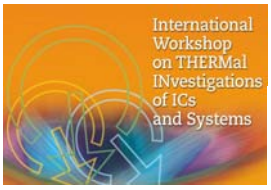

2008 Final program

September 24, 2008

08:00-09:30 Registration

09:30 - 09:40 Welcome address
Bernard Courtois, *CMP, Grenoble, France*

09:40 - 10:20 [1052] **Invited speaker I: CFD for Electronics Cooling: MCAD and EDA Embedded vs. Standalone**
John Parry, *Flomerics*, *Hampton Court, UK*
Chair: **Clemens Lasance**, *Philips, Eindhoven, The Netherlands*

10:20 – 10:40 Break

10:40 - 12:00 Session 1: Measurements
Chair: **Thomas Zahner**, *OSRAM, Germany*

10:40 [1024] - **TRIANGULATION METHOD FOR STRUCTURE FUNCTIONS OF MULTI-DIRECTIONAL HEAT-FLOWS**
Lorenzo Codecasa, **Dario D'Amore and Paolo Maffezzoni**, *Politecnico di Milano, Italy*

11:00 [1029] - **TRANSIENT DUAL INTERFACE MEASUREMENT OF THE RTH-JC OF POWER PACKAGES**
Dirk Schweitzer, *Infineon Technologies AG, Germany*

11:20 [1031] - **EVALUATION OF SHORT PULSE THERMAL TRANSIENT MEASUREMENTS**
Vladimir Szekely, *Budapest U. of Technology & Economics, Hungary*

11:40 [1012] - **NEW APPROACH FOR THERMAL INVESTIGATION OF A III-V POWER TRANSISTOR**
Maxime Fontaine, **Eric Joubert**, **Olivier Latry**, **Pascal Dherbecourt and Mohamed Ketata**, *LEMI, France*

12:00 – 14:00 Lunch

14:00 - 15:20 Session 2: Reliability issues
Chair**: John Parry**, Flomerics, *Hampton Court, UK*

14:00 [1026] - **ENSURING TEMPERATURE-INSENSITIVITY OF DUAL-VT DESIGNS THROUGH ITD-AWARE SYNTHESIS**
Andrea Calimera, *Politecnico di Torino, Italy***; Ruth Iris Bahar,** *Brown U., USA***; Enrico Macii and Massimo Poncino,** *Politecnico di Torino, Italy*

14:20 [1034] - **MANAGING LEAKAGE POWER AND RELIABILITY IN HOT CHIPS USING SYSTEM FLOORPLANNING AND SRAM DESIGN**
Aseem Gupta, Amin Djahromi, Ahmed Eltawil, Fadi Kurdahi, Nikil Dutt, *U. of California Irvine, USA***; Kamal Khouri? Magdy Abadir,** *Freescale Semiconductor Inc., USA*

14:40 [1008] - **ASSESMENT OF DIE ATTACH QUALITY BY ANALYSIS OF CIRCUIT THERMAL RESPONSE SPECTRUM 43**
Marcin Janicki, **Marek Kaminski**, **Andrzej Napieralski**, *Technical U. of Lodz, Poland*; **Bjorn Vermeersch**, **Jedrzej Banaszczyk**, **Gilbert De Mey**, *U. of Ghent, Belgium*

15:00 [1035] - **MATERIAL CHARACTERISATION AND NON-DESTRUCTIVE FAILURE ANALYSIS BY TRANSIENT PULSE GENERATION AND IR-THERMOGRAPHY**
Daniel May, **Heike Kukuk-Schmid**, **BernhardWunderle**, **Bernd Michel**, **Mohamad Abo Ras**, **Wolfgang Faust**, *Fraunhofer IZM, Germany*; **Astrid Gollhardt**, *AMIC GmbH, Germany*

15:20 – 15:40 Break

15:40 - 16:40 Session 3: Simulation at package level
Chair: Lorenzo Codecasa, *Polit. di Milano, Italy*

15:40 [1025] - **COMPACT THERMAL NETWORKS FOR CONJUGATE HEAT TRANSFER BY DIRECTIONAL MOMENT MATCHING**
Lorenzo Codecasa, **Dario D'Amore**, **Paolo Maffezzoni**, *Politecnico di Milano, Italy*

16:00 [1014] - **MULTISCALE 3D THERMAL ANALYSIS OF ANALOG ICS: FROM FULL-CHIP TO DEVICE LEVEL**
Marek Turowski, **Ashok Raman**, CFDRC, USA; **Steven Dooley**, **Matthew Casto**, AFRL, USA

