

# 40TH DESIGN AUTOMATION POST-CONFERENCE

convened June 2-6, 2003



40th proceedings

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## Best Paper in the Front-End Design Category

### Session 10.5: ["The Synthesis of Cyclic Combinational Circuits"](#)

Marc D. Riedel, Jehoshua Bruck - *Caltech, Pasadena, CA*  
An Innovative Approach in Logic Synthesis

## Two Best Papers in the Back-End Design Category

### Session 8.1: ["Random Walks in a Supply Network"](#)

Haifeng Qian, Sani R. Nassif - *Univ. of Minnesota, Minneapolis, MN*  
Sachin S. Sapatnekar - *IBM Corp., Austin, TX*  
A Promising Approach in Analyzing Power Distribution

### Session: 29.1: ["NORM: Compact Model Order Reduction of Weakly Nonlinear Systems"](#)

Peng Li, Lawrence T. Pileggi - *Carnegie Mellon Univ., Pittsburgh, PA*  
Excellent Results in the Analysis of Non-linear Circuits

## Best Paper in the Embedded-Systems Category

### Session 15.3: ["Automatic Application-Specific Instruction-Set Extensions under Microarchitectural Constraints"](#)

Kubilay Atasu, Laura Pozzi, Paolo Ienne - *Swiss Federal institute of Technology, Lausanne, Switzerland*  
A Promising Approach to Reconfigurable Processor Design

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## Awards

### Marie R. Pistilli Women in EDA Achievement Award

**Karen Bartleson** - Director of Interoperability, Synopsys, Inc., Mountain View, CA  
For her significant contributions in helping women advance in the field of EDA technology.

### Phil Kaufman Award

The award honors an individual who has contributed to creating or driving technology advances that have had measurable impact on the productivity of design engineers. The 2002 recipient:

**Ronald Rohrer** - Magma Design Automation, Cupertino, CA & Neoliner Inc., Pittsburgh, PA

## IEEE Awards

### Emanuel R. Piore Award

Sponsored by IBM Corporation

**Giovanni De Micheli** - Professor, Department of Electrical Engineering, Stanford University, Stanford, CA  
For contributions to computer-aided synthesis of digital systems.

### 2003 IEEE Fellows

**John Maxwell Cohn** - IBM Microelectronics, Essex Junction, VT  
For contributions to the development of CAD tools and design methodology for high performance custom integrated circuits.

**Rolf Ernst** - Technical Univ. of Braunschweig, Braunschweig, Germany  
For contributions to hardware/software co-design and embedded system design automation

**Andreas Kuehlmann** - Cadence Berkeley Labs., Berkeley, CA  
For the development of formal equivalence checking technology and its successful application to microprocessor and ASIC designs.

**Sachin Suresh Sapatnekar** - University of Minnesota, Minneapolis, MN  
For contributions to the optimization of timing and layout in VLSI circuits.

## IEEE CAS Society Awards

### Mac Van Valkenburg Award

**Alan N. Willson, Jr.** - University of California, Los Angeles, CA  
For Major contributions to theory, design methods, and hardware implementation of nonlinear circuits and digital signal processing algorithms, to graduate educations, and for leadership in the CAS Society.

### Guillemin-Cauer Award

Sampled-Function Weighted Order Filters, IEEE Transactions on Circuits and Systems Part II: Analog and Digital Signal Processing, vol. 49, no. 1, pp. 1-10, January 2002.

**Rui J. P. de Figueiredo** - University of California, Irvine, CA

**Remzi Oten** - Conexant Systems, Inc. Newport Beach, CA

### **CAD Transactions Best Paper Award**

An Efficient Graph Representation for Arithmetic Circuit Verification, IEEE Transactions on Computer Aided Design of Integrated Circuits and Systems, vol. 20, no. 12, pp. 1443-1454, December 2001.

**Yirng-An Chen** - Novas, Inc., San Jose, California

**Randal E. Bryant** - Carnegie Mellon University, Pittsburgh, Pennsylvania

### **VLSI Transactions Best Paper Award**

A Clock Power Model to Evaluate Impact of Architectural and Technology Optimizations, IEEE Transactions on Very Large Scale Integration (VLSI) Systems, vol. 10, no. 6, pp. 844-855, December 2002.

