15th Annual IEEE

International Mixed-Signals, Sensors, and Systems Test Workshop (IMS3TW 09)

Scottsdale, Arizona

Doubletree Paradise Valley Resort

10-12 June 2009

ims3tw.tttc-events.org

Call for Papers

The rapid pervasion of micro/nanoelectronics into various application fields like biology, chemistry, mechanics, optics, etc. is fostering unprecedented types of heterogeneous integrated systems and associated interfaces between these previously largely separate domains. Microsystems that combine advanced sensors and actuators with embedded, high-performance microprocessors are enabling an endless list of new applications in life sciences, aerospace, the environment, communications, etc. The design and test of such heterogeneous systems presents formidable challenges. In particular, as the inherent quality and reliability of the fundamental building blocks generally decreases with scale, the number of test and design-for-test, diagnosability, -manufacturability, -reliability considerations grows rapidly and their importance soars. The test of such systems is a multidimensional challenge that grows in criticality with increased levels of integration. Test requirements often only implied that individual or multiple signals of a specific nature needed to be observed or monitored. For heterogeneous systems, a mixture of different types of signals observed and/or monitored at different levels of integration or packaging, will need to be the focus of test procedures, for both low and high volume levels of production. In addition to the mixture of signals, a mixture of processes will need to be developed and implemented to encompass signal sensing, conversion and conditioning. Reliability assessment and external and/or self-diagnosis and -repair will become critical facets of such systems.

One and a half decade ago the IEEE Mixed-Signal Test Workshop (IMSTW) was inaugurated as a forum focused on test and design for test issues related to systems encompassing digital and analog electrical signals. In view of accelerated developments in heterogeneous design and production, in 2008 IMSTW started to include new topics focusing on challenges and solutions associated with test, design for test, reliability and manufacturability of heterogeneous types of systems in emergence or envisaged in the near to longer terms. Renamed to include sensors and systems, the new IMS3TW aims to bring research and technical expertise for the next generation of devices, circuits and systems. IMS3TW will continue to address the traditional technology spectrum of IMSTW, in particular all aspects of analog, mixed-signal, and RF testing, but with increased attention to all aspects of current design complexity (e.g., parametric variability, power consumption, temperature effects). Guaranteeing design robustness for the new generation of nanoelectronic devices may need to exploit self-monitoring functionality (such as self-test/-calibration), allowing the circuit or system to adapt to varying circuit parameters or functional demands. Built-in sensors can play a crucial role to facilitate device adaptability and are therefore within the scope of IMS3TW.

Primary Topics of Interest include:

- Test & Design for (on/off-line) Test
- Reliability & Design for Reliability
- Fault and Error Modelling & Simulation
- Verification & Design for Verification
- Monitoring/Diagnosis & Design for Debug/Diagnosis
- Fault Tolerance

Pertaining to the following systems or underlying technologies:

- Analog/Mixed-Signal Circuits
- Biomedical Circuits & Systems
- RF & Wirelessly Controlled Devices
- Optoelectronics & Photonics
- Drug Delivery Microsystems
- Lab-on-Chip
- MEMs
- Microfluidics
- Heterogeneous Systems
- Implantable Devices

Prospective authors are invited to submit papers on the topics of interest. Submissions should be via the workshop web-site and consist of either an extended summary of at least 750 words or a full paper. The accepted papers will be published in an IEEE Computer Society Proceedings available on the IEEE digital library (EXPLORE).

A selection of papers will be invited to a special issue of JETTA, Journal of Electronic Testing.

Key Dates

Submission deadline:	**February 20, 2009**
Notification of acceptance:	**April 10, 2009**
Camera-ready full papers:	**May 15, 2009**

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