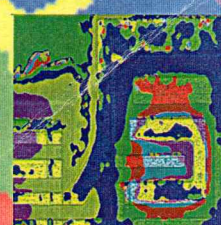
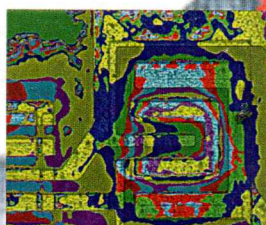
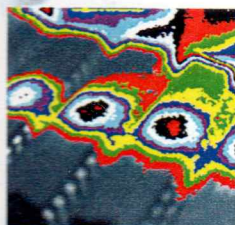


4th International Workshop on Thermal investigations of ICs and Microstructures

September
27-29, 1998
Cannes
"Côte d'Azur"
France



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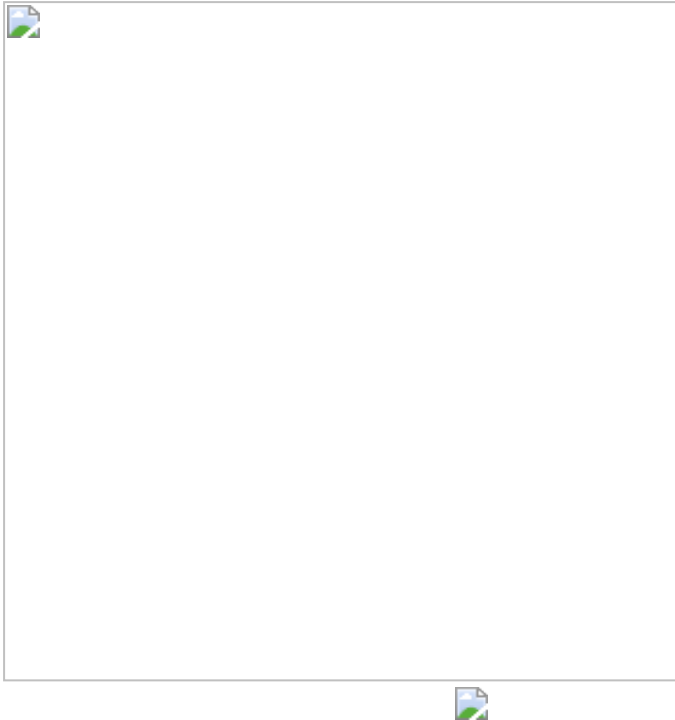
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SPIE The International Society
for Optical Engineering

4th International Workshop on

THERMAL INVESTIGATIONS of ICs and MICROSTRUCTURES



*September 27-29,
Cannes, "Côte
d'Azur",
France.*

Workshop Programme

Sunday 27 September		
14:00	Registration	
15:00	Welcome address B. Courtois , General Chair TIMA Laboratory, Grenoble, France	
15:10	Opening address H. Rajbenbach European Commission - DGIII, Brussels, Belgium	
15:20	Invited talk B. Guenin AMKOR Electronics, Chandler, USA Chair: TBD	CHARACTERIZATION OF A DELAMINATED INTERFACE IN A PLASTIC SEMICONDUCTOR PACKAGE AND ITS EFFECT ON THERMAL PERFORMANCE
16:00	Coffee	

16:20	Session 1	DYNAMIC THERMAL MEASUREMENT AND EVALUATION
17:40	Chair: W. Claeys Univ. Bordeaux, France	
16:20	V. Szekely, M. Rencz, S. Török, G. Végh, Zs. Benedek, Cs. Marta, J. Mizsei Techn. Univ. of Budapest, Hungary	ADVANCES IN THE THERMAL MEASUREMENT AND EVALUATION TECHNIQS
16:40	M. Carmona, S. Marco, J. Palacin, J. Samitier Univ. de Barcelona, Spain	A TIME-DOMAIN METHOD FOR THE ANALYSIS OF THERMAL IMPEDANCE RESPONSE PRESERVING THE CONVOLUTION FORM
17:00	L. Pellegrino¹, P.E. Bagnoli², M. Madella¹, A. Piccirillo¹ ¹ CSELT, Torino, Italy ² Univ. di Pisa, Italy	SPATIALLY RESOLVED THERMAL CHARACTERIZATION OF PACKAGED VERTICAL CAVITY SURFACE-EMITTING LASERS
17:20	Z. Suszynski Techn. Univ. of Koszalin, Poland	EXAMINATION OF THE BIPOLAR TRANSISTORS SOLDERING QUALITY: THEORY AND EXPERIMENT
17:40	Coffee	
18:00	Poster session 1	
19:00	Chair: M. Rencz Techn. Univ. of Budapest, Hungary	
	G. Hajas, L. Liptak-Fego Techn. Univ. of Budapest, Hungary	CHARACTERIZATION OF SUBMICRON BULK AND SOI MOS TRANSISTORS FOR ELECTROTHERMAL AND LOGI-THERMAL SIMULATION
	U. Dillner, M. Zieren, J.M. Köhler IPHT, Jena, Germany	THERMAL DESIGN OF MICROCALORIMETERS BASED ON FINITE ELEMENT SIMULATION
	P. Bratek, P. Dziurdzia, A. Kos Univ. of Mining and Metallurgy, Krakow, Poland	OPTIMISATION OF COOLING PROCESS WITH ACTIVE HEAT SINKS
	S. Narasimhan, B. Kusha Fluent Inc., Santa Clara, USA	CHARACTERIZATION AND VERIFICATION OF COMPACT HEAT SINK MODELS
	M. K. Berhe, R. Nair Fluent Inc., Lebanon, USA	NUMERICAL SIMULATIONS OF HEAT SINKS AND THEIR REPRESENTATION BY COMPACT HEAT SINK MODELS
	S. Di Pascoli¹, P.E. Bagnoli¹, C. Casarosa¹, V. Ciuti², A. Lorelli¹	THERMAL PROPERTIES OF INSULATED METAL SUBSTRATE TECHNOLOGY

