



4<sup>th</sup> international conference on

# *thermal & mechanical simulation and experiments in micro-electronics and micro-systems*

Aix-en-Provence, France, March 31 - April 2, 2003

*Organised by*

Association EuroSimE / Marketing et Technologies Avancées -  
University of Barcelona - Technical University of Delft -  
Fraunhofer Institute IZM - IMEC - IVF - NMRC -  
Philips CFT - Philips Semiconductors -  
Siemens - TNO - University of Wroclaw

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# Monday morning, March 31<sup>st</sup> 2003

7.30	60mn	<b>Registration</b>
<b>Monday 8.30 - 8.40 Opening Session</b>		
8.30	10mn	<b>Opening</b> Olivier de Saint Leger, Association EuroSimE / MTA, Paris, France
<b>Monday 8.40 - 10.40</b>		
<b>Session 1: Trends in microelectronics and microsystems</b> Chairman: Kouchi Zhang, Philips-CFT, The Netherlands		
8.40	30mn	<b>Keynote: From Smart Card to Smart Object</b> Henri Boccia, Gemplus, France
9.10	30mn	<b>Keynote: Market Situation, Trends and Reliability Issues of Micro-Systems as Enabler for Automotive Applications</b> Günter Lugert, Thomas Riepl, Siemens VDO Automotive, Germany
9.40	30mn	<b>Keynote: Needs for advanced packaging and new developments of IC process</b> Didier Grenier, STMicroelectronics, France
10.10	30mn	<b>Keynote: Carbon nanotube applications in microelectronics</b> W. Hoenlein, F. Kreupl, G.S. Duesberg, A.P. Graham, M. Liebau, R. Seidel, E. Unger, Infineon, Germany
10.40	30mn	<b>Coffee break</b>

**Monday morning, March 31<sup>st</sup> 2003**

**Monday 11.10 - 12.40**

**Session 2: State of the art in Thermo-Mechanical Solutions**

**Chairman: Pr Leo Ernst, Technical University of Delft, The Netherlands**

11.10 30mn **Keynote: Delamination of electronic package**

Matthew Yuen, Haibo Fan, Hong Kong Univ. of Science and Technology, Hong Kong

11.40 30mn **Keynote: Computer-aided engineering of electro-thermal MST devices: moving from device to system simulation**

Jan G. Korvink, Evgenii B. Rudnyi, University of Freiburg, Germany

12.10 30mn **Keynote: Prediction of Microelectronics Thermal Behavior in Electronic Equipment: Status, Challenges and Future Requirements**

Peter Rodgers, Electronics Thermal Management, Ltd., Ireland

**Monday 12.40 - 12.50**

**Welcome address**

12.40 10mn **Welcome address**

Michel Salord, VP Council for Economic Development of Aix-en-Provence County

12.50 90mn **Lunch**

## Monday afternoon, March 31<sup>st</sup> 2003

*Monday afternoon parallel sessions:*

*Session 3 : Adhesives, encapsulation and underfill*

*Session 4 : Thermal behaviour modeling*

**Monday 14.20 - 15.50**

**Parallel Session 3: Adhesives, encapsulation and underfill**

**Chairman: Bart Vandeveld, IMEC, Belgium**

14.20 30mn **Keynote: Development of the Green Plastic Encapsulation for High Density Wire Bonded Packages**

T.Y. Lin , C.M.Fang, Y.F.Yao, K.H.Chua, Agere Systems Singapore Pte Ltd., Singapore

14.50 20mn **Thermal-mechanical properties of an electrically conductive adhesive**

M.H.H. Meuwissen, H.L.A.H. Steijvers, M. van den Nieuwenhof, TNO Institute of Industrial Technology, The Netherlands

15.10 20mn **Micromechanical modeling of stress evolution induced during cure in a particle filled electronic packaging polymer**

