

Russell emphasizes that his emerit badge program does not discriminate. "Whether you're gay, black, white, a boy, or a girl—if you're interested in technology, we'll teach it to you," he says.

Russell responded to one of the concerns by contacting the Girl Scouts of America, which he says has a manager for their Girls Go Tech program. Russell is now working with Girl Scout representatives—including IEEE Member and *IEEE Spectrum* Advisory Board member Jill Tietjen, who is also president of the Girl Scouts' Mile High Council in Colorado, and IEEE member Lynn Simms, past president of the Commonwealth Council in Virginia—to create an electronic engineering education program for young women. To show his commitment to the Girl Scouts, Russell became a lifetime member of the group.

He plans to contact two global scouting organizations—the World Association of Girl Guides and Girl Scouts, based in London, and the World Organization of the Scout Movement, in Geneva, Switzerland—to share his IEEE emerit badge.org program. And he is still involved in his local scouting district, even though his children are grown. What's more, his grandson is just about the right age to begin scouting.

Energy-Efficient Computing Pioneer is Newest HP Fellow

Chandrakant Patel founded HP "Cool Team," charted directions in thermal management, is CPMT Member
Submitted by Marsha Tickman, Executive Director, IEEE CPMT Society



Chandrakant Patel, a scientist who initiated HP's groundbreaking research in chips, systems and data-center thermal and energy management, has been named an HP Fellow, an honor reserved for only the company's most extraordinary technical contributors.

Patel played a key role in establishing HP's leadership in energy-efficient computing by founding HP Labs' thermal technology research program in the early 1990s, and subsequently the data-center architecture program. He foresaw the thermal-management challenges associated with high power density due to miniaturization in semiconductor technologies, and the need to manage energy as a key resource as enterprise IT system resources became increasingly connected and shared.

Patel's work has been incorporated into HP products and services, including its Adaptive Infrastructure offerings, and also used by HP to manage its own information technology infrastructure.

"Chandrakant is an extraordinary contributor whose impact has shaped HP and its position in the industry," said Dick Lampman, HP Labs director and senior vice president for research, HP. "His work is recognized by both the mechanical and electrical engineering communities, by industry ana-

lysts, industry and business press, partners and over 100 customers."

New approach to power and cooling

Patel, who joined HP Labs in 1991, pioneered a holistic approach to power and cooling that encompasses everything from chips to systems to racks to the data center itself. With partners in HP's product R&D groups, he started a virtual thermal community known as the HP Cool team, which is dedicated to thermal management of chips, systems and data centers.

Through the 1990s, he charted the directions in thermal management that led to creation of an innovative portfolio of chip and system cooling solutions for the HP Cool Team. In late 1990s, he argued for the need to examine data center power and cooling as closely as the computer, a philosophy he described as "the data center is the computer." This became HP's Smart Data Center project.

Working first in the HP Labs data center, then with the University of California at Berkeley and HP team members from sites in India, Puerto Rico, and across the United States, Patel developed the computational fluid modeling of data centers, the new metric of Exergy or available energy (MIPS/Exergy destroyed), a network of sensors and actuators in the data center and the elements of a dynamic control system to manage total cost-of-ownership of an IT infrastructure.

Patel's success builds on his technical expertise in thermo and fluid dynamics, structures and system design. Although his recent work has centered on chips to data centers, the technology and methods are also being applied to consumer systems.