**David E. Duarte** - Intel Corporation, Hillsboro, Oregon

**N. Vijaykrishnan** - Pennsylvania State University, University Park, Pennsylvania

**Mary Jane Irwin** - Pennsylvania State University, University Park, Pennsylvania

### **The Association for Computing Machinery/Special Interest Group on Design Automation (ACM/SIGDA) presents its Distinguished Service Award**

**James Plusquellic** - University of Maryland, Baltimore, MD

For exemplary service to ACM/SIGDA and the Design Automation Conference as director of the University Booth program.

### **The P. O. Pistilli Undergraduate Scholarships for Advancement in Computer Science and Electrical Engineering**

The P. O. Pistilli Undergraduate Scholarships for Advancement in Computer Science and Electrical Engineering The objective of the P. O. Pistilli Scholarship program is to increase the pool of professionals in Electrical Engineering, Computer Engineering and Computer Science from under-represented groups (women, African American, Hispanic, Native American, and physically challenged). In 1989, ACM Special Interest Group on Design Automation (SIGDA) began providing the program. Beginning in 1993, the Design Automation Conference provided the funds for the scholarship and SIGDA continues to administer the program for DAC. DAC normally funds two or more \$4000 scholarships, renewable up to 5 years, to graduating high school seniors. In 1999 the IEEE Circuits and Systems Society also began to sponsor these scholarships.

The 2003 winners will be announced at the Conference. The 2002 winners were:

**Sophy Zheng** - attending the University of Chicago

**Jennifer Tietz** - attending Purdue University

**Taylor Schreck** - attending Iowa State

**Yoo-Jin Kim** - attending University of Texas at Austin

**Juan Chen** - attending Carnegie Mellon University

**Elaine Louie** - attending Rice University

**Yen Ling (Jenny) Liu** - attending Cornell University

For more information about the P. O. Pistilli scholarship, please contact Dr. Cherrice Traver, ECE Dept., Union College, Schenectady, NY 12308. email: [traverc@union.edu](mailto:traverc@union.edu)

## DAC 2003 Student Design Contest Winners

### Operational Category:

- 1st Place (Best Overall)      A Computationally Efficient ASIC Implementation for the Decoding of Space-Time Block Codes  
Enver Cavus, Babak Daneshrad - Univ. of California, Los Angeles, CA
- 2nd Place                      A Low-Energy Chip-Set for Wireless Intercom (Session 52.2)  
Josie Ammer, Michael Sheets, Tufan C. Karalar, Mika Kuulusa, Jan Rabaey - Univ. of California, Berkeley, CA
- 3rd Place                      Energy-Aware Design of a Real-Valued FFT  
Alice Wang, Anantha Chandrakasan - Massachusetts Institute of Tech., Cambridge, MA

### Conceptual Category:

- 1st Place                      A 16-Bit Mixed-Signal Microsystem with Integrated CMOS-MEMS Clock Reference (Session 31.1)  
Robert M. Senger, Eric D. Marsman, Michael S. McCorquodale, Fadi H. Gebara, Keith L. Kraver, Richard B. Brown - Univ. of Michigan, Ann Arbor, MI
- 2nd Place                      An Integrated Thermally-Based Microflow Sensor  
Masoud Agah, Yang Li, Robert M. Senger, Kensall D. Wise - Univ. of Michigan, Ann Arbor, MI

### Honorable Mention:

Towards A Button-Sized 1024-Site Wireless Cortical Microstimulating Array (Operational)  
Maysam Ghovanloo, Khalil Najafi - Univ. of Michigan, Ann Arbor, MI

Design Flow for HW/SW Acceleration Transparency in the ThumbPod SecureEmbedded System (Conceptual) (Session 5.1)  
David Hwang, Patrick Schaumont, Yi Fan, Alireza Hodjat, Bo Cheng Lai, Kazuo Sakiyama, Shenglin Yang, Ingrid Verbauwhede - Univ. of California, Los Angeles, CA

Analog Turbo Decoder Implemented in SiGe BiCMOS Technology (Conceptual)  
Wei Huang, Vinay Iyengar, Garrett Rose, Yan Zhang, Mircea Stan - Univ. of Virginia, Charlottesville, VA

Design of a High Performance Security Coprocessor (Conceptual)  
Yunqing Chen, Jun Cheng, Tsung Hsing Hu, Jerry Kao - Univ. of Michigan, Ann Arbor, MI