D.G. Yang , K.M.B. Jansen, L.G. Wang, L.J. Ernst, Delft University of Technology  
G.Q. Zhang, H.J.L. Bressers, Philips, The Netherlands

15.30 20mn **Reliability Investigations of Flip Chip Package with Porous Underfill**

K.-C. Liao, H. H. Tsai, Mechanical Engineering, Mingchi Institute of Technology, Taiwan

**Monday 14.20 - 15.50**

**Parallel Session 4: Thermal behaviour modeling**

**Chairman: Peter Rodgers, Electronics Thermal Management, Ireland**

14.20 30mn **Keynote: Thermal Behavior of Stacked System-in-Package**

Jani Valtanen, Pekka Heino, and Eero Ristolainen, Tampere University of Technology, Finland

14.50 20mn **Modeling the Assembly and Performance of Optoelectronic Packages**

D.Gwyer, C. Bailey, K. Pericleous, University of Greenwich, UK  
D. Philpott, P. Misselbrook, Celestica, UK

## Monday afternoon, March 31<sup>st</sup> 2003

15.10	20mn	<b>Thermal Management of Joule-heating Microreactor using Modelling Tools</b> Nicolás Cordero, Jonathan West, Helen Berney, NMRC, University College, Ireland
15.30	20mn	<b>[CANCELLED] Study of semiconductor surfaces in the radiant-heat transfer systems</b> V.I.Rudakov, V.V. Ovcharov, V.P.Prigara, Institute of Microelectronics and Informatics, Russian Academy of Sciences, Russia
15.50	40mn	<b>Coffee break</b>
<i>Monday afternoon parallel sessions:</i> <i>Session 5 : Reliability of Solder Interconnection      Session 6 : Thermal &amp; mechanical problems in advanced packaging</i>		
<b>Monday 16.30 - 18.00</b> <b>Parallel Session 5 : Reliability of Solder Interconnection</b> <b>Chairman: Marcel Meuwissen, TNO, The Netherlands</b>		
16.30	30mn	<b>Keynote: Thermo Mechanical Solder Joint Fatigue Under Mobile Phone Usage Conditions</b> Pirkka Myllykoski, Nokia, Finland
17.00	20mn	<b>Microstructure evolution of tin-lead solder</b> R.L.J.M. Ubachs, P.J.G. Schreurs, and M.G.D. Geers, Eindhoven University of Technology, The Netherlands
17.20	20mn	<b>Quantitative microscopy of microstructural evolution in eutectic solders subjected to static thermal load</b> M.A. Matin, W.P.Vellinga, M.G.D.Geers, Eindhoven University of Technology, The Netherlands
17.40	20mn	<b>FE Modeling of a shear test: Correlation with experiments</b> M. Gonzalez, B. Vandeveldel, R. Van Hoof and E. Beyne, IMEC, Belgium

**Monday afternoon, March 31<sup>st</sup> 2003**

**Monday 16.30 - 18.00**

**Parallel Session 6 : Thermal & mechanical problems in advanced packaging**  
**Chairman: Heinz Pape, Infineon Technologies, Germany**

16.30 30mn **Keynote: Mechanical, Thermal and Electrical Issues in System-in-a-Package on Low-Cost Liquid Crystal Polymer Substrate**

Johan Liu, Liu Chen, Gang Zou, Chalmers University of Technology C/O IVF, Sweden  
Jorma Kivilahti, Helsinki University of Technology, Finland

17.00 20mn **Reliability Prediction of Exposed Pad Type Semiconductor Packages**

Torsten Hauck, Tina Bohm, Motorola GmbH, Germany

17.20 20mn **Reliability Analysis of a New Type of Optical Fiber Array Module for Transceivers**

Hsiao-Tung Ku and Kuo-Ning Chiang, National Tsing Hua University, Taiwan

17.40 20mn **Feasibility Study of a Thermal Packaging for Fiber Bragg Gratings by Invar Effect Substrate**