	¹ Univ. of Pisa, Italy	
	² Accademia Navale, Livorno, Italy	
	V. Lysenko^{1,2,3}, Ph. Roussel¹, B. Remaki¹, G. Delhomme¹, A. Dittmar¹, D. Barbier¹, C.Martelet², V. Strikha³ ¹ INSA Lyon, France ² Ecole Centrale Lyon, France ³ Kyiv. T. Shevchenko Univ., The Ukraine	FORMATION OF THICK OXIDIZED MESO-POROUS SILICON LAYERS WITH LOW THERMAL CONDUCTIVITY FOR THERMAL ISOLATION APPLICATIONS
	A. Merticaru, V. Moagar-Poladian National Inst. of Microtechnology, Bucharest, Romania	THERMO-MECHANICAL PROPERTIES OF HOLLOW INSULATOR THIN FILM
	L. Boarino¹, G. Lerondel¹, E. Monticone¹, R. Steni¹, G. Amato¹, G. Benedetto¹, V. Lacquaniti¹, R. Spagnolo¹, P. Roussel², V. Lysenko², B. Remaki², G. Delhomme², A. Dittmar², D. Barbier² ¹ IEN "Galileo Ferraris", Torino, Italy ² INSA Lyon, France	DESIGN AND FABRICATION OF METAL BOLOMETERS ON HIGH POROSITY SILICON LAYERS
	K.S. Teh, L. Lin The Univ. of Michigan, Ann Arbor, USA	TIME-DEPENDENT BUCKLING PHENOMENON OF POLYSILICON MICRO BEAMS
	F. Jablonski, M. Napieralska Techn. Univ. of Lodz, Poland	MICROMACHINED ELECTRO-THERMAL CONVERTER: MEASUREMENTS AND PARAMETER EXTRACTION
	D. Veychard¹, Ph. Hazard², J-M. Karam¹ ¹ TIMA Lab., Grenoble, France ² Schneider Electric SA, Nanterre, France	ELECTRO-THERMAL CONVERTER WITH HIGH TIME CONSTANT
19:30	Reception	
Monday 28 September		
9:00	Session 2	SENSORS AND ACTUATORS
10:20	Chair: G. De Mey	

	Univ. of Gent, Belgium	
9:00	C. Shafai¹, M.I. Brett² ¹ Univ. of Manitoba, Winnipeg, Canada ² Univ. of Alberta, Edmonton, Canada	ON-CHIP THIN FILM Peltier HEAT PUMPS
9:20	L. Langley¹, G. Matijasevic², P. Gandhi² ¹ Vatell Corp., Blacksburg, USA ² Ormet Corp., Carlsbad, USA	HIGH SENSISTIVITY, LARGE AREA HEAT FLUX SENSORS FABRICATED USING A NOVEL MATERIALS AND PATTERNING TECHNOLOGY
9:40	M. Kimura, J.I. Hayasaka, C. Sawai, T. Aizawa Tohoku-Gakuin Univ., Miyagi, Japan	CHARACTERIZATION OF THE MICRO-THERMAL ANALYSIS SENSOR AND PROPOSAL OF TRANSISTOR-THERMISTOR FOR TEMPERATURE MEASUREMENT OF ITS SI-SUBSTRATE
10:00	A.V. Korlyakov¹, V.V. Luchinin¹, I.V. Nikitin¹, V. Busch², H.D. Liess², J. Lademann³ ¹ St Petersburg State Electr. Univ., Russia ² Univ. of German Armed Forces, Muenchen, Germany ³ Humboldt Univ. Berlin, Germany	STABLE INTEGRATED SiC-BASED MICROSYSTEMS: HEATER/TEMPERATURE SENSOR
10:20	Coffee	
10:40	Vendor presentations	
12:00	Lunch	
13:30	Free time	
16:00 17:20	Session 3 Chair: U. Dillner IPHT, Jena, Germany	ELECTRO-THERMAL SIMULATION
16:00	M.N. Sabry Mansoura Univ., Egypt	STATIC AND DYNAMIC THERMAL MODELLING OF IC'S
16:20	G. Digele^{1,2}, S. Lindenkrenz¹, E. Kasper ¹ Robert Bosch GmbH, Reutlingen, Germany ² Univ. of Stuttgart, Germany	FAST ELECTRO-THERMAL CIRCUIT SIMULATION USING REDUCED ORDER MODELS

