencia Computarizada S.A. de C.V., México Sistemas Eléctricos de Potencia Computarizada S.A. de C.V., México Instituto Politécnico Nacional, México	1070
257	Series Wound DC Motor Modeling and Simulation, Considering Magnetic, Mechanical and Electric Power Losses	J. S. Valdez Martínez P. Guevara López J. J. Medel Juárez	Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México	1073
258	Measuring the efficiency of Schedulers for Concurrent Real-time Tasks in Uniprocessor Systems	Pedro Guevara López Raúl J. Sandoval Gómez Fernando Vázquez Torres	Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México Instituto Politécnico Nacional, México	1078

259	Modeling and Reconstruction of the statistical data from a System Electronic Application for Administrative Management in IPN through the filter of Kalman	P. Guevara López J.J. Medel M. T. Zagaceta A. T. Ramirez Romero	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	1081
260	Description of Adaptive Fuzzy Filtering Using The DSP TMS320C6713	Vázquez Burgos L. S García Infante J. C. Sánchez García J. C.	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	1086
261	Implementation and Analysis of the NLMS Algorithm on TMS320C6713 DSP	C. A. Duran Villalobos J. A. Tavares Reyes J. C. Sanchez Garcia	National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico National Polytechnic Institute, Mexico	1091
262	An Alaryngeal Speech Enhancement Method Based on ADPCM Approach	Agustin Razo-Chavez Mariko Nakano-Miyatake Hector Perez-Meana	National Polytechnic Institute, México National Polytechnic Institute, México National Polytechnic Institute, México	1097

SoC and VLSI

#	TITLE	AUTHOR	INSTITUTION	PAGES
263	Level shifting techniques for Mixed-Signal SoCs in low-voltage nanometer CMOS technologies	Ayman Fayed	Iowa State University, USA	1102
264	Assessment of CNTFET Based Circuit Performance and Robustness to PVT Variations	Geunho Cho Yong-Bin Kim Fabrizio Lombardi	Northeastern University, USA Northeastern University, USA Northeastern University, USA	1106
265	High-performance and Low-bandwidth Architecture of H.264 Motion Estimation Circuit for 1080HD Video	Soojin Kim Hoyoung Chang	Hankuk University of Foreign Studies, Republic of Korea Hankuk University of Foreign Studies, Republic of Korea	1110

		Seonyoung Lee	Hankuk University of Foreign Studies, Republic of Korea	
		Kyeongsoon Cho	Hankuk University of Foreign Studies, Republic of Korea	
266	PERFORMANCE ANALYSIS OF FUTURE SYSTEM-ON-FPGA TOPOLOGY CANDIDATES	Nasser Alaraje	Michigan Technological University, USA	1114
		J. E. DeGroat	Ohio State University, USA	
267	Implementing Tree-Based Multicast Routing for Write Invalidation Messages in Networks-on-Chip	Young Hoon Kang	University of Southern California, USA	1118
		Jeff Sondeen	University of Southern California, USA	
		Jeff Draper	University of Southern California, USA	
268	Interconnect Technique for Sub-Threshold Circuits using Negative Capacitance Effect	Md. Sajjad Rahaman	University of Illinois at Chicago, USA	1122
		Masud H Chowdhury	University of Illinois at Chicago, USA	
269	An Efficient Methodology for Power Modeling and Simulation of Modern Cell-Based Microprocessors	Ge Zhang	Institute of Computing Technology, China	1126
		Weiwu Hu	Institute of Computing Technology, China	
270	A Novel Design Methodology to Optimize The Speed and Power of the CNTFET Circuits	Young Bok Kim	Northeastern University, USA	1130
		Yong-Bin Kim	Northeastern University, USA	
		Fabrizio Lombardi	Northeastern University, USA	
271	Novel Reversible Division Hardware	Noor Muhammed Nayeem	University of Dhaka, Bangladesh	1134
		Md. Adnan Hossain	University of Dhaka, Bangladesh	
		Md. Mutasimul Haque	University of Dhaka, Bangladesh	
		Lafifa Jamal	University of Dhaka, Bangladesh	
		Hafiz M. Hasan Babu	University of Dhaka, Bangladesh	
272	Electronic Design and Modeling of an Integrated Plasma Impedance Probe	Magathi Jayaram	Utah State University, USA	1139
		Mohamad El Hamoui	Utah State University, USA	
		Chris Winstead	Utah State University, USA	
		Edmund Spencer	Utah State University, USA	
273	A New SoC Video Ghost Canceller	Jiaoying Huang	Hunan University, China	1143
		Yigang He	Hunan University, China	
		Yichuang Sun	University of Hertfordshire, United Kingdom	
		Wenshan Zhao	University of Hertfordshire, United Kingdom & Hunan University, China	