H.H., Tsai, K.C. Liao, Mingchi Institute of Technology, Taiwan

18.00 **End of 1st day Technical Sessions**

18.10 **EuroSimE Committee Meeting**

19.45 **Gala dinner**

Tuesday morning, April 1<sup>st</sup> 2003

8.00	30mn	<b>Registration</b>
<i>Tuesday morning parallel sessions:</i>		
<i>Session 7 : Advanced packaging and MEMS designing      Session 8 : Thermal modeling</i>		
<b>Tuesday 8.30 - 10.00</b>		
<b>Parallel Session 7: Advanced packaging and MEMS designing</b> <b>Chairman: Santiago Marco, University of Barcelona, Spain</b>		
8.30	30mn	<b>Keynote: Requirements in Advanced Packaging Curriculum</b> Guna Selvaduray, Joseph F. Becker and H Anthony Chan, San Jose State Univ. ,USA
9.00	20mn	<b>Nonlinear Reduced Modeling Of a Damped Dual-axis Accelerometer</b> Eskild R. Westby, Norwegian University of Science and Technology, Norway
9.20	20mn	<b>FEA Simulation of Package Stress in Transfer Molded MEMS Pressure Sensors</b> Rudolf Krondorfer, Timothy C. Lommasson, SensoNor asa, Norway Yeong Kim, Samsung Techwin, Korea
9.40	20mn	<b>Characterisation of P and N Type Silicon Piezoresistive Strain Gauges</b> D. O'Mahoney, O. Slattery, E. Sheehan, Finbarr Waldron, National Microelectronics Research Centre, University College Cork, Ireland
<b>Tuesday 8.30 - 10.00</b>		
<b>Parallel Session 8: Thermal modeling</b> <b>Chairman: Xuejun Fan, Philips, USA</b>		
8.30	30mn	<b>Keynote: Component Modeling Methodology in Consumer Electronic Product Development</b> Geneviève Martin,Wendy Luiten, Philips, The Netherlands
9.00	20mn	<b>An approach to a numerical simulation of thermal contact problems in electronic packages</b> K. Friedel; A. Wymyslowski, Wroclaw University of Technology, Poland

**Tuesday morning, April 1<sup>st</sup> 2003**

9.20	20mn	<b>A model based optimization of a line shaped Laval nozzle for Micro Abrasive Air Jetting</b> A. Holtsmark, M. Achtsnick, A. M. Hoogstrate, B. Karpuschewski, A. Beukers, Delft University of Technology, The Netherlands
9.40	20mn	<b>Investigations of the thermal properties of AII-BVI mixed crystals with the piezoelectric phase spectra method</b> M. Malinski, Technical University of Koszalin; J. Zakrzewski, H. Meczynska, Nicolaus Copernicus University, Poland
10.00	30mn	<b>Coffee break</b>
<i>Tuesday morning parallel sessions:</i>		
<i>Session 9 : Designing for endurance and reliability</i> <i>Session 10 : Thermal performance</i>		
<b>Tuesday 10.30 - 12.40</b>		
<b>Parallel Session 9 : Designing for endurance and reliability</b>		
<b>Chairman: Artur Wymyslowski, University of Wroclaw, Poland</b>		
10.30	30mn	<b>Keynote: Design Analysis and Optimization of Wirebond Stacked Die BGA Packages for Improved Board Level Solder Joint Reliability</b> Romain Coffy, Xavier Baratona, STMicroelectronics Grenoble, France Tong Yan Teea, Hun Shen Nga, STMicroelectronics Singapore Zhaowei Zhong, Nanyang Technological University, Singapore
11.00	20mn	<b>Optimization of the Reliability of a BGA Package by Finite-Element-Simulation</b> Anton Legen, Manuel Carmona, Jens Pohl, Jochen Thomas, Infineon Technologies AG, Germany
11.20	20mn	<b>Response Surface Methodology for Enhancing Theoretical Models: Application to Warpage Prediction of CSP BGAs</b> Eric Egan, Gerard Kelly, Tom O'Donovan, Peter Kennedy, National University of Ireland Gerard Kelly, Cork Institute of Technology, Ireland
11.40	20mn	<b>Solution and Test of a Numerical Model Describing Lithium Evolution in Secondary Batteries</b> F. Ternay, A. Laurent, S. Martnet, CEA/GRENOBLE, DRT/DTEN/SCSE, France



