Programme 2008

International Workshop on THERMal INvestigations of ICs and Systems

Rome > Italy > 24 > 26 September 2008

14TH

THERMINIC

http://cmp.imag.fr/conferences/therminic2008/

The Workshop is sponsored by the IEEE Components, Packaging, and Manufacturing Technology Society and by CMP.

CNRS / INPG - UJF

THERMINIC 2008

ELECTRONIC WORKSHOP REGISTRATION FORM

HTTP://CMP.IMAG.FR/CONFERENCES/THERMINIC2008/

Registration will be electronically only.

Detailed information about the registration process is available on the THERMINIC Web page. Authors should in addition notify their registration to the General Chair Bernard COURTOIS by email (THERMINIC@imag.fr).

Workshop advance registration is applied if participant is registered and the payment is received before 5 September 2008.

Please tick the appropriate:	*Advance* Until 5 September 2008	*Late* After 5 September 2008	*SUB-TOTAL*
☐ Author : Paper N°..... Session N°..... ☐ Committee Member	490 Euros	590 Euros	.....
☐ Non-member	590 Euros	690 Euros	.....
☐ Additional ticket (85 Euros/each) Welcome cocktail + social event	85 Euros	85 Euros	.....
☐ Additional Proceedings (35 Euros/each)	35 Euros	35 Euros	.....
		TOTAL	.....**€**

Workshop registration fee covers admission to all sessions, coffee breaks, lunches on 24-25-26 September 2008, the welcome cocktail, the social event and the Workshop proceedings.

For payment by credit card (ADR), follow the registration instruction, you will find it in the payment part.

Return the form to: **Bernard COURTOIS**

CMP
46 Avenue Felix Viallet
38000 Grenoble, France
Fax: +33 4 76 47 38 14

Refund policy for preregistration: there is a 80 Euros service charge for processing refunds. Requests for preregistration refunds must be received no later than 6 working days prior to the first day of the Workshop to be honoured. **No refunds will be issued after 16 September 2007.** Substitutions will be accepted at any stage.

14TH International Workshop on Thermal investigations of ICs and Systems

AIM OF THE WORKSHOP

THERMINIC Workshops are a series of events to discuss the essential thermal questions of microelectronic microstructures and electronic parts in general. These questions are becoming more and more crucial with the increasing element density of circuits packaged together and with the move to nanotechnology. These trends are calling for thermal simulation, monitoring and coolin g. Thermal management is expected to become an increasingly dominating factor of a system's cost. The growing power dissipated in a package, the mobile parts of microsystems raise new thermal problems to be solved in the near future necessitating the regular discussion of the experts in these fields. 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 the whole system.

AREAS OF INTEREST

The main topics to be discussed during the Workshop are the following:

- Thermal and Temperature Sensors
- Thermal Simulation
- Electro-thermal Simulation
- Thermal Modelling and Investigation of Packages
- Reliability Issues
- High Temperature Electronics
- Heat Transfer Education
- Flow Visualisation Techniques
- Turbulence Modelling in Complex Geometrics
- Defect and failure modelling
- Reliability evolution and prediction
- Multiphysics simulation
- Nanoengineering issues
- Education
- Measurement of Thermal Properties
- Acquisition and analysis of Thermal data
- Temperature Mapping
- Novel and Advanced Cooling Techniques
- Thermal Performance of Interconnects
- Heat Transfer Enhancement
- Validation of Thermal Software
- Coupled (Thermo-mechanical, Thermo- optical, etc.) Effects
- Thermal Stress: Theory and Experiment
- Thermal Stress Failures: Prediction and Prevention
- Nanotechnology Applications

Previous THERMINIC Workshops have been held in Grenoble (1995), Budapest (1996), Cannes (1997 and 1998), Rome (1999), Budapest (2000), Paris (2001), Madrid (2002), Aix en Provence (2003), Sophia Antipolis Côte d'Azur (2004) and Belgirate (2005) and Nice (2006) and Budapest (2007).

