



TOLSA

Toulouse Open Laboratory for Semiconductor Analysis



Optical Localization Techniques Workshop

Call for participation and contribution

You are kindly invited to attend the workshop on Optical Localization Techniques (Emission Microscopy, Laser Stimulation, Thermography, Laser Voltage Probing) and the associated static and dynamic techniques used to perform IC characterization, design-debug and failure analysis.

Organized by

EUFANET, the European Failure Analysis NETWORK (www.eufanet.org), National Centre for Space Studies (CNES) CCT MCE, the CNES Technical Competence Center on MEMS and Electronic Components (<http://cct/cct15/sommaire.htm>), TOLSA the Toulouse Open Laboratory for Semiconductor Analysis (www.tolsa.org) and the TOD (Dynamic Optical Testing) working group of ANADEF, the French Failure Analysis Society (www.anadef.org).

Workshop date and location

The workshop will be held Monday, January 26, 2009 (9:30 am – 6:30 pm) and Tuesday, January 27, 2009 (8:30 am – 6:30 pm) at IAS conference room - 23 avenue Edouard Belin - Complexe Scientifique de Rangueil - 31400 Toulouse – France. More information about this both historical and technological city at the Pyrenees' foot can be found at http://www.inst-aero-spatial.org/campus.php3?id_article=20.

Workshop purpose

The aim of this workshop is to cluster tool manufacturers and users in a unique opportunity to exchange information on optical techniques like emission microscopy (static, TRE, TRI, ...), laser stimulation (thermal and photoelectric, static and dynamic) and laser voltage probing. It should allow deep technical exchanges on best practices on existing tools, new techniques to extend applications in order to increase return on investment, and new developments including tool manufacturer roadmaps to prepare the future. It will be a workshop, not a conference, and a friendly event focused on practical issues. It will also give users a chance to meet main tool manufacturers and to foster their requirements for new tools and techniques.

Users and tool manufacturers will have during a short amount of time (two days) a free workshop (no fees) at European level dedicated to these techniques. The expected payback of this event will encourage you to submit a contribution and attend this workshop.

The workshop will be divided in 7 sessions:

- Session 1: Static Emission microscopy
- Session 2: Optical probing techniques: Laser Voltage Probing, Time Resolved Emission & Time Resolved Imaging
- Session 3: Static laser Stimulation
- Session 4: Thermography
- Session 5: Dynamic Laser Stimulation
- Session 6: Combined techniques

Workshop contribution

If you have any relevant experience, idea, comment or suggestion that you would like to share with the European Failure Analysis community please send us your proposed contribution including the presentation title and a brief abstract before *January 12, 2008* at: contribution@eufanet.org. In order to encourage discussions, presentation should end with a question to the audience relevant to the presented topic.

It is not too late to contribute, at least with a poster. Poster sessions will be held in conjunction with tool manufacturer corners during the coffee breaks.

Poster size is A0 max.

Registration

Workshop is *free of charge* (no fees); lunches and coffee break are sponsored by CNES CCT MCE. A buffet / cocktail party is sponsored Monday evening by Hamamatsu (www.hamamatsu.com), DCGSystems (www.dcgsystems.com), QFI Corporation (www.quantumfocus.com), Semicaps (www.semicaps.com) and Digit Concept (www.digit-concept.com).

To register just send the registration form filled with your name, company, country, email and phone number to workshop@eufanet.org. Full Registration form is required for CNES lab tour option.

You will receive practical updated information on workshop program.

CNES lab tour option

At the end of the event, a short lab tour will be organized at CNES facilities (aside IAS lecture hall). Due to access restriction, you must fill a form to enter CNES and submit it at least 2 weeks before the event (except European Union citizen for whom 1 week is enough). This lab tour will be limited to 45 people (the first 45 people registered for the lab tour). Lab tour duration is around 1 hour.

Preliminary agenda

A lot of interesting contributions have already been sent and we are very pleased to present a preliminary agenda. This agenda will be updated and registered people will receive the update

Monday 26 January

9:00-9:45	Welcome coffee and registration
9:45-10:00	Opening session : <ul style="list-style-type: none"> - Philippe Perdu (CNES) / CCT MCE - Christian Boit (TU Berlin) / EUFANET - Sylvain Dudit (ST) / ANADEF TOD working group - FREESCALE / TOLSA
	Session 1 : Static Emission microscopy (Chairman Christof Brillert, INFINEON Munich)
10:00-10:20	Static Emission microscopy background (Christian Boit, TU Berlin)
10:20-10:40	Emphasis on ultimate resolution ignores the real need to localize the defect first (Michael Obein, Digit Concept)
10:40-11:00	InGaAs versus CCD (Freescale, TOLSA)
11:00-11:20	SIL for improved sensitivity and spatial resolution (Hervé Deslandes, DCGSystems)
11:20-11:40	Best use of SIL: Difference between Aplanatic and Centric SIL, effects of magnification size for the backing objective and the thickness of the Si. (Larry Ross, Semicaps)
11:40-12:00	Use of Static Emission for ESD protection structure analysis (Marise Bafleur, LAAS)
12:00-12:20	Influence of Temperature Variation on Electrical and Photon Emission AlGaIn/GaN High Mobility Electron Transistors Characterization.(Piotr Laskowski, TU Berlin)
12:20-12:40	Questions and answers (Moderator Bernard Picart, ATMEL Rousset)
12:40-13:30	Lunch
	Session 2 : Optical probing techniques: Laser Voltage Probing, Time Resolved Emission & Time Resolved Imaging (Chairman Franck