**Tuesday morning, April 1<sup>st</sup> 2003**

12.00	20mn	<b>Fatigue Damage Modeling in Solder Joints: a cohesive zone approach</b> Adnan Abdul-Baqi, Piet J.G. Schreurs, Marc G.D. Geers, Eindhoven University of Technology, The Netherlands
12.20	20mn	<b>The reliability study of underfill Flip Chip in Micro-electronic Packaging</b> Xiaosong Ma, J.J.Chen, D.G.Yang, Xi'an Univ. of Electronic Technology and Guilin Univ. of Electronic Technology
<b>Tuesday 10.30 - 12.40</b> <b>Session 10: Thermal performance</b> <b>Chairman: Nicolas Cordero , NMRC, Ireland</b>		
10.30	30mn	<b>Keynote: Board Via Effect on Thermal Performance of a Leadless Package</b> Heinz Pape, Kay Schille, Rudolf Kutscherauer, Infineon Technologies AG, Germany
11.00	20mn	<b>Wafer Scale Power Transistor Package: Electro-Thermal Modeling and Validation</b> A.W.J.P. den Boer, M.A.J. van Gils, G.M. Janssen, Philips, The Netherlands
11.20	20mn	<b>Comparative Study of Power Module Technologies by means of Thermal Simulation Tools</b> Peter Hansen, Flemming Nielsen, Hans S. Nielsen, John Jacobsen, Grundfos A/S, Denmark
11.40	20mn	<b>An Investigation of Thermal Enhancement of MPM BGA Package</b> Abe-JM Yang, Cary Yang, Carol Liang, Jeng Yung Lai, Yu-Po Wang, CS Hsiao, Siliconware Precision Industries Co., Ltd., Taiwan
12.00	20mn	<b>Packaging simulation in gas flow sensors</b> N.Sabaté, I.Gràcia, J.Berganzo, C.Can, Centre Nacional de Microelectrònica, CNM-CSIC, Spain
12.40	90mn	<b>Lunch</b>

## Tuesday afternoon, April 1<sup>st</sup> 2003

*Tuesday afternoon parallel sessions :*

*Session 11 : MEMS, sensors and actuators*

*Session 12 : IC process reliability modeling and characterization*

**Tuesday 14.10 - 16.20**

**Parallel Session 11 : MEMS, sensors and actuators**

**Chairman: Ingrid de Wolf, IMEC, Belgium**

14.10	30mn	<b>Keynote: Design Study for Stacked MEMS,</b> Jan Eite Bullema, Marcel Meuwissen, Erik Veninga, TNO, The Netherlands
14.40	20mn	<b>Thermal FEM simulation of ultra-miniaturised wall shear sensors</b> Delphine Meunier, Jumana Boussey, CNRS, Institut de Microélectronique, Electromagnétisme et Photonique, IMEP, France
15.00	20mn	<b>Design, analysis and validation of vertical probing technology</b> Chang-An Yuan, Hsing-Chih Liu, Ming-Hung Sun and Kou-Ning Chiang, National Tsing Hua University, Taiwan
15.20	20mn	<b>Development of a Compact Thermal Model for a Micropyrotechnic Actuator</b> M. Salleras, J. Palacín, M. Puig, J. Samitier, S. Marco, Universitat de Barcelona, Spain
15.40	20mn	<b>Experimental Verification of the FE model of a Thick-film Ceramic Pressure Sensor</b> Marina Santo Zarnik, Darko Belavic, HIPOT-R&D / Jozef Stefan Institute, Slovenia K.P. Friedel; A. Wymyslowski, Wroclaw University of Technology, Poland
16.00	20mn	<b>Modeling of Pyroelectric Sensor Arrays</b> Günter Milde, Jörg Drescher, Gerald Gerlach, Herbert Balke, Hans-Achim Bahr, TU Dresden, Germany