The programme includes 2 invited talks by prominent speakers (see the paragraph below), 28 oral in 8 sessions, oral contributions consist of 15 min. presentations followed by 5 min. discussion, 16 poster presentations, all posters will be introduced by one slide in 3 minutes each in a plenary session.

WORKSHOP COMMITTEE

General Chair > Bernard Courtois, *CMP, Grenoble, France*
Vice General Chair > Marta Rencz, *BUTE, Budapest, Hungary*

Programme Chairs > Clemens Lasance, *Philips, Eindhoven, The Netherlands*
Vladimir Székely, *BUTE, Budapest, Hungary*

Programme Committee

Attila Aranyosi, Electronic Cooling Solutions Inc.
Tetsuya Baba, Nat. Metrology Institute Tsukuba, Japan
Tine Baelmans, KUL, Belgium
Istvan Barsony, KFKI-ATKI, Hungary
David Blackburn, NIST, USA
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Herming Chiueh, National Chiao Tung U., Taiwan
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Wilfrid Claeys, U. Bordeaux, France
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Abishai Daniel, Intel, USA
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Bruno Michel, IBM Zurich, Rueschlikon, Switzerland
Tadao Nakamura, U. of Tohoku, Japan
Andrzej Napieralski, TU Lodz, Poland
Venkat Natarajan, Intel India Pvt. Ltd., Bangalore, India
Heinz Pape, Infineon Techn., Germany
Anne-Claire Pliska, CSEM, Neuchâtel, Switzerland
András Poppe, BUTE, Budapest, Hungary
Peter Raad, South. Methodist U., USA
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Ali Shakouri, U. of California, USA
Moowhan Shin, Myong Ji U., Korea
Ephraim Suhir, U.C Santa Cruz, USA
Andrew Tay, NUS, Singapore
Bart Vandevelde, IMEC, Belgium
Gerhard Wachutka, TU München, Germany
Kazuaki Yazawa, Sony, Tokyo, Japan
Thomas Zahner, OSRAM, Germany
Attila Aranyosi, Electronic Cooling Solutions Inc.
Joan Yu, Philips Lumileds Lighting Company, Netherlands

SPECIAL ISSUES AND SPECIAL SECTIONS of leading periodicals have been organised regarding the 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 follow up of the Workshop 2008.

WEB SITE: http://cmp.imag.fr/conferences/therminic2008/

INFORMATION: More information on the Workshop is available from:

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VENUE

About Rome information including geography, history, architecture, gouverment, economy, culture, etc. can be found on the THERMINIC Web site: **http://cmp.imag.fr/conferences/therminic2008/**





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Standard double room: 289€.*
Standard single room: 249€.*

**Rates to be intended per room per night, taxes and breakfast included.*

Complete the ACCOMMODATION FORM and send it by fax to the hotel. There isn't any room block confirmed for the meeting. All reservations will be eventually reconfirmed according to hotel availability.
A List of the closer Hotels to Jolly Hotel Vittorio Veneto is available on the web site of the Workshop.

ACCESS

Rome can be accessed by air, rail and by car:
Air: International Airport Airport (**http://www.rome-airport.net**), is at 45/60 min. from Jolly Hotel by car. There is a train service between the international airport, Leonardo da Vinci (still frequently known by its old name, Fiumicino) and the main railway (Stagione Termini) every 60-min.
Rail (**http://www.trenitalia.com/en/index.html**):
The main railway station is only 10 minutes away by taxi.
Road: From the North leaving the A1 motorway at Settebagni, from the South by the A2 motorway along the Via Nomentana.

SOCIAL EVENT



The social event will be held on Thursday 25 September. A dinner cruise will be served on the boat Tiber II, the queen of Battelli di Roma's fleet. The traditional and tasty cuisine, the elegant and friendly atmosphere, the musical background, are the ingredients for a special night, with the complicity of Rome by night.

> Boarding: 19:30
> Location: Ponte S. Angelo. A map will be given with all documentations in the bag of the Workshop.
> Cruise time: 2 hours and 15 minutes

EXHIBITION An exhibition will be held during the time of the Workshop. Tabletops or Spaces for a portable marketing stand 6sqm are available to companies interested to exhibit equipment, materials, software, etc. Booking of each table-top or Spaces for a portable marketing stand 6sqm will give one slot of time during the vendors' session. The number of spaces is limited. They will be offered on a first signed - first served basis. Contact the General Chair for more information.