16:40	V. Szekely, A. Poppe, M. Rencz, A. Pahi, Sz. Hajder, G. Hajas Techn. Univ. of Budapest, Hungary	STRUCTURAL AND ALGORITHMIC QUESTIONS OF A PLATFORM INDEPENDENT ELECTRO-THERMAL SIMULATOR
17:00	H. Laiz¹, M. Klonz² ¹ INTI, San Martin, Argentina ² PTB, Braunschweig, Germany	DYNAMIC NONLINEAR ELECTRO-THERMAL SIMULATION OF A THIN-FILM THERMAL CONVERTER
17:20	Coffee	
17:40 18:40	Poster session 2 Chair: M. Rencz Techn. Univ. of Budapest, Hungary	
	T. Dalton, J. Punch, M. Davies Univ. of Limerick, Ireland	AN EXPERIMENTAL METHODOLOGY FOR THE DETERMINATION OF COMPACT THERMAL MODELS OF ELECTRONIC DEVICES
	M. Furmanczyk¹, A. Napieralski¹, E. Yu, A. Przekwas², M. Turowski^{1,2} ¹ Techn. Univ. of Lodz, Poland ² CFD Research Corp., Huntsville, USA	THERMAL MODEL REDUCTION FOR INTEGRATED CIRCUITS
	K.O. Petrosjanc¹, P.P. Maltcev¹, N.I. Rjabov¹, V.N. Gridin², L.N. Kravtchenko³ ¹ Moscow Univ. of Electr. & Maths, Russia ² Russian Acad. of Sciences, Odintsovo, Russia ³ SRIM, Moscow, Russia	THERMAL INVESTIGATIONS OF HIGH-SPEED DIGITAL GaAs ICs
	A. Kaminski, J. Jouglar, C. Volle, S. Natalizio, P.L. Vuillermoz, A. Laugier INSA Lyon, France	NON DESTRUCTIVE CHARACTERIZATION OF DEFECTS IN DEVICES USING INFRARED THERMOGRAPHY
	M. Malinski¹, L. Bychto¹, R. Kisiel² ¹ Techn. Univ. of Koszalin, Poland ² Techn. Univ. of Warsaw, Poland	PHOTOACOUSTIC MEASUREMENTS OF THE THERMAL PROPERTIES OF THE ELECTRICALLY CONDUCTING ADHESIVES USED IN THE ASSEMBLY OF ELECTRONIC COMPONENTS
	Z. Suszynski Techn. Univ. of Koszalin	PHOTOACOUSTIC DIAGNOSTIC OF THE POWER TRANSISTORS ENCAPSULATION

	C. A. dos Reis Filho State Univ. of Campinas, Brasil	CURRENT-FEEDBACK LINEARIZATION TECHNIQUE FOR Pt100 RTD's
	J.E. Duarte¹, F.H Fernandez Morales¹, J. Sieiro², S. Leseduarte², M. Moreno² ¹ Univ. Pedag. Y Tecno., Boyaca, Colombia ² Univ. de Barcelona, Spain	THERMO-MECHANICAL MODELING OF A THERMO-OPTICALLY ACTUATED SILICON MEMBRANE
	S. Tuli, A. Gupta, A. Moghe Indian Inst. of Techno., New Delhi, India	MIRAGE BASED PROFILING OF CURRENT CARRYING MICROCONDUCTORS
	Ch. S. Roumenin, A. Ivanov, P. Nikolova Inst. of Control and System Research, Sofia, Bulgaria	TEMPERATURE INDUCED ANISOTROPY EFFECT IN DIODE MICROSTRUCTURES BASED MAGNETIC SENSORS
	S.Q. Ling, B.Q. Le, R.F. Conde Johns Hopkins Univ., Laurel, USA	THERMAL ASSESSMENT OF A MINIATURIZED SPACEBORNE COMMAND & DATA HANDLING IN YOUR PALM (C&DHIYP)
	A. Morrissey¹, J.Alderman¹, G. Kelly¹, Zs.Kohari², A. Pahi², M. Rencz² ¹ NMRC, Cork, Ireland ² Techn. Univ. of Budapest, Hungary	3D PACKAGING OF A MICROSYSTEM WITH SPECIAL THERMAL CONSTRAINTS
18:45	Banquet	
20:30	Panel Moderator: B. Guenin AMKOR Electronics, Chandler, USA	INDUSTRY NEED FOR AN INTEGRATED THERMAL ANALYSIS/CAD ENVIRONMENT: FROM CHIP TO PACKAGE TO SYSTEM
Tuesday 29 September		
9:00 9:40	Invited talk R. Mahajan Intel Corp., Hillsboro, USA Chair: V. Székely Techn. Univ. of Budapest, Hungary	THERMAL INTEGRATION CHALLENGES IN COMPUTING: THE NEED FOR PREDICTIVE CAPABILITIES
9:40	Coffee	

