

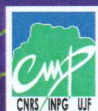
International Workshop on
THERMal INvestigations of ICs and Systems

7-9 OCTOBER 2009, LEUVEN, BELGIUM

THERMINIC 2009

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Sponsored by :





Wednesday 7 October 2009		Thursday 8 October 2009		Friday 9 October 2009	
08:00 09:30 Registration		08:20 09:00 Invited speaker: Suresh V. Garimella <i>Purdue University, USA</i> "Boiling Heat Transfer and Flow Regimes in Microchannels - a Comprehensive Understanding" <i>Chair: Martine Baelmans</i>			
		09:00 10:20 Session 2.1 Coupled modelling: <i>Chair: Peter Raad</i>		08:40 09:40 Session 3.1 Nanopack I <i>Chair: Marta Rencz</i>	
		09:00 09:20 [30] "IMPACT OF MOISTURE ABSORPTION ON WARPAGE OF LARGE BGA PACKAGES DURING A LEAD-FREE REFLOW PROCESS", Bart Vandevelde, Rafael Deweerdt, Frederic Duflos, Renaud Gillon		08:40 09:00 [41] "PRESENTATION AND STATUS OF THE NANOPACK PROJECT", Sebastien Demoustier, Afshin Ziaei	
09:30 09:40 Welcome address Bernard Courtois, Martine Baelmans, Marta Rencz		09:20 09:40 [23] "EVALUATION OF MATERIALS FOR HIGH TEMPERATURE IC PACKAGING", Robert Klieber, Renee Lerch		09:00 09:20 [29] "ELECTRO-THERMAL MODELING OF NANO-SCALE DEVICES", Dragica Vasileska, Katerina Raleva, Stephen Goodnick	
		09:40 10:00 [24] "ELECTRO-THERMAL MODELING OF DIFFERENT LEP-THICKNESS WHITE OLEDs", Erno Kollar, Gusztav Hantos		09:20 09:40 [46] "DIRECTIONAL THERMAL CONDUCTIVITY OF A THIN SI SUSPENDED MEMBRANE WITH STRETCHED GE QUANTUM DOTS", Jean-Numa Gillet, Bahram Djafari Routhani, Yan Pennec	
09:40 10:20 Invited speaker: Sachin S. Sapatnekar <i>University of Minnesota, USA</i> "TEMPERATURE AS A FIRST-CLASS CITIZEN IN CHIP DESIGN" <i>Chair: Peter Raad</i>		10:00 10:20 [02] "ELECTRO-THERMAL SIMULATION OF MULTI-CHANNEL POWER DEVICES WITH SPICE", Torsten Hauck, Teulings Wim, Evgenii Rudnyi		09:40 10:20 Invited speaker: Vladimír Székely <i>BUTE, Hungary</i> "Thermal Transient Measurements: the State of the Art" <i>Chair: Marta Rencz</i>	
10:20 10:40 Break		10:20 10:40 Break		10:20 10:40 Break	
10:40 12:00 Session 1.1 Thermal modelling: System level <i>Chair: Bart Vandevelde</i>		10:40 12:00 Session 2.2 Thermal measurements and analysis <i>Chair: Thomas Zahner</i>		10:40 12:00 Session 3.2 Nanopack II Thermal interface materials <i>Chair: Afshin Ziaei</i>	
10:40 11:00 [44] "TOWARD A RATIONAL MODELING OF CONVECTION", Mohamed-Nabil Sabry		10:40 11:00 [42] "PIXEL-BY-PIXEL CALIBRATION OF A CCD CAMERA BASED THERMOREFLECTANCE THERMOGRAPHY SYSTEM WITH NANOMETER RESOLUTION", Peter Raad, Mihai Burzo, Pavel Komarov		10:40 11:00 [35] "CHARACTERIZATION OF METAL MICRO-TEXTURED THERMAL INTERFACE MATERIALS", Roger Kempers, Anthony Robinson, Alan Lyons	
		11:00 11:20 [12] "EQUIVALENT ELECTROTHERMAL CIRCUIT MODEL FOR VERTICAL-CAVITY SURFACE-EMITTING LASERS ON SILICON OPTICAL BENCH", C. C. Chen, C. Singh, Y. C. Chen, Hsu-Liang Hsiao, Chia-Yu Lee, Y. T. Cheng, Mount-Learn Wu		11:00 11:20 [39] "CARBON NANOTUBES ENHANCED THERMALLY CONDUCTIVE PHASE CHANGE MATERIAL FOR HEAT DISSIPATION", Xinhe Tang, Ernst Hammel, Werner Reiter	
11:20 11:40 [16] "GEOTHERMAL COOLING SOLUTION RESEARCH FOR OUTDOOR CABINET", Yuping Hong, Yuening Li, Jian Shi		11:20 11:40 [18] "CMOS TEMPERATURE SENSORS BASED ON THERMAL DIFFUSION", Caspar Van Vroonhoven, Mahdi Kashmiri, Kofi Makinwa		11:20 11:40 [40] "METHOD FOR IN-SITU RELIABILITY TESTING OF TIM SAMPLES", András Vass-Várnai, Zoltán Sárkány, Marta Rencz	