PROCEEDINGS of this Workshop will be available at the meeting as part of the registration fee. If you cannot attend, you may still order Proceedings at the price of 35€ (order form available on the conference web site, the sending of the Proceedings package will be done after the Workshop, and if the payment is received).

THERMINIC is happy to acknowledge the services of GlobalWare Corporation for the technical management of the Workshop.

SPECIFIC EVENTS SPONSORING: If you wish to sponsor an event like a reception, a lunch, or any specific event during the Workshop, please contact the General Chair.

POSTERS: All posters will be introduced by one slide in 3 minutes each. They will be presented in one session on 24 September from 17:20 to 17:45. They will be mounted during the registration. Authors are expected to be at their posters during the posters viewing session just after the introduction session on 24 September. The posters will be removed by the end of the Workshop.

INSURANCE: *While the Workshop organisation makes every effort in order to ensure the safety and well being of all the Workshop participants and associates, the Workshop cannot take responsibility for any accident or damage that may occur during the Workshop.*

Thermal conductivity in nanostructures: the role of acoustic phonons

Clivia M. Sotomayor Torres, Catalan Institute of Nanotechnology, Bellaterra (Barcelona), Spain, Catalan Institute for Research and Advanced Studies ICREA, Barcelona, Spain

We review the current understanding of the acoustic phonon contribution to thermal transport in nanostructures from nanoparticles to thin films and membranes. Confinement and cavity effects will be discussed as well as electrical and optical measurement methods.

CAD/EDA embeddied CFD vs standalone CFD

John Parry, Flomerics, Hampton Court, UK

The paper will chart the changing use of CFD in electronics cooling since it's earliest use in the 1980s to the present day. The unique characteristics of the electronics cooling market and how these have shaped the development trajectory of CFD software for this application will be discussed. Reflecting on the past, the paper will then consider the longevity of the stand-alone solutions that dominate today's market of and how CAD-embedded and EDA-integrated solutions may shape the future of electronics cooling.

Programme

SEPTEMBER 24, 2008

09:30 > 09:40 Welcome address

Bernard Courtois, CMP, Grenoble, France

09:40 > 10:20 Invited speaker I: CAD/EDA embeddied CFD vs standalone CFD

John Parry, Flomerics, Hampton Court, UK

Chair> Clemens Lasance, Philips, Eindhoven, The Netherlands

10:20 > 11:40 Session 1: Measurements

Chair> Thomas Zahner, OSRAM, Germany

10:20 *TRIANGULATION METHOD FOR STRUCTURE FUNCTIONS OF MULTI-DIRECTIONAL HEAT-FLOWS*

Lorenzo Codecasa, Dario D'Amore, Paolo Maffezzoni, Politecnico di Milano, Italy

10:40 *TRANSIENT DUAL INTERFACE MEASUREMENT OF THE RTH-JC OF POWER PACKAGES*

Dirk Schweitzer, Infineon Technologies AG, Germany

11:00 *EVALUATION OF SHORT PULSE THERMAL TRANSIENT MEASUREMENTS*

Vladimir Székely, Budapest Univ. of Technology & Economics, Hungary

11:20 *NEW APPROACH FOR THERMAL INVESTIGATION OF A III-V POWER TRANSISTOR*

Maxime Fontaine, Eric Joubert, Olivier Latry, Pascal Dherbecourt, Mohamed Ketata, LEMI, France