		Xi Zhu	University of Hertfordshire, United Kingdom	
274	Design Automation Scheme for Wirelength Analysis of Resonant Clocking Technologies	Vinayak Honkote Baris Taskin	Drexel University, USA Drexel University, USA	1147
275	Piecewise Linear Delay Modeling of CMOS VLSI Circuits	Jian Chang Louis G. Johnson Cheng Liu	Texas Instruments, Inc., USA Oklahoma State University, USA Oklahoma State University, USA	1151
276	A Low-Jitter Digital-to-Frequency Converter Based Frequency Multiplier with Large N	Wickham Chen Ping Gui Liming Xiu	Southern Methodist University, USA Southern Methodist University, USA Texas Instruments, Inc., USA	1155
277	Hybrid Memory Architecture for Regular Expression Matching	Cheng-Hung Lin	National Taiwan Normal University, Taiwan	1159
278	High-Frequency Interconnect Modeling for Global Signal Networks	O. Gonzalez-Diaz M. Linares-Aranda R. Torres-Torres	Instituto Nacional de Astrofísica, Optica y Electrónica, México Instituto Nacional de Astrofísica, Optica y Electrónica, México Instituto Nacional de Astrofísica, Optica y Electrónica, México	1163
279	The Implementation and Design Methodology of a Quad-Core Version Godson-3 Microprocessor	Baoxia Fan Liang Yang Zhuo Gao Feng Zhang Ru Wang	Institute of Computing Technology, China & Graduate University of Chinese Academy of Sciences, China Institute of Computing Technology, China & Graduate University of Chinese Academy of Sciences, China Institute of Computing Technology, China & Graduate University of Chinese Academy of Sciences, China Institute of Computing Technology, China Institute of Computing Technology, China & Graduate University of Chinese Academy of Sciences, China	1167
280	On Chip LC Resonator Circuit Using an Active Inductor for Adiabatic Logic	Yasuhiro Takahashi Nazrul Anuar Shun-ya Nagano Toshikazu Sekine Michio Yokoyama	Gifu University, Japan Gifu University, Japan Gifu University, Japan Gifu University, Japan Yamagata University, Japan	1171
281	Compact Model for Carbon Nanotubes Interconnects using Fourier Series Analysis	Suraj Subash	University of Illinois, USA	1175

		Md Sajjad Rahaman	University of Illinois, USA	
		Masud H. Chowdhury	University of Illinois, USA	
282	Design and Implementation of a Low-power Cryptosystem SoC	Jin-Hua Hong	National University of Kaohsiung, Taiwan	1179
		Tun-Kai Yao	National University of Kaohsiung, Taiwan	
		Liang-Jia Lue	National University of Kaohsiung, Taiwan	
283	Robust and High Performance Subthreshold Standard Cell Design	S. Amarchinta	Rochester Institute of Technology, USA	1183
		H. Kanitkar	Rochester Institute of Technology, USA	
		D. Kuditipudi	Rochester Institute of Technology, USA	
284	Optimal Stall Insertion with Timing Skew Adjustment for Tunable LSIs	Keisuke Inoue	Japan Advanced Institute of Science and Technology, Japan	1187
		Takayuki Obata	Japan Advanced Institute of Science and Technology, Japan	
		Yayumi Uehara	Japan Advanced Institute of Science and Technology, Japan	
		Mineo Kaneko	Japan Advanced Institute of Science and Technology, Japan	
285	Ultra Low Leakage 90nm Content Addressable Memory Design for Wireless Sensor Network Applications	Swaran R. Singh	University of Alberta, Canada	1191
		Kambiz Moez	University of Alberta, Canada	

Verification

#	TITLE	AUTHOR	INSTITUTION	PAGES
286	Impulse Signal Generation and Measurement Technique for Cost-Effective Built-In Self Test in Analog Mixed-Signal Systems	Wimol San-Um	Kochi University of Technology, Japan	1195
		Tachibana Masayoshi	Kochi University of Technology, Japan	
287	Guiding Property Development with SAT-based Coverage Calculation	Roberto Hoffmann	Martin-Luther-University Halle-Wittenberg, Germany	1199
		Paul Molitor	Martin-Luther-University Halle-Wittenberg, Germany	

288	Logic Fault Test Simulation Environment for IP Core-Based Digital Systems	Mansour H. Assaf Leslie-Ann Moore Sunil R. Das Emil M. Petriu Satyendra N. Biswas Altaf Hossain	The University of Trinidad and Tobago, Trinidad y Tobago The University of Trinidad and Tobago, Trinidad y Tobago University of Ottawa, Canada & Try University, USA University of Ottawa, Canada Georgia Southern University, USA University of Ottawa, Canada	1203
289	Optimal Trace Compaction with Property Preservation	Yibin Chen Sean Safarpour Andreas Veneris	University of Toronto, Canada University of Toronto, Canada University of Toronto, Canada	1207
290	A Methodology to Compute the Statistical Fault Coverage of Small Delays due to Opens	José L. García-Gervacio Víctor Champac	National Institute for Astrophysics, Optics and Electronics, México National Institute for Astrophysics, Optics and Electronics, México	1211