11:40 12:00 [08] "A NEW METHODOLOGY FOR EARLY STAGE THERMAL ANALYSIS OF COMPLEX ELECTRONIC SYSTEMS", Olivier Martins, Nicolas Peltier, Stéphane Guédon, Sylvian Kaiser, Yves Maréchal, Yvan Avenas		11:40 12:00 [37] "HIGH-LEVEL THERMAL PROFILING OF MOBILE APPLICATIONS", Marius Marcu		11:40 12:00 [26] "PROGRESS IN THERMAL CHARACTERISATION METHODS AND THERMAL INTERFACE TECHNOLOGY WITHIN THE "NANOPACK" PROJECT", B. Wunderle, M. Abo Ras, M. Klein, R. Mrossko, G. Engelmann, D. May, O. Wittler, R. Schacht, L. Dietrich, H. Oppermann, B. Michel	
12:00 13:30 Lunch		12:00 13:30 Lunch		12:00 12:20 Closing remarks	
13:30 15:10 Session 1.2 Thermal modelling and simulation: IC level <i>Chair: John Janssen</i>		13:30 14:50 Session 2.3 Advanced cooling techniques I <i>Chair: Suresh V. Garimella</i>		12:20 14:20 Lunch	
13:30 13:50 [03] "VALIDATION STUDIES OF DELPHI-TYPE BOUNDARY-CONDITION-INDEPENDENT COMPACT THERMAL MODEL FOR AN OPTO-ELECTRONIC PACKAGE", Arun Prakash Raghupathy, Attila Aranyosi, William Maltz, Urmila Ghia, Karman Ghia		13:30 13:50 [11] "HOTSPOT-ADAPTED COLD PLATES TO MAXIMIZE SYSTEM EFFICIENCY", Thomas Brunschweiler, Hugo Rothuizen, Stephan Paredes, Bruno Michel, Evan Colgan, Pepe Bezama			
13:50 14:10 [04] "SPATIAL AND TEMPORAL TEMPERATURE VARIATIONS IN CMOS DESIGNS", John Janssen, Harry Veendrick		13:50 14:10 [09] "OPTIMAL CHANNEL WIDTH DISTRIBUTION OF SINGLE-PHASE MICRO CHANNEL HEAT SINKS", Tijs Van Oevelen, Frederik Rogiers, Martine Baelmans			
14:10 14:30 [43] "NUMERICAL SIMULATION OF COMPLEX SUBMICRON DEVICES WITH EXPERIMENTALLY DETERMINED POWER MAPS", Peter Raad, Mihai Burzo, Pavel Komarov		14:10 14:30 [19] "HEAT TRANSFER ENHANCEMENT DUE TO PULSATING FLOW IN A MICROCHANNEL HEAT SINK", Tim Persoons, Tom Saenen, Radu Donose, Martine Baelmans			
14:30 14:50 [20] "DESIGN MODELING AND SIMULATION OF ELECTROTHERMALLY ACTUATED MICROGYROSCOPE FABRICATED USING THE METALMUMPS", Rana Shakoar, Shafaat Bazaz, M Hassan		14:30 14:50 [33] "HOT SPOT TARGETING WITH A LIQUID IMPINGING JET ARRAY WATERBLOCK", D. Nikolic, M. Hutchison, P.T. Sapin, A.J. Robinson			
14:50 15:10 [47] "EFFECTS OF QUANTUM CORRECTIONS AND ISOTOPE SCATTERING ON SILICON THERMAL PROPERTIES", Javier Goicochea, Marcela Madrid, Cristina Amon					
15:10 15:30 Break		14:50 15:10 Break			
15:30 16:30 Session 1.3 Thermal simulation: 3D chip architectures <i>Chair: Mohamed-Nabil Sabry</i>		15:10 16:10 Session 2.4 Advanced cooling techniques II <i>Chair: Yves Scudeller</i>			
15:30 15:50 [27] "FINE GRAIN THERMAL MODELING OF 3D STACKED STRUCTURES", Herman Oprins, Miroslav Cupak, Geert Van Der Plas, Bart Vandevelde, Adi Srinivasan, Edmund Cheng		15:10 15:30 [32] "TOWARDS A DYNAMIC SYSTEM MODEL FOR A TWO-PHASE COOLING LOOP USING MICROCHANNELS", Tom Saenen, Tom Delesie, Martine Baelmans			
15:50 16:10 [15] "EMULATION-BASED TRANSIENT THERMAL MODELING OF 2D/3D SYSTEMS-ON-CHIP WITH ACTIVE COOLING", David Atienza		15:30 15:50 [05] "HEAT TRANSFER AND FILM THICKNESS MEASUREMENTS IN A CLOSED LOOP SPRAY COOLING SYSTEM WITH R134A", Eduardo Martínez-Galván, Juan Carlos Ramos, Raúl Antón, Björn Palm, Rahmatollah Khodabandeh			
16:10 16:30 [22] "THERMAL ANALYSIS OF HOT SPOTS IN ADVANCED 3D-STACKED STRUCTURES", Cristina Torregiani, Herman Oprins, Bart Vandevelde, Eric Beyne, Ingrid De Wolf		15:50 16:10 [28] "THERMAL MANAGEMENT OF A 3-D CHIP STACK USING A LIQUID INTERFACE TO A SYNTHETIC JET COOLED SPREADER", Krishna Kota, Pablo Hidalgo, Yogendra Joshi, Ari Glezer			
16:30 17:00 Poster session* Posters are introduced by one slide in maximum 3 minutes each <i>Chair: Martine Baelmans</i>		16:30 23:00 Social event: Tour and dinner in Palm Breweries			
17:00 Walk to Stadhuis Leuven (1km)					
18:00 20:00 Welcome reception in Stadhuis Leuven					