11:40 > 12:00 Break

12:00 > 12:40 Vendors session

Chair> Bernard Courtois, CMP, Grenoble, France

12:40 > 14:00 Lunch

14:00 > 15:20 Session 2: Reliability issues

Chair> John Parry, Flomerics, Hampton Court, UK

14:00 *ENSURING TEMPERATURE-INSENSITIVITY OF DUAL-VT DESIGNS THROUGH ITD-AWARE SYNTHESIS*

Andrea Calimera, Enrico Macii, Massimo Poncino, Politecnico di Torino, Italy

Ruth Iris Bahar, Brown Univ., USA

14:20 *MANAGING LEAKAGE POWER AND RELIABILITY IN HOT CHIPS USING SYSTEM FLOORPLANNING AND SRAM DESIGN*

Aseem Gupta, Univ. of California Irvine, USA

Amin Djahromi, Ahmed Eltawil, Fadi Kurdahi, Nikil Dutt, U California Irvine, USA

Kamal Khouri, Magdy Abadir, Freescale Semiconductor Inc., USA

14:40 *ASSESMENT OF DIE ATTACH QUALITY BY ANALYSIS OF CIRCUIT THERMAL RESPONSE SPECTRUM*

Marcin Janicki, Technical Univ. of Lodz, Poland

15:00 *MATERIAL CHARACTERISATION AND NON-DESTRUCTIVE FAILURE ANALYSIS BY*

Daniel May, Bernhard Wunderle, Mohamad Abo Ras, Wolfgang Faust, Heike Kukuk-Schmid, Bernd Michel, Fraunhofer IZM, Germany

Astrid Gollhardt, AMIC GmbH, Germany

15:20 > 15:40 Break

SEPTEMBER 24, 2008

15:40 > 17:00 Session 3: Simulation at package level

Chair> **Tine Baelmans,** KUL, Belgium

15:40 *COMPACT THERMAL NETWORKS FOR CONJUGATE HEAT TRANSFER BY DIRECTIONAL MOMENT MATCHING*

Lorenzo Codecasa, Dario D'Amore, Paolo Maffezzoni, Politecnico di Milano, Italy

16:00 *BLOCK-LEVEL THERMAL MODEL FOR FLOORPLAN STAGE IN VLSI DESIGN FLOW*

Shun-Hua Lin, National Chiao Tung Univ., Taiwan
Jin-Tai Yan, Chung-Hua Univ., Taiwan
Herming Chiueh, National Chiao Tung Univ., Taiwan

16:20 *MULTISCALE 3D THERMAL ANALYSIS OF ANALOG ICS: FROM FULL-CHIP TO DEVICE LEVEL*

Marek Turowski, CFD Research Corporation (CFDRC), USA
Steven Dooley, Air Force Research Laboratory (AFRL), USA
Ashok Raman, CFD Research Corporation (CFDRC), USA

16:40 *THE MINIMAL SET OF PARAMETERS FOR EXACT DYNAMIC THERMAL MODELS*

York Christian Gerstenmaier, Siemens AG, Germany

17:00 > 17:20 *Break*

17:20 > 18:08 Poster session: Introduction

Chair> **Marta Rencz,** Budapest Univ. of Technology and Economics, Hungary

Posters will be introduced by one slide in maximum 3 minutes each

17:20 *AUTOMATIC ELECTRO-THERMAL ANALYSIS IN MENTOR GRAPHICS PCB DESIGN SYSTEM*

Konstantin Petrosjanc, Petr Kozynko, MIEM, Russian Federation

17:23 *INTEGRATED THERMAL MODELING OF HETEROGENEOUS ECUBES STACKED DEVICES*

Grzegorz Janczyk, Tomasz Bieniek, Piotr Grabiec, Jerzy Szynka, Institute of Electron Technology, Poland

17:26 *LOGICAL EFFORT MODEL EXTENSION FOR TEMPERATURE AND VOLTAGE VARIATIONS*

Chun-Hui Wu, Shun-Hua Lin, Herming Chiueh, National Chiao Tung Univ., Taiwan

17:29 *A NOVEL PROCEDURE AND DEVICE TO ALLOW COMPREHENSIVE CHARACTERIZATION OF POWER LEDS OVER A WIDE RANGE OF TEMPERATURE*

Gábor Molnár, Microelectronics Research and Development Ltd, Hungary
Gergely Nagy, Zoltán Szucs, Budapest Univ. of Technology and Economics, Hungary