Tuesday afternoon, April 1<sup>st</sup> 2003

Tuesday 14.10 - 16.20

Parallel Session 12 : IC process reliability modeling and characterization  
Chairman: Bernd Schwarz, Siemens, Germany

- |       |      |   |
|-------|------|---|
| 14.10 | 30mn | <b>Keynote: Prediction of Crack Growth of IC Passivation Layer</b><br>G.Q. Zhang, M.A.J. van Gils, R.B.R. Silfhout, W.D. van Driel, Philips, The Netherlands<br>Y.T. He, L.J. Ernst, Delft University of Technology, the Netherlands  |
| 14.40 | 20mn | <b>The Impact of Wafer-Level Stress on Package Warpage and Die Attach Stress</b><br>Eric Egan, Anne-Marie Kelleher, Tom O'Donovan, Peter Kennedy, National University of Ireland<br>Gerard Kelly, Cork Institute of Technology, Ireland   |
| 15.00 | 20mn | <b>Prediction of interfacial delamination failures of a stacked IC structure using combined experimental and simulation methods</b><br>Zhang G.Q, Van Driel W., Van Gils M., Van Silfhout R., Philips, The Netherlands<br>Liu C.J., Ernst L.J., Delft University of Technology, The Netherlands |
| 15.20 | 20mn | <b>Mechanical FEM simulation of bonding process on Cu low-K wafers</b><br>Dominiek Degryse, Bart Vandeveld and Eric Beyne, IMEC, Belgium  |
| 15.40 | 20mn | <b>Effect of Delamination of IC/Compound Interface on Passivation Cracking</b><br>R.B.R van Silfhout, J.D. Roustant, W.D. van Driel, Y. Li, G.Q. Zhang, M.A.J. van Gils, Philips, The Netherlands,<br>D.G. Yang, Delft University of Technology   |
| 16.00 | 20mn | <b>Prediction of Thermo-Mechanical Integrity of Wafer Backend Processes</b><br>G.Q. Zhang, J. den Toonder, J. Beijer, Philips, The Netherland<br>R.J.O.M. Hoofman, Philips Belgium<br>V. Gonda, , L.J. Ernst, Delft University of Technology, The Netherlands                                   |
| 16.20 | 30mn | <b>Coffee break</b>   |

**Tuesday afternoon, April 1<sup>st</sup> 2003**

<b>Tuesday 16.50 - 18.10</b>		
<b>Exhibitors special session</b>		
<b>Chair: Willem van Driel, Philips Semiconductors, The Netherlands</b>		
16.50	15mn	<b>Recent Advances of Abaqus Capabilities for MicroElectronic Simulations</b> Frans Peeters, Abaqus
17.05	15mn	<b>Fast prediction of thermo-mechanical stresses in electronic components under actual operating conditions, using the FLO/STRESS software</b> Simon Wrigglesworth, Flomerics
17.20	15mn	<b>Process Integration &amp; Design Optimization using OPTIMUS</b> Hans Wynendaele / Joost Van de Peer, LMS International
17.35	15mn	<b>Thermal Simulation of Complex Electronic Equipment</b> Thomas Willkommen, Fluent
17.50	15mn	<b>Tbd</b> Bob Gilliver, Ansys
18.05		<b>Cocktail party</b>

Wednesday morning, April 2<sup>nd</sup> 2003

Wednesday 8.30 - 10.00

Session 13: Characterization and modeling of materials and reliability  
Chairman: Rainer Dudek, Fraunhofer-IZM, Germany