16:20 [1019] -**THE MINIMAL SET OF PARAMETERS FOR EXACT DYNAMIC THERMAL MODELS**
York Christian Gerstenmaier, *Siemens AG, Germany*; **Gerhard Wachutka**, *Munich U. of Technology, Germany*

16:40 – 17:00 Break

17:00 - 17:48 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

17:00 [1002] - AUTOMATIC ELECTRO-THERMAL ANALYSIS IN MENTOR GRAPHICS PCB DESIGN SYSTEM
Konstantin Petrosjanc, Petr Kozynko, *MIEM, Russian Federation*

17:03 [1005] - INTEGRATED THERMAL MODELING OF HETEROGENEOUS ECUBES STACKED DEVICES
Grzegorz Janczyk, Tomasz Bieniek, Piotr Grabiec, Jerzy Szynka, *Institute of Electron Technology, Poland*

17:06 [1006] - LOGICAL EFFORT MODEL EXTENSION FOR TEMPERATURE AND VOLTAGE VARIATIONS
Chun-Hui Wu, Shun-Hua Lin, Herming Chiueh, *National Chiao Tung Univ., Taiwan*

17:09 [1041] - 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*

17:12 [1010] - MULTI-PHYSICS ANALYSIS OF A PHOTOVOLTAIC PANEL WITH A HEAT RECOVERY SYSTEM
Paolo Maffezzoni, Lorenzo Codecasa, Dario D'Amore, *Politecnico di Milano, Italy*

17:15 [1042] - PHASE CHANGE HEAT DISSIPATER OF ALUMINIUM CONTAINER
Cecilia Wolluschek, Estibaliz Armendáriz, Jesús Esarte, *Fundación CETENA, Noain, Spain,*

17:18 [1018] - 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*

17:21 [1043] - THERMAL TRANSIENT CHARACTERISATION OF COMPLEX CIRCUITS
Gergely Perlaky, *Budapest Univ of Technology, Hungary,* ; Gábor Farkas, *MicReD Ltd., Budapest, Hungary,*

17:24 [1027] - IN-SITU MEASUREMENT OF VARIOUS THIN BOND-LINE-THICKNESS THERMAL INTERFACE MATERIALS WITH CORRELATION TO STRUCTURAL FEATURES
Bernhard Wunderle, Jessica Kleff, *Fraunhofer IZM, Germany*; Raul Mrossko, *AMIC, Germany*; Daniel May, Mohamad Abo Ras, *Fraunhofer IZM, Germany*; Ralph Schacht, *FH Lausitz, Germany*; Juergen Keller, *Nanotest, Germany*; Hermann Oppermann, Bernd Michel, *Fraunhofer IZM, Germany*

17:27 [1045] - COMPACT THERMAL MODELING OF ELECTRIC DOUBLE-LAYER CAPACITORS
Philippe Guillemet, Caroline Pascot, Yves Scudeller, *Univ. de Nantes, France*

17:30 [1030] - HOT-CARRIER EFFECTS ON POWER RF LDMOS DEVICE RELIABILITY
Mohamed Ali Belaid, Kaouther Daoud-Ketata, *GPM- U. Rouen, France*

17:33 [1046] - 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*

17:36 [1032] - DESIGN OF A STATIC TIM TESTER
Vladimir Szekely, Gergely Somlay, Péter G. Szabó, Márta Rencz, *Budapest Univ. of Technology & Economics, Hungary*

17:39 [1047] - MULTITHREADING AND STRASSEN'S ALGORITHMS IN SUNRED FIELD SOLVER
László Pohl, *Budapest Univ. of Technology and Economics, Hungary,*

17:42 [1033] - 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*

17:45 [1048] - FPGA POWER MODEL FOR MINIMIZING THE THERMAL DISSIPATION
Ábel Vámos, Márta Rencz, *Budapest Univ. of Technology and Economics, Hungary*

17:48 – 19:00 Poster session: viewing

18:30 Welcome cocktail

2008 Final program

September 25, 2008

08:30 - 09:10 [1053] **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 [1023] - **NANOPACK NANO PACKAGING TECHNOLOGY FOR INTERCONNECT AND HEAT DISSIPATION**
Afshin Ziaei, Sebastien Demoustier, *Thales Research & Technology, France*

09:30 [1028] - **RECENT PROGRESS OF THERMAL INTERFACE MATERIAL RESEARCH - AN OVERVIEW**
Johan Liu, *Chalmers U. of Technology, Sweden*

09:50 [1013] - **BAND GAPS IN A PHONONIC CRYSTAL MADE OF A PERIODICAL ARRAY OF DOTS ON A PLATE**
Bahram Djafari Rouhani, Yan Pennec, *Institut d'Electronique, de Microélectronique et Nanotechnologies, France*