	<i>Zachariasse, NXP, Nijmegen)</i>
<i>13:30-13:40</i>	Dynamic Emission microscopy background (Philippe Perdu CNES Toulouse)
<i>13:40-14:00</i>	Functional analysis with dynamic emission microscopy (Jerome Di Battista, Thales France)
<i>14:00-14 :20</i>	LVP and Frequency Mapping (Larry Ross, Semicaps)
<i>14:20-14:40</i>	Laser Voltage Probing & Imaging (Herve Deslandes DCGSystems)
<i>14:40-15:00</i>	Facing the poor optical resolution and the sensor sensitivity limitation challenges for TRE probing (Sylvain Dudit, ST Crolles)
<i>15:00-15:20</i>	Design visibility enhancement for failure analysis (Etienne Auvray, ST Grenoble)
<i>15:20-15:40</i>	Questions and answers (Moderator Abdel Firiti, FREESCALE Toulouse)
<i>15:40-16:40</i>	<i>Coffee break attendee / user / tool manufacturer interactions</i>
	<i>Session 3 : Static laser Stimulation (chairman Sylvain Dudit, ST Crolles)</i>
<i>16:40-16:50</i>	Static Laser Stimulation background (Abdelatif Firiti Freescale Toulouse)
<i>16:50-17:10</i>	Nanoscale resolution options for optical localization techniques (Christian Boit)
<i>17:10-17:30</i>	3D resolution with MOBIRCH (Antoine Reverdi, NXP Caen)
<i>17:30-17:50</i>	Application of static laser stimulation to MEMS FA (Jeremy Denhin, Novamems France)
<i>17:50-18:10</i>	Case studies using MTLs on FA daily products (Marc De-La-Bardonnie NXP Caen)
<i>18:10-18:30</i>	Questions and answers (Moderator Kevin Sanchez, CNES Toulouse, France)
<i>18:30-20:00</i>	<i>Cocktail party attendee / user / tool manufacturer interactions</i>

Tuesday 27 January

8:00-8:10	Welcome
8:10-8:15	Agenda presentation (Philippe Perdu, CNES Toulouse)
	<i>Session 4: Thermography (Chairman Vincent Pouget, IMS Bordeaux)</i>
8:15-8:35	Application of Thermography: some examples (Stephane Bianic, STNwireless, Jean Roux, Hamamatsu)
8:35-9:05	Application of Lock-in Thermography for Defect Localisation at Opened and Fully Packaged Single- and Multi-chip Devices (Christian Schmidt, Christian Große, Frank Altmann Fraunhofer Institute for Mechanics of Materials, Halle, Germany & Dr. Otwin Breitenstein Max Planck Institute of Microstructure Physics, Halle, Germany)
9:05-9:25	Application of transient interferometric mapping (TIM) technique for analysis of ns-time scale thermal and carrier dynamics in ESD protection devices (D. Pogany, S. Bychikhin, M. Heer, W. Mamanee, V.Dubec, E. Gornik, Institute for Solid State Electronics, Vienna University of Technology, D. Johnsson, K. Domanski, K. Esmark, W. Stadler, H. Gossner, M. Stecher, Infineon Technologies)
9:25-9:45	High Resolution Raman Temperature Measurements (Aaron Falk, QFI, USA)
9:45-10:05	Questions and answers (Christof Brillert, INFINEON Munich)
10:05-11:00	<i>Coffee break attendee / user / tool manufacturer interactions</i>
	<i>Session 5: Dynamic Laser Stimulation (Chairman Dioniz Pogany, TU Vienna)</i>
11:00-11:20	Dynamic Laser Stimulation Background (Kevin Sanchez CNES)
11:20-11:40	Case studies in DLS at NXP Semiconductors (Franck Zachariasse, NXP, Nijmegen)
11:40-12:00	xVM applied to automotive products (Magdalena Sienkiewicz, Freescale)
12:00-12:20	Coupling Test and DLS (Aziz Machouat, ST Rousset)

12:20-12:40	Advantages of using on-chip microcontrollers for DLS (Gael Faggion, NXP, Nijmegen)
12:40-13:20	<i>Lunch</i>
	<i>Session 4: Dynamic Laser Stimulation (Chairman Dioniz Pogany, TU Vienna)</i>
13:20-13:50	Application of dynamic laser stimulation for qualification purpose (Amjad Deyine, Thales)
13:50-14:10	Picosecond laser stimulation: status, applications & challenges (Vincent Pouget IMS)
14:10-14:30	Questions and answers (Moderator Sylvain Dudit)
	<i>Session 6: Combined techniques (Chairman Kevin Sanchez, CNES Toulouse)</i>
14:30-14:50	Design analysis in analog signal circuits enhanced by Emission Microscopy and laser based techniques (Christof Brillert, INFINEON Munich)
14:50-15:10	Failure Diagnosis by Optical Techniques Combined to Layout Localization Software for Wafer Yield Improvement (Lionel Forli, ATMEL Rousset)
15:10-15:30	Multiple FA techniques on advanced technologies (Sylvain Dudit, ST Crolles)
15:30-15:50	Optical investigation of a resistance-change memory device (Fabio La Matina, EMPA)
15:50-16:10	Questions and answers (Franck Zachariasse, NXP, Nijmegen)
16:10-16:50	<i>Coffee break attendee / user / tool manufacturer interactions</i>
16:50-17:15	Round table: what do user need? (Intro / Moderator Philippe Perdu, CNES Toulouse)

17:15-17:20	Wrap up
17:30-19:00	CNES lab tour (extended registration info required)