17:32 *MULTI-PHYSICS ANALYSIS OF A PHOTOVOLTAIC PANEL WITH A HEAT RECOVERY SYSTEM*

Paolo Maffezzoni, Lorenzo Codecasa, Dario D'Amore, Politecnico di Milano, Italy

17:35 *PHASE CHANGE HEAT DISSIPATER OF ALUMINIUM CONTAINER*

Cecilia Wolluschek, E. Armendáriz, Jesús Esarte, Fundación CETENA, Noain, Spain

Programme

SEPTEMBER 24, 2008

17:38 *THERMAL DESIGN OF FULLY-ISOLATED BIPOLAR TRANSISTORS*

Salvatore Russo, Delft Univ. of Technology / Univ. of Naples Federico II, Netherlands
Luigi La Spina, Delft Univ. of Technology, Netherlands
Vincenzo d'Alessandro, Niccolò Rinaldi, Univ. of Naples Federico II, Italy
Lis K. Nanver, Delft Univ. of Technology, Netherlands

17:41 *THERMAL TRANSIENT CHARACTERISATION OF COMPLEX CIRCUITS*

Gergely Perlaky, Budapest Univ of Technology, Hungary
Gábor Farkas, 2MicReD Ltd., Budapest, Hungary

17:44 *IN-SITU MEASUREMENT OF VARIOUS THIN BOND-LINE-THICKNESS THERMAL INTERFACE MATE-RIALS WITH CORRELATION TO STRUCTURAL FEATURES*

Bernhard Wunderle, Mohamad Abo Ras, Daniel May, Jessica Kleff, Fraunhofer IZM, Germany
Ralph Schacht, FH Lausitz, Germany
Juergen Keller, Nanotest, Germany
Hermann Oppermann, Bernd Michel, Fraunhofer IZM, Germany

17:47 *COMPACT THERMAL MODELING OF ELECTRIC DOUBLE-LAYER CAPACITORS*

Philippe Guillemet, Caroline Pascot, Yves Scudeller, Univ. de Nantes, France

17:50 *HOT-CARRIER EFFECTS ON POWER RF LDMOS DEVICE RELIABILITY*

Mohamed Ali Belaid, GPM-UMR CNRS 6634, France

17:53 *THERMAL CHARACTERIZATION AND MODELLING OF LITHIUM-BASED BATTERIES AT LOW TEMPERATURE AMBIENT*

Domonkos Szente-Varga, Gyula Horváth, Marta Rencz, Budapest Univ. of Technology and Economics, Hungary

17:56 *DESIGN OF A STATIC TIM TESTER*

Vladimir Szekely, Gergely Somlay, Péter G. Szabó, Márta Rencz, Budapest Univ. of Technology & Economics, Hungary

17:59 *MULTITHREADING AND STRASSEN'S ALGORITHMS IN SUNRED FIELD SOLVER*

László Pohl, Vladimír Székely, Budapest Univ. of Technology and Economics, Hungary

18:02 *THE SEMICONDUCTOR - DIELECTRIC INTERFACE FROM PN JUNCTION PERIPHERY AND ITS INFLUENCE ON RELIABILITY OF POWER DEVICES AT HIGH TEMPERATURE*

Vasile Obreja, National R&D Institute for Microtechnology (IMT Bucuresti), Romania

18:05 *FPGA POWER MODEL FOR MINIMIZING THE THERMAL DISSIPATION*

Ábel Vámos, Márta Rencz, Budapest Univ. of Technology and Economics, Hungary

18:08 > 19:00 Posters viewing

Programme

SEPTEMBER 25, 2008

08:30 > 09:10 Invited speaker: Thermal conductivity in nanostructures: the role of acoustic phonons

Clivia M. Sotomayor Torres, Catalan Institute of Nanotechnology, Bellaterra (Barcelona), Spain, Catalan Institute for Research and Advanced Studies ICREA, Barcelona, Spain