8.30 30mn **Keynote: New Failure Analysis Methods in Microelectronics**  
Ingrid de Wolf, IMEC, Belgium

9.00 30mn **Keynote: Simulation of microstructure evolution in metallic alloys**  
Markus Apel, B. Böttger, G.J. Schmitz, Univ. of Aachen, Germany

9.30 30mn **Keynote: Investigations on Low Cycle Fatigue of Electrodeposited Thin Copper and Nickel Films**  
Rainer Dudek, Hans Walter, and Bernd Michel, Fraunhofer-IZM, Germany  
Jörg Zapf, Siemens AG, Germany

10.00 40mn **Coffee break**

*Wednesday morning parallel sessions :*

*Session 14 : Simulation and optimisation in microelectronics    Session 15 : Designing towards environmental demands*

Wednesday 10.40 - 12.30

Parallel Session 14: Simulation and optimisation in microelectronics  
Chairman: Dag Andersson, IVF, Sweden

10.40 30mn **Keynote: Optimization and Finite Element Analysis for Reliable Electronic Packaging**  
S. Stoyanov, C. Bailey, University of Greenwich, UK

11.10 20mn **Numerical Simulation and Optimization of Capacitive Transducers**  
H. Landes, R. Lerch, M. Kaltenbacher, R. Peipp, University of Erlangen-Nuremberg  
F. Vogel, inuTech GmbH, Nuremberg, Germany

Wednesday morning, April 2<sup>nd</sup> 2003

11.30	20mn	<b>Comparison of Lifetime Predictions with 3D Finite Element Models of a High Density Flip Chip without Underfill on LTCC</b> M. Spraul, W. Nüchter, A. Möller, Robert Bosch Gmbh, Germany A. Schubert, B. Michel, Fraunhofer IZM, Germany
11.50	20mn	<b>The Reliability Analysis and Structure Design for High Density Flip Chip BGA Packaging</b> Chih-Tang Peng, Chang-Ming Liu, Kuo-Ning Chiang, National Tsing Hua University, Taiwan
12.10	20mn	<b>Influence of material combinations on delamination failures in a cavity down TBGA package</b> W.D. van Driel, G.Q. Zhang, Philips, The Netherlands A.Y.L. Chang, Philips Semiconductors Kaohsiung, Taiwan G. Wisse, L.J. Ernst, Delft University of Technology, The Netherlands
<b>Wednesday 10.40 - 12.30</b> <b>Parallel Session 15: Designing towards environmental demands</b> <b>Chairman: Tommi Reinikainen, Nokia Mobile Phones, USA</b>		
10.40	30mn	<b>Keynote: The state of the art of lead-free solders</b> Sabine Knott and Adolf Mikula, Institut für Anorganische Chemie, University of Vienna, Austria
11.10	20mn	<b>Microstructure and Creep Behaviour of eutectic SnAg and SnAgCu Solders</b> S. Wiese, K.J. Wolter, Technische Universität Dresden, Germany
11.30	20mn	<b>Microstructural Change of Lead-Containing and Lead Free Solders: Experiments and Computer Simulations</b> H.-J. Albrecht, D.S. Brodie, Siemens AG Berlin, Germany A.J. Gunn, Heriot-Watt University, UK; W.H. Müller, Technische Universität Berlin, Germany
11.50	20mn	<b>Tensile and Fatigue Isothermal Properties of Copper Joints with Sn63-Pb37, Sn62-Pb36-Ag2 and Sn42-Bi58 Alloys</b> E. M. Grigoletto, A. Damasco, I. Ferreira, State University of Campinas, Brasil
12.10	20mn	<b>Parametric study on Flip Chip package with lead-free solder joints by using the probabilistic design approach</b> J.S. Liang, D.G. Yang, Q.Y. Li, Guilin University of Electronic Technology, China L.J. Ernst, Delft University of Technology, The Netherlands G. Q. Zhang, Philips, The Netherlands