10:00	Session 4	THERMAL SIMULATION
11:40	Chair: Y. Zorian LogicVision, Princeton, USA	
10:00	L. Ciampolini, P. Regli, W. Fichtner ETH Zurich, Switzerland	SIMULATING THERMAL EFFECTS OF SOLDER VOIDS IN LARGE AREA JOINTS
10:20	V. Szekely, A. Pahi, M. Rosenthal, M. Rencz Techn. Univ. of Budapest, Hungary	3D EXTENSION OF THE SUNRED THERMAL FIELD SOLVER
10:40	M. Janicki, M. Zubert, A. Napieralski Techn. Univ. of Lodz, Poland	APPLICATION OF FUNCTION SPECIFICATION METHOD FOR INTEGRATED CIRCUIT TEMPERATURE ESTIMATION
11:00	D. de Cogan Univ. of East Anglia, United Kingdom	THE RELATIONSHIP BETWEEN PARABOLIC AND HYPERBOLIC TLM MODELS FOR HEAT-FLOW
11:20	S. Tzanova, P. Philippov Techn. Univ. of Sofia, Bulgaria	MCM ELEMENT PLACEMENT SATISFYING THE CRITERION FOR OPTIMAL THERMAL CONDITIONS
12:15	Lunch	
14:00	Session 5	THERMAL MEASUREMENT TECHNIQUES
15:40	Chair: D. de Cogan Univ. of East Anglia, United Kingdom	
14:00	G.B.M. Fiege, L.J. Balk BUGH, Wuppertal, Germany	SCANNING THERMAL MICROSCOPE (SThM): A TOOL FOR THE INVESTIGATION OF THERMAL PROPERTIES AND TEMPERATURE DISTRIBUTIONS IN THE NANOMETER RANGE
14:20	J. Altet¹, A. Rubio¹, S. Dilhaire², E. Schaub², W. Claeys² ¹ Univ. Polit. De Catalunya, Barcelona, Spain ² Univ. Bordeaux, France	THERMAL CHARACTERIZATION OF DEFECTS IN AN IC: THERMAL TESTING
14:40	Y. Assouad¹, T. Gautier¹, J.P. Landesman², E. Martin², P. Braun³ ¹ Thomson-CSF, Elancourt, France ² LCR, Orsay, France ³ United Monolithic Semiconductors GmbH, Ulm, Germany	TEMPERATURE DISTRIBUTION IN POWER GaAs TRANSISTORS USING SPATIALLY RESOLVED PHOTOLUMINESCENCE MAPPING COMPARED WITH FULL THERMAL MODELLING
15:00	K. Nassim¹, L. Joannes¹, A. Cornet¹, S. Dilhaire², E. Schaub², W. Claeys²	HIGH RESOLUTION INTERFEROMETRY (HRI) AND ELECTRONIC SPECKLE PATTERN

	¹ Univ. Louvain-La-Neuve, Belgium ² Univ. Bordeaux, France	INTERFEROMETRY (ESPI) APPLIED TO THE THERMOMECHANICAL SYUDY OF MOS POWER TRANSISTOR
15:20	J. Lohan, R. Lehtiniemi, P. Rodgers, C.M. Fager, P. Tiilikka, J. Rantala Nokia Research Center, Finland	COMPARISON AND VALIDATION OF DIFFERENT EXPERIMENTAL TECHNIQUES TO MEASURE ELECTRONIC COMPONENT OPERATING JUNCTION TEMPERATURE
15:40 16:20	Special session Chair: V. Székely Techn. Univ. of Budapest, Hungary J. Parry Flomerics Ltd, Surrey, United Kingdom	A FINAL STATUS REPORT ON THE SEED PROJECT: RESULTS AND FUTURE CHALLENGES
16:20 16:30	Closing remarks	



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