

ENERGY AND POWER ANALOG CIRCUIT CHALLENGES WORKSHOP

Sponsors: **SRC's Texas Analog Center of Excellence** and the **University of Texas-Dallas**
September 28 and 29 at the University of Texas at Dallas

WORKSHOP BACKGROUND AND OBJECTIVE:

Energy- and **Power-**managed analog, digital, and radio-frequency (RF) **integrated circuits (ICs)** have the potential for both enabling state-of-the-art *and* enhancing expensive and difficult-to-replace technologies at low cost and using minimal space. Ground-breaking research in this area is therefore needed to energize and power long-lasting *in situ* microscale devices such as wireless microsensors, biomedical implants, and portable microelectronics and better-manage light-emitting-diode (LED) displays, computers, and servers, all of which find applications in military, space, medical, security, and consumer markets. The objective of this workshop is to identify analog, power, and energy circuit research challenges that have the potential of enabling, integrating, and/or extending the operational life of otherwise short-lived and necessarily bulky solutions. Perspectives derived from the workshop will be used to formulate the scope of a nationwide call for research proposals in Oct. Areas of particular interest include (but are not limited to): **(1) LED Lighting and Displays, (2) Portable Energy and Power, (3) Energy Harvesting, and (4) Computer and Server Power.**

WORKSHOP PRESENTERS AND PRESENTATIONS:

1. **David W. Baarman, Advanced Technologies Group:** The Challenges of Wireless Power Design and Interoperability
2. **Anand Dabak, TI:** Smart Metering Solutions and Future Challenges in Integrated Solutions
3. **Paul Emerson, TI:** Semiconductor Challenges for Motor Control
4. **Dave Freeman for SIA:** Semiconductor Technologies: The Potential to Revolutionize U.S. Energy Productivity
5. **Prof. Hoi Lee, UT-Dallas:** Integrated Power Converters: From Portable Power Management to Wireless Power Transmission
6. **Dr. Ashraf Lotfi, Empirion:** Full Monolithic Integration of DC/DC Power Management: Challenges and Advances
7. **Prof. Dongsheng Ma, University of Arizona:** Power Management IC Designs for Efficient DVS On-Chip Operations
8. **Prof. Khai D. T. Ngo, Virginia Tech:** Opportunities for Integration in Power Management of Computer Servers
9. **Prof. Gabriel A. Rincón-Mora, Georgia Tech:** Harvesting Ambient Energy in Miniaturized Systems
10. **Prof. Seth Sanders, UC-Berkeley:** Integrated Power Management – The Case for Switched Capacitor Conversion
11. **Bin Zhao, Freescale:** LED Backlight for Energy Efficient Displays
12. **Wayne Chen, Triune Systems:** Next Generation Portable Solutions: Creation of the Total Mobile System

SRC'S TEXAS ANALOG CENTER OF EXCELLENCE:

The analog integrated circuit (IC) market is growing rapidly at \$30B in 2005 and \$50B in 2007, and the nation is faced with a need for both more analog engineers and innovative IC devices to maintain global competitiveness. Recognizing these, Texas Gov. Rick Perry announced the creation of **TxACE** (www.ecs.utdallas.edu/TxACE) in Oct. of 2008. The center is a **\$16-million collaboration** between the Semiconductor Research Corp., the state of Texas through its Texas Emerging Technology Fund, Texas Instruments Inc., and the University of Texas System and the University of Texas-Dallas. TxACE seeks to transform **analog and power circuit research** from a process driven mostly by circuit innovation into a holistic and collaborative process that creates revolutionary integrated circuits (ICs) and systems driven by great societal needs as well as the analog, power, and energy industry. More specifically, TxACE is focusing on improving energy efficiency, healthcare, and public safety and security.

TIME, PLACE, AND LOGISTICS:

Date and Time: Register on Monday, Sept. 28, at 11 a.m. and adjourn on Tuesday, Sept. 29, at 3 p.m.

Place: University of Texas-Dallas' ECSN building.

Format: 30-min. talks with 10 min. for questions and answers, brainstorming breakout sessions, cocktail and dinner on Sept. 28.

Nearby Hotel: North Dallas Hyatt (<http://northdallas.hyatt.com>) – a shuttle service will be provided to and from the meeting).

CONTACTS

Workshop Chair: Gabriel A. Rincón-Mora, rincon-mora@gatech.edu.

Local Arrangements Chair: Hoi Lee, hxl054000@utdallas.edu.

Logistics and Publicity Chair: Dinesh Bhatia, dinesh@utdallas.edu.

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