

2022 IEEE 23rd Latin American Test Symposium (LATS 2022)

**Montevideo, Uruguay
5 – 8 September 2022**



**IEEE Catalog Number: CFP22LAT-POD
ISBN: 978-1-6654-5708-8**

**Copyright © 2022 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP22LAT-POD
ISBN (Print-On-Demand):	978-1-6654-5708-8
ISBN (Online):	978-1-6654-5707-1
ISSN:	2373-0862

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

TABLE OF CONTENTS

Evaluating Soft Error Reliability of Combinational Circuits Using a Monte Carlo Based Method	1
<i>Clayton R. Farias, Rafael B. Schvitz, Tiago R. Balen, Paulo F. Butzen</i>	
On the SCA Resistance of Crypto IP Cores	7
<i>Zoya Dyka, Ievgen Kabin, Marcin Brzozowski, Goran Panic, Cristiano Calligaro, Milos Krstic, Peter Langendoerfer</i>	
Laser Fault Injection Attacks Against Radiation Tolerant TMR Registers	9
<i>Dmytro Petryk, Zoya Dyka, Ievgen Kabin, Anselm Breitenreiter, Jan Schöffner, Milos Krstic</i>	
The Challenges of Coupling Digital-Twins with Multiple Classes of Faults	11
<i>Francesco Tosoni, Nicola Dall'Ora, Enrico Fraccaroli, Franco Fummi</i>	
Security and Quantum Computing: An Overview	17
<i>Prasanna Ravi, Anupam Chattopadhyay, Shivam Bhasin</i>	
SMART-IC: Smart Monitoring and Production Optimization for Zero-Waste Semiconductor Manufacturing	23
<i>Khaled Sidahmed Sidahmed Alamin, Yukai Chen, Sebastiano Gaiardelli, Stefano Spellini, Andrea Calimera, Alessandro Beghi, Antonio Susto, Franco Fummi, Enrico Macii, Sara Vinco</i>	
Risk Assessment and Prediction in Human-Robot Interaction Through Assertion Mining and Pose Estimation	29
<i>Michele Boldo, Nicola Bombieri, Mirco De Marchi, Luca Geretti, Samuele Germiniani, Graziano Pravadelli</i>	
A Temperature Independent Readout Circuit for ISFET-Based Sensor Applications	34
<i>Elmira Moussavi, Dominik Sisejkovic, Animesh Singh, Daniyar Kizatov, Rainer Leupers, Sven Ingebrandt, Vivek Pachauri, Farhad Merchant</i>	
A Revised Isolation Forest Procedure for Anomaly Detection with High Number of Data Points	38
<i>Elisa Marcelli, Tommaso Barbariol, Vincenzo Savarino, Alessandro Beghi, Gian Antonio Susto</i>	
Evaluating Fault Coverage of Structural and Specification-Based Tests Obtained with a Low-Cost Analog TPG Tool	43
<i>Lucas B. Zilch, Allan G. Ferreira, Marcelo S. Lubaszewski, Tiago R. Balen</i>	
Assertion-Aware Approximate Computing Design Exploration on Behavioral Models	49
<i>Alberto Bosio, Moreno Bragaglio, Samuele Germiniani, Samuele Mori, Graziano Pravadelli, Marcello Traiola</i>	
Spin Orbit Torque-Based Crossbar Array for Error Resilient Binary Convolutional Neural Network	55
<i>Kamal Danouchi, Guillaume Prenat, Lorena Anghel</i>	
Exploring an On-Chip Sensor to Detect Unique Faults in RRAMs	61
<i>T. S. Copetti, M. Nilovic, M. Fieback, T. Gemmeke, S. Hamdioui, L. M. Bolzani Poehls</i>	
Prediction of the Impact of Approximate Computing on Spiking Neural Networks Via Interval Arithmetic	67
<i>Sepide Saeedi, Alessio Carpegna, Alessandro Savino, Stefano Di Carlo</i>	

Impact of Soft Errors on High Performance Autoencoders for Cyberattack Detection.....	73
<i>F. Finelli, M. Omaña, C. Metra</i>	
A Novel Pattern Selection Algorithm to Reduce the Test Cost of Large Automotive Systems-on-Chip	79
<i>G. Iaria, F. Angione, P. Bernardi, M. Sonza Reorda, D. Appello, G. Garozzo, V. Tancorre</i>	
A Brief Review of Logarithmic Multiplier Designs	85
<i>Tingting Zhang, Zijing Niu, Jie Han</i>	
Failure Probability Due to Radiation-Induced Effects in FinFET SRAM Cells Under Process Variations	89
<i>Victor Champac, Hector Villacorta, R. Gomez-Fuentes, Fabian Vargas, Jaume Segura</i>	
On BTI Aging Rejuvenation in Memory Address Decoders.....	95
<i>Cemil Cem Gürsoy, Daniel Kraak, Foisal Ahmed, Mottaqiallah Taouil, Maksim Jenihhin, Said Hamdioui</i>	
Hybrid De-Embedding for 116 Gbps Test Channels.....	101
<i>Zahreïn Bin Yaacob, Chooi Yee Kong</i>	
Reliability Assessment Methodologies for ANN-Based Systems	105
<i>Annachiara Ruospo</i>	
Fast and Exact is Doable: Polynomial Algorithms in Test and Verification	109
<i>Rolf Drechsler</i>	

Author Index