Conference Reviews:

EDAPS 2006: A Workshop on Electrical Design in Advanced Packaging and Systems

Submitted by Wen-Yan Yin and Jun-Fa Mao, Co-Chairs,
EDAPS 2006

The EDAPS 2006 conference was held at Shanghai Jiao Tong University, Shanghai (SJTU), China on Dec. 17 and 18, 2006. The conference was co-organized by the Center for Microwave and RF Technologies of SJTU and the National EMC Lab at Wuhan of China. It is sponsored by the special fund for the international conference of SJTU and the EMC Lab, and mentored by Prof. Madhavan Swaminathan of PRC, Georgia Tech. The response to the conference was very positive with more than 100 attendees and 34 invited speakers from Japan, Korea, Singapore, Canada, USA, Hong Kong, Taiwan, and mainland of China. The participants were mainly from practicing engineers of various semiconductor industry, companies and academia, *etc.* The feedback has been very positive with more in-depth presentations. The previous chairs of Prof. Swaminathan, Prof. Joung-ho Kim, Dr. Toshio Sudo, and Dr. Er-Ping Li graced the occasion to make it successful through their invited presentations and participation.

In the morning of Dec.17, a tutorial covered issues in "Understanding on-chip transmission lines and methodologies used for developing design wiring rules", presented by Dr. Alina Deutsch from IBM T. J. Watson Research Center; it was followed by two keynote speeches: "Is the EDA industry ready for the next electronics revolution and can academia help?" given by Prof. Swaminathan, and "Design issues of ultra-high speed integrated cir-

cuits for optical communications,” given by Prof. Z. G. Wang of China. After two keynote speeches three presentations were given by Prof. Andreas Cangellaris, Prof. W. C. Chew, and Prof. J. Kim, respectively. They have addressed some significant research progresses in SPICE-compatible macro-modeling of field circuit interactions in packaged electronic systems, fast integral equation solvers for EM simulations in circuits, and principle of multi-level ground integrity design for low noise circuits and systems.

In the Session of packaging and signal integrity in the afternoon of Dec.17, five invited speakers are arranged for giving 25 minutes presentations, and among these we should mention to “Advanced design technologies for LTCC system on package modules” given by Prof. K. L. Wu, “New methodologies for characterizing radiated emission by embedded decoupling capacitors in PCB” presented by Dr. T. Sudo, and “Investigations on signal integrity problems of high-speed interconnects and systems” reported by Prof. Hong.

Day 2 started with the session of interconnects and modeling, and among it we should mention “Can carbon nanotube extend the lifetime on on-chip electrical interconnections?” presented by Prof. K. Banerjee and “Wireless chip area network (WCAN): a new paradigm for RF microelectronics and radio communications” addressed by Prof. Y. P. Zhang, and “Signal integrity analysis and noise control for multi-layered packages” given by Dr. Er-Ping Li.

In the fourth session of high frequency modeling in the afternoon of Dec.18, Prof. Ruey-Beei Wu has addressed “De-launay modeling for power ground plane and wideband ground bounce noise suppression using optimal decap and embedded EBG”, and Prof. Wen-Yan Yin has reported “Patterned ground shielding and differential methodologies used for performance enhancement of on-chip silicon-based devices and circuits”.

The next EDAPS 2007 is planned to be held at Taiwan University, Taiwan under the chairmanship of Ruey-Beei Wu. Following EDAPS 2006, tours of Intel Inc. at local hi-tech park and local sights of Shanghai have been also arranged, and overall this has been a very useful and successful workshop to the participants and sincerely appreciates the support from all over the globe, and especially from Prof. M. Swaminathan, USA.

Educational Activities Board 2007

Call for Nominations Includes New Award

The IEEE Educational Activities Board is seeking nominations for its 2007 Education Awards. In addition to its seven existing recognitions, a newly-established annual award for **Meritorious Achievement in Informal Education** will be presented this year. The Meritorious Achievement in Informal Education award recognizes IEEE members who volunteer as librarians, docents, tour guides, or curators; or who act as technical advisors to or serve as board members of aquariums, museums, parks, zoos or similar settings where teachers, students, and the public benefit from

their professional expertise in science and technology. The deadline for all nominations is 30 April.

For descriptions of the full list of the awards, visit www.ieee.org/web/education/EABAwards. For access to nomination packets, click on “Call for Nominations” and then on the award for which you would like to submit a nomination.

Questions can be sent to eab-awards@ieee.org.

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