Chair> **Ali Shakouri,** Univ. of California, USA

09:10 > 10:30 Session 4: Nanopack

Chair> **Peter Raad,** South. Methodist U., USA

09:10 *NANOPACK – NANO PACKAGING TECHNOLOGY FOR INTERCONNECT AND HEAT DISSIPATION*

Afshin Ziaei, Sebastien Demoustier, Thales Research & Technology, France

09:30 *RECENT PROGRESS OF THERMAL INTERFACE MATERIAL RESEARCH – AN OVERVIEW*

Johan Liu, Chalmers Univ. of Technology, Sweden

09:50 *BAND GAPS IN A PHONONIC CRYSTAL MADE OF A PERIODICAL ARRAY OF DOTS ON A PLATE*

Bahram Djafari Rouhani, Institut d'Electronique, de Microélectronique et Nanotechnologie, France

Yan Pennec, Institut d'Electronique, de Microélectronique et Nanotechnologies, France

10:10 *NANOSCALE MANAGEMENT OF ELECTRON-PHONON ENERGY TRANSFER*

Vladimir Mitin, Andrei Sergeev, SUNY at Buffalo, USA

10:30 > 10:50 Break

10:50 > 12:20 Panel: Thermal and Power Map Characterization for Active Devices

The panel will consider various semiconductor devices like VLSI, Laser, LED, IGVT, MEMS, etc. and discuss challenges like instantaneous temperatures rise, local hot spots, temperature determination within multi-layered structures, impact of interfacial thermal boundary, power map, material thermal properties at submicron scales, measurement methods, requirement for accuracy, resolution, and property characterization for models.

Moderators:

Kazuaki Yazawa, Sony, Tokyo, Japan and
Peter Raad, SMU, USA

Panelists:

- **Ali Shakouri,** UCSC, USA
- **Hendrik Hamann,** IBM, USA
- **Peter Raad,** SMU, USA
- **Stephane Grauby,** Univ. BordeauxI, France
- **Vladimir Szekely,** BME, Hungary

12:20 > 13:40 Lunch

Programme

SEPTEMBER 25, 2008

13:40 > 14:20 Session 5: Novel and advanced cooling

Chair> **Lorenzo Codecasa,** Polit. di Milano, Italy

13:40 *SILICON INTEGRATED VAPOR CHAMBER EQUIPPED WITH INTEGRATED SENSOR NETWORK FOR IN-SITU THERMAL MONITORING AND COOLING OPTIMIZATION*

Bogdan Bercu, Laurent Montès, Panagiota Morfouli, IMEP, France

14:00 *MICRO CHANNEL HEATSINK OPTIMIZATION*

Ivan Catton, UCLA, USA

Aleksander Vadnjal, Rocketdyne, USA

14:20 > 14:40 Break

14:40 > 15:40 Session 6: Acquisition and analysis of thermal data

Chair> **Hendrik Hamann,** IBM, USA

14:40 *LASER SCANNING THERMOMECHANICAL IMAGING OF MICROELECTRONIC DEVICES*

Stéphane Grauby, Amine Salhi, Univ. Bordeaux I, France

Jean-Michel Rampnoux, Wilfrid Claeys, Stefan Dilhaire, Univ. Bordeaux I, France

15:00 *DEVIATIONS IN DETERMINATION OF JUNCTION TEMPERATURE USING DIODE METHOD AND IR*

Frank van Lieshout, NXP semiconductors, Netherlands

Andrzej Grzegorczyk, Stan Tielens, NXP Semiconductors, Netherlands

15:20 *A DUAL APPROACH TO DETERMINE THE THERMAL IMPEDANCE OF BIPOLAR TRANSISTORS*

Alain Xiong, Raphael Sommet, Antonio de Souza, Raymond Quere, XLIM, France

15:40 > 16:40 Session 7: Sensors

Chair> **Antonio Rubio,** UPC, Spain, USA

15:40 *ULTRA-HIGH TEMPERATURE (>300C) SUSPENDED THERMO-DIODE IN SOI CMOS TECHNOLOGY*

F. Udrea, S. Santra, P. K. Guha, S. Z. Ali, I. Haneef, Univ. of Cambridge, UK

16:00 *POSSIBILITIES FOR HUMIDITY SENSING WITH THERMAL TRANSIENT TESTING ON POROUS STRUCTURES*

András Vass-Várnai, MicReD Ltd., Hungary

Peter Furjes, MFA, Hungary

Marta Rencz, BME, Hungary

16:20 *EVALUATION OF AN ELECTRICAL METHOD FOR DETECTION OF DIE ATTACH IMPERFECTIONS IN SMART POWER SWITCHES USING TRANSIENT THERMAL FEM SIMULATIONS*

