

19th Annual International Mixed-Signals, Sensors, and Systems Test Workshop

CALL FOR PAPERS

September 17-19, 2014

PORTO ALEGRE, BRAZIL

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. Two decades ago, the IEEE Mixed-Signal Test Workshop (IMSTW) was inaugurated as a forum focused on test and design issues related to electronic systems with digital and analog components. In view of accelerated developments in heterogeneous system design and production, IMS3TW was expended in 2008 to include new topics that address test, design for test, reliability and manufacturability of today's sensors and sensor-based systems, as well as emerging devices and systems. Renamed to include sensors and systems, IMS3TW aims to bring together a community of researchers working on the next-generation of devices, circuits and systems. This year, IMS3TW will continue to address the traditional technology spectrum of IMS3TV, 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). To guaranteeing design robustness for the new generation of nanoelectronic devices, we 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. The sensors focus of the workshop will highlight all aspects of built-in sensors for device adaptation, MEMS, and biomedical applications such as lab-on-chip and implantable devices.

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

paper submission

Prospective authors are invited to submit papers on the topics of interest. Submissions should be via the workshop website 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 (XPLORE).

Selected papers from the workshop will be invited for submission to a special issue of Journal of Electronic Testing: Theory and Applications (JETTA) which will appear by the end of 2015.

Important dates are:

Paper submission deadline:
Notification of acceptance:
Camera-ready full papers:

May 16th (extended deadline)
June 27th
July 25th



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