10:10 [1040] - **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, 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*
- **Bernhard Wunderle**, *Fraunhofer IZM, Germany*

12:20 – 13:40 Lunch

13:40 - 14:20 Session 5: Novel and advanced cooling
Chair: **Tine Baelmans**, *KUL, Belgium*

13:40 [1015] - **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 [1020] - **MICRO CHANNEL HEATSINK OPTIMIZATION**
Ivan Catton, *UCLA, USA*

14:20 – 14:40 Break

14:40 - 15:20 Session 6: Acquisition and analysis of thermal data
Chair: **Hendrik Hamann**, *IBM, USA*

14:40 [1001] - **LASER SCANNING THERMOMECHANICAL IMAGING OF MICROELECTRONIC DEVICES**
Stéphane Grauby, **Amine Salhi**, **Jean-Michel Rampnoux**, **Wilfrid Claeys**, **Stefan Dilhaire**, *U. Bordeaux 1, France*

15:00 [1009] - **LASER SCANNING THERMOMECHANICAL IMAGING OF MICROELECTRONIC DEVICES**
Stéphane Grauby, **Amine Salhi**, **Jean-Michel Rampnoux**, **Wilfrid Claeys**, **Stefan Dilhaire**, *U. Bordeaux 1, France*

15:20 - 16:20 Session 7: Sensors
Chair: **Antonio Rubio**, *UPC, Spain*

15:20 [1017] - **ULTRA-HIGH TEMPERATURE (>300C) SUSPENDED THERMODIODE IN SOI CMOS TECHNOLOGY**
F. Udrea, **S. Santra**, **P. K. Guha**, **S. Z. Ali**, **I. Haneef**, *U. of Cambridge, UK*

15:40 [1022] - **POSSIBILITIES FOR HUMIDITY SENSING WITH THERMAL TRANSIENT TESTING ON POROUS STRUCTURES**
Andras Vass-Varnai, *MicReD Ltd., Hungary*; **Peter Furjes**, *MFA, Hungary*; **Marta Rencz**, *BME, Hungary*

16:00 [1038] - **EVALUATION OF AN ELECTRICAL METHOD FOR DETECTION OF DIE ATTACH IMPERFECTIONS IN SMART POWER SWITCHES USING TRANSIENT THERMAL FEM SIMULATIONS**
Vladimir Košel, **Michael Glavanovics**, *KAI Kompetenzzentrum Automobil- und Industrieelektronik GmbH, Austria*; **Erich Scheikl**, *Infineon Technology, Austria*

19:30 – 22:15 Social event
A dinner cruise will be served on the boat Tiber II, the queen of Battelli di Roma's fleet*. Participation to the social event is included in the registration fee (ticket in your badge).*
19:30 → Boarding - Location: Ponte S. Angelo.

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 AND PROPOSAL FOR ACTION
Clemens Lasance, *Philips, Eindhoven, The Netherlands*

ON THE STANDARDISATION OF THERMAL CHARACTERISATION OF LEDS PART II: PROBLEM DEFINITION AND POTENTIAL SOLUTIONS
Clemens Lasance, *Philips, Eindhoven, The Netherlands*
Andras Poppe, *Budapest U. 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*
Organizer:
Andras Poppe, *Budapest Univ. of Technology and Economics, Hungary*

Panelists:
- **Wouter Oepts**, *Lumileds, USA*
- **Jim Petroski**, *GE Lumination, USA*
- **Thomas Zahner**, *Osram OS, Germany*
- **Andras Poppe**, *MicReD, Hungary*
- **MooWhan Shin**, *MyongJi Univ., Korea*
- **Mr. Kim**, *KOPTI, Korea*

11:00 – 11:20 Break

11:20 - 12:40 Session 8: Electrothermal
Chair: **Herming Chiueh**, *National Chiao Tung U., Taiwan*

11:20 [1016] - **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 [1044] - **ELECTRO-THERMAL ANALYSIS OF ELECTRIC DOUBLE-LAYER CAPACITORS**
Caroline Pascot, **Philippe Guillemet**, **Yves Scudeller**, *U. de Nantes, France*

12:00 [1036] - **CONSIDERATION OF THERMAL EFFECTS IN LOGIC SIMULATION**
Gergely Nagy, **Gyorgy Horvath**, **Andras Poppe**, *Budapest U. of Technology and Economics, Hungary*

12:20 [1039] - **ELECTRO-THERMAL INVESTIGATION OF OLEDS**
Laszlo Pohl, **Erno Kollar**, **Zsolt Kohari**, **Andras Poppe**, *BME, Hungary*

12:40 - 13:00 Closing remarks
Bernard Courtois, *CMP, Grenoble, France*

13 :00 – 14 :30 Lunch