Vladimír Košel, Michael Glavanovics, KAI Kompetenzzentrum Automobil- und Industrieelektronik GmbH, Austria

Erich Scheikl, Infineon Technology, Austria

20:00 > 22:15 Social event

Programme

SEPTEMBER 26, 2008

09:00 > 09:30 Embedded tutorial: LED standardisation

Chair> **Vladimir Székely,** Budapest Univ. of Technology and Economics, Hungary

- *On the standardisation of thermal characterisation of LEDs Part I: Comparison with IC packages*

Clemens Lasance, Philips, Eindhoven, The Netherlands

- *On the standardisation of thermal characterisation of LEDs Part II: Problem definition and proposal for action*

Clemens Lasance, Philips, Eindhoven, The Netherlands and
Andras Poppe, Budapest Univ. of Technology and Economics, Hungary

09:30 > 11:00 Panel: Thermal standardisation Issues of high power LEDs

While the LED-business is growing exponentially the progress in LED thermal characterisation has not kept pace with it. Due to the lack of world- wide-accepted standards different vendors publish data of significantly different kind, making the life of users very difficult. The panel will discuss the views of vendors, end-users, software and test people.

Moderators:

Clemens Lasance, Philips, Eindhoven, The Netherlands and
Andras Poppe, Budapest Univ. of Technology and Economics, Hungary, Budapest, Hungary

Panelists represent major LED producing companies, university research groups and end-users.

11:00 > 11:20 Break

11:20 > 12:40 Session 8: Electrothermal

Chair> **Herming Chiueh,** National Chiao Tung U., Taiwan

11:20 *PRACTICAL CHIP-CENTRIC ELECTRO-THERMAL SIMULATIONS*

Renaud Gillon, Patricia Joris, AMI Semiconductor Belgium BVBA, Belgium
Herman Oprins, Bart Vandevelde, IMEC vzw, Belgium
Adi Srinivasan, Rajit Chandra, GRADIENT DA, Inc., USA

11:40 *ELECTRO-THERMAL ANALYSIS OF ELECTRIC DOUBLE-LAYER CAPACITORS*

Caroline Pascot, Philippe Guillemet, Yves Scudeller, Univ. de Nantes, France

12:00 *CONSIDERATION OF THERMAL EFFECTS IN LOGIC SIMULATION*

Gergely Nagy, György Horváth, András Poppe, Budapest Univ. of Technology and Economics, Hungary

12:20 *ELECTRO-THERMAL INVESTIGATION OF OLEDS*

Zsolt Kohári, László Pohl, András Poppe, Budapest Univ. of Technology and Economics, Hungary

12:40 > 13:00 Closing remarks

Bernard Courtois, CMP, Grenoble, France

13 :00 > 14 :30 Lunch

PANELS

Thermal and Power Map Characterization for Active Devices

Moderators:

Kazuaki Yazawa, Sony, Tokyo, Japan and
Peter Raad, SMU, USA

Panelists:

- **Ali Shakouri,** UCSC, USA
- **Hendrik Hamann,** IBM, USA
- **Peter Raad,** SMU, USA
- **Stephane Grauby,** Univ. Bordeaux1, France
- **Vladimir Szekely,** BME, Hungary

The panel will consider various semiconductor devices like VLSI, Laser, LED, IGVT, MEMS, etc. and discuss challenges like instantaneous temperatures rise, local hot spots, temperature determination within multi-layered structures, impact of interfacial thermal boundary, power map, material thermal properties at submicron scales, measurement methods, requirement for accuracy, resolution, and property characterization for models.

Thermal standardisation Issues of high power LEDs

Moderators:

Clemens Lasance, Philips, Eindhoven, The Netherlands and
Andras Poppe, Budapest Univ. of Technology and Economics, Hungary, Budapest, Hungary

Panelists represent major LED producing companies, university research groups and end-users.

