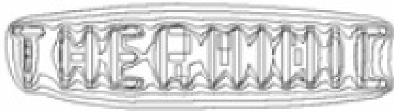
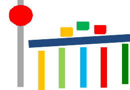


19th International Workshop on

# Thermal investigations of ICs and Systems



Berlin, Germany
September 25 - 27, 2013

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## Call for Papers

The **THERMINIC** Workshop is an annual event that makes it possible for researchers from around the world to discuss essential and emerging thermal questions and best practices in the field of microelectronics. These questions are becoming ever more critical with the increasing element density of circuits and with the continual move toward nanotechnology. Dealing effectively with these trends calls for an array of thermal simulation, measurement, and management approaches. Thermal management is expected to become an increasingly dominating cost factor at all levels. The growing power dissipation and mobility of packaged microsystems raise new thermal challenges in the near horizon, making regular discussions among experts in these fields highly desirable. Finally, there is an increasing need for accurate assessment of the boundary conditions used in the analysis of electronic parts, which requires a concurrent solution of the thermal behaviour of a whole system. Thermal performance of a cooling solution is only one side of the medal. Thermo-mechanical reliability is the other. Increasing complexity of integrated systems in terms of materials, processes and interfaces requires design for reliability. Therefore, in addition to “traditional” thermal management, THERMINIC addresses stress and thermal-stress-related reliability issues. These challenges, faced in various nano-, micro- and power-electronic applications, are of significant importance and thus interest to the engineering community engaged in the field of thermal phenomena in “high-tech” systems. The Workshop is sponsored by the IEEE Components, Packaging, and Manufacturing Technology Society, by CMP, Fraunhofer ENAS, AMIC, TU Chemnitz and by Lausitz University of Applied Sciences.

***AREAS OF INTEREST*** include, but are not limited to, the following topics:

**Thermal**
- Thermal management of electronic components & systems
- Classical and modern thermometry and thermography
- Multi-physics simulation & field coupling
- Thermal interface materials and their characterization
- Thermal modeling & investigation of packages
- Power electronics
- High temperature electronics
- Solid state lighting / LED
- Advanced thermal technologies & processes
- Thermal characterization in micro and nano domains
- CFD modeling and benchmarking
- 3D integration cooling concepts
- Advanced thermal materials
- Cooling concepts: air, liquid, enforced, two phase
- Ultra low form factor air cooling
- Heat pipe assisted cooling
- Heat transfer on the nano-scale
- Thermo-electric cooling
- Thermal performance of interconnects
- Temperature mapping
- Novel and advanced cooling techniques
- Nanotechnology applications
- Flow visualization
- Sub-ambient cooling

**Thermo-mechanical**
- Thermo-mechanical reliability of cooling concepts
- Health monitoring
- Lifetime modeling and prediction
- Damage and fracture mechanics

***TECHNICAL PROGRAMME*** will include oral talks, poster presentations, special sessions, and invited talks given by prominent speakers.

***INVITED TALKS***

**Thomas Brunschwiler**, IBM Research - Zurich, Advanced Thermal Packaging, Rüschlikon, Switzerland
**Berthold Hellenthal**, AUDI AG – Robust Design / Semiconductor Strategy/ Electronic Components Test, Ingolstadt, Germany
**Theo Treurniet**, Philips Lightning, LED Platform Development, Function Owner Thermal Management, The Netherlands

***AUTHORS ARE INVITED*** to submit an abstract describing recent work. Submissions will be accepted electronically by abstract upload. Detailed information about the submission process will be made available on the THERMINIC 2013 Web site:

**http://therminic.eu/therminic2013**

In case you experience any problems with the submission procedure, please contact the Local Committee.

***E-mail:*** **therminic@therminic.eu**

Accepted contributions will be published in the Workshop Proceedings, and archived in IEEE Xplore (provided they comply with the specifications). THERMINIC papers can be searched through IEEE, Google scholar and other search engines. They are also available on open archives like EDA Publishing, HAL and ArXiv.

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| **Extended abstract submission deadline:** | **15 April 2013** |
| Notification of acceptance: | 03 June 2013 |
| Submission of paper for workshop proceedings: | 15 July 2013 |

***VENDORS AND BOOK EXHIBITIONS*** are invited to offer products in the scope of the Workshop to exhibit. Editors are invited to exhibit books.

***SPECIAL ISSUES AND SPECIAL SECTIONS*** of leading periodicals have been organized for previous Workshops (Journal of Sensors and Actuators, Microelectronics Journal, IEEE Transactions on VLSI Systems, IEEE Transactions on Components and Packaging Technologies, Journal of Electronic Packaging). It is again expected to have special issues and special sections of leading periodicals as a follow-up to the Workshop.

***VENUE***: The Workshop will be hosted at the Fraunhofer-Forum Berlin, located in the heart of Berlin, close to the Berlin Cathedral (Berliner Dom) and the Spree river.

THERMINIC Workshop