Poster session

Chair: Martine Baelmans

- 16:30 16:33 [45] "DETERMINATION OF THE THERMO-ELASTIC PROPERTIES OF THIN NANOCRYSTALLINE CVD DIAMOND FILMS FOR HEAT SPREADING APPLICATIONS", Robbe Salenbien, Christ Glorieux, Stoffel Janssens, Vincent Mortet, Ken Haenen
- 16:33 16:36 [34] "THERMAL ISSUES OF SOLAR IRRADIATION SENSOR", Balázs Plesz, Á. Foldvály, E. Bándy
- 16:36 16:39 [10] "THERMAL SIMULATION AND PACKAGE INVESTIGATION OF WIRELESS GAS SENSORS MICROSYSTEMS", Andrea Paoli, Lucia Seminara, Daniele Caviglia, Alessandro Garibbo, Maurizio Valle
- 16:39 16:42 [01] "ELECTRO-THERMAL SIMULATION: A NEW SUBSYSTEM IN MENTOR GRAPHICS IC DESIGN FLOW", Konstantin Petrosjanc, Nikita Ryabov, Igor Kharitonov, Petr Kozynko
- 16:42 16:45 [07] "THERMOELECTRIC ENERGY SCAVENGING FROM WASTE HEAT OF POWER AMPLIFIER TRANSISTORS", Kyoung Joon Kim, Marc Hodes
- 16:45 16:48 [17] "PRACTICAL REALIZATION OF PTAT SENSOR FOR ASIC OVERHEAT PROTECTION", Michal Szermer, Marcin Janicki, Zbigniew Kulesza, Andrzej Napieralski
- 16:48 16:51 [14] "THERMO-MECHANICAL RELIABILITY LOOP IN DEVICE MODELING", Tomasz Bieniek, Grzegorz Janczyk, Piotr Grabiec, Jerzy Szyuka
- 16:51 16:54 [31] "A TEMPERATURE-DEPENDENT POWER MOSFET MODEL FOR SWITCHING APPLICATION", H. Dia, J.B. Sauveplane, P. Tounsi, J-M. Dorkel
- 16:54 16:57 [36] "CRACK TIP LOCALIZATION OF SUB-CRITICAL CRACK GROWTH BY MEANS OF IR-IMAGING AND PULSE EXCITATION", D. May, B. Wunderle, R. Schacht, B. Michel
- 16:57 17:00 [48] "THERMAL MATCHING OF A THERMOELECTRIC ENERGY HARVESTER TO THE ENVIRONMENT AND ITS APPLICATION IN WEARABLE SELF-POWERED WIRELESS MEDICAL SENSORS", Vladimir Leonov, Paolo Fiorini, Tom Torfs, Ruud Vullers, Chris Van Hoof