

CDE Conference Program

Tuesday, Feb. 8, 2011

- 18:00 Registration
- 20:00 Welcome reception

Wednesday Feb. 9, 2011

- 8:30 Registration
- 9:30 Opening and Welcome
- 10:00 Plenary Talk. [Heterogeneous Integration of Semiconductors, The Next Frontier for Electronics?](#)
Tomas Palacios. Emmanuel E. Landsman Associate Professor of Electrical Engineering and Computer Science at the MIT, MA, USA.
- 11:00 Coffee break
- 11:30 Session 1 - Materials technology and process simulation
Chairperson: Carmen Horrillo
 - [Investigation of surface plasmon resonance in Au nanoparticles deposited on ZnO:Al thin films \(invited\)](#) 3
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Abel Santos Alejandro, Josep Ferré Borrull, Josep Pallarès Marzal, and Lluís Francesc Marsal Garví
- 13:30 Lunch
- 15:30 Session 2 - Modelling and device simulation
Chairperson: José Millán
 - [Organic thin film transistors \(invited\)](#)
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- 17:30 Coffee break

- 17:45 Poster session 1 - Device modeling and simulation. Sensors and micro/nano systems
- 19:00 Social event: *A walk along the history of Palma*. Reception at “Casal Solleric”

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- 9:00 Session 3 - Sensors, actuators and micro/nano systems
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- 11:00 Coffee break
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- 17:30 Coffee break
- 17:45 Plenary Talk. “[Trends of Components and Systems in the European R&D Programme](#)”. Isabel Vergara. Micro and Nano Systems. European Commission
- Poster session 2 - Materials and process. Characterization. Photovoltaic. Nanodevices and RF
- 20:30 Gala dinner

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Plenary Talks

- Wednesday 9, 10:00h
[Heterogeneous Integration of Semiconductors, The Next Frontier for Electronics?](#)
Tomas Palacios. Emmanuel E. Landsman Associate Professor of Electrical Engineering and Computer Science at the MIT, MA, USA.
Abstract: This talk will describe our work to seamlessly integrate Si transistors and circuits with two new material systems: nitride semiconductors (GaN) and graphene. We have recently demonstrated the first on-wafer integration of GaN electronics and Si (100) CMOS circuits. This integration allows the combination of the high complexity and flexibility of Si circuits with the vast array of new devices enabled by GaN and its alloys: transistors, LEDs, energy harvesting devices, and filters.
- Thursday 10, 11:30h
[Nanotransistors Terahertz for Detection and Imaging.](#)
Wojciech Knap, Directeur de Recherche, GES (Groupe d'Etude des Semi-conducteurs), CNRS & Universite Montpellier 2, France.
Abstract: The interest in the applications