## Wednesday afternoon, April 2<sup>nd</sup> 2003

12.30	90mn	<b>Lunch</b>
<b>Wednesday 14.00 - 16.00</b>		
<b>Session 16: New Techniques in Modeling and Characterization</b> Chairman: Matthew Yuen, University of Science and Technology, Hong Kong		
14.00	30mn	<b>Keynote: Material Response Prediction and Understanding Through the use of Molecular Modeling</b> Nancy Iwamoto, Honeywell, USA
14.30	30mn	<b>Keynote: Micro-Digital Image Speckle Correlation (u-DiSC) System and its Applications to Microelectronics Packages</b> Xunqing Shi, Singapore Institute of Manufacturing Technology, Singapore
15.00	30mn	<b>Keynote: Understanding Morphology Changes in Solders</b> Wolfgang H. Mueller, Technische Universitat Berlin, Germany
15.30	30mn	<b>Keynote: A Simulation-Based Multi-Objective Design Optimization of Electronic Packaging under Thermal Cycling and Bend Load</b> Leon Xu, Wei Ren, and Tommi Reinikainen, Nokia Mobile Phones, USA
16.00	10mn	<b>Conference closure</b> G.Q. Zhang (Philips CFT, Eindhoven, The Netherlands)
16.10		<b>End of conference</b>

## EuroSimE 2003 at a glance

### Monday March 31<sup>st</sup>

- 8.30 **Opening Session**
- 8.40 **Session 1**  
*Trends in microelectronics and microsystems*
- 10.40 Coffee break
- 11.10 **Session 2**  
*State of the art in Thermo-mechanical solutions*
- 12.40 **Welcome address**
- 12.50 ☉ Lunch
- |   |   |
|---|---|
| <p>14.20 <b>Session 3</b><br/><i>Adhesives, encapsulation and underfill</i></p> | <p><b>Session 4</b><br/><i>Thermal behaviour modeling</i></p> |
|---|---|
- 15.50 Coffee break
- |  |  |
|--|--|
| <p>16.30 <b>Session 5</b><br/><i>Reliability of solder interconnection</i></p> | <p><b>Session 6</b><br/><i>Thermal and mechanical problems in advanced packaging</i></p> |
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- 18.10 EuroSimE Committee meeting
- 19.45 🍷 Gala dinner ☉

### Tuesday April 1<sup>st</sup>

- |   |   |
|---|---|
| <p>8.30 <b>Session 7</b><br/><i>Advanced packaging and MEMS designing</i></p> | <p><b>Session 8</b><br/><i>Thermal modeling</i></p> |
|---|---|
- 10.00 Coffee break
- |  |   |
|--|---|
| <p>10.30 <b>Session 9</b><br/><i>Designing for endurance and reliability</i></p> | <p><b>Session 10</b><br/><i>Thermal performance</i></p> |
|--|---|
- 12.40 ☉ Lunch
- |   |  |
|---|--|
| <p>14.10 <b>Session 11</b><br/><i>MEMS, sensors and actuators</i></p> | <p><b>Session 12</b><br/><i>IC process reliability modeling and characterization</i></p> |
|---|--|
- 16.20 Coffee break
- 16.50 **Exhibitor Session**
- 18.05 🍷 Cocktail party

### Wednesday April 2<sup>nd</sup>

- 8.30 **Session 13**  
*Characterization and modeling of materials and reliability*
- 10.00 Coffee break
- |   |   |
|---|---|
| <p>10.40 <b>Session 14</b><br/><i>Simulation and optimisation in microelectronics</i></p> | <p><b>Session 15</b><br/><i>Designing towards environmental demands</i></p> |
|---|---|
- 12.30 ☉ Lunch
- 14.00 **Session 16**  
*New techniques in modeling and characterization*
- 16.00 Conference closure
- 16.10 Drinks