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THERMINIC 2008
24-26 September 2008

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ACCOMMODATION FORM

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☐ standard double room for single use 269 €

☐ standard double room 289 €

☐ standard single room 249 €

Rates to be intended per room per night, taxes and breakfast included.

Check in date: Check out date:

Family name:

First name:

Tel.: Fax or Email:

CREDIT CARD DETAILS:
Credit Card N°

Expiry Date (MM/YY):

Holder

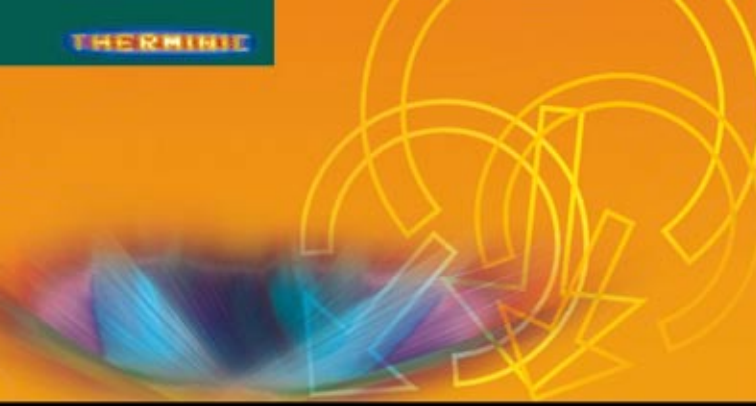
CANCELLATION POLICY:
> 30% of cancelled room/nights will be automatically charged on above mentioned credit card for any cancellation/reduction of stay received by the hotel from 25/08/08.
> 60% of cancelled room/nights will be automatically charged on above mentioned credit card for any cancellation/reduction of stay received by the hotel from 09/09/08.
> 100% of cancelled room/nights will be automatically charged on above mentioned credit card for any cancellation/reduction of stay received by the hotel from 17/09/08 until the arrival date.

No shows will be automatically charged on above mentioned credit card.

Rooms will be available from 3.00 p.m. of arrival day and should be released within 10.00 a.m. of departure day.

THERE ISN'T ANY ROOM BLOCK CONFIRMED FOR THE MEETING.
ALL RESERVATIONS WILL BE EVENTUALLY RECONFIRMED ACCORDING TO HOTEL AVAILABILITY.

Signature for acceptance



The Workshop at a Glance

September 24, 2008

09:30 > 09:40
Welcome address
09:40 > 10:20
Invited talk I:
CAD/EDA embeddied
CFD vs standalone
CFD
10:20 > 11:40
Session 1:
Measurements
11:40 > 12:00 Break
12:00 > 12:40
Vendors session
12:40 > 14:00 Lunch
14:00 > 15:20
Session 2:
Reliability issues
15:20 > 15:40 Break
15:40 > 17:00
Session 3:
Simulation
at package level
17:00 > 17:20 Break
17:20 > 19:00
Poster session:
Introduction
and viewing

September 25, 2008

08:30 > 09:10
Invited talk II:
Thermal conductivity
in nanostructures:
the role of acoustic
phonons
09:10 > 10:30
Session 4:
Nanopack
10:30 > 10:50 Break
10:50 > 12:20
Panel: Thermal
and Power Map
Characterization
for Active Devices
12:20 – 13:40 Lunch
13:40 > 14:20
Session 5:
Novel and advanced
cooling
14:20 > 14:40 Break
14:40 > 15:40
Session 6:
Acquisition
and analysis
of thermal data
15:40 > 16:40
Session 7:
Sensors
20:00 > 22:15
Social event

September 26, 2008

09:00 > 09:30
Embedded tutorial
LED standardisation
09:30 > 11:00
Panel:
Thermal
standardisation
Issues of high power
LEDs
11:00 > 11:20 Break
11:20 > 12:40
Session 8:
Electrothermal
12:40 > 13:00
Closing remarks
13:00 > 14:30 Lunch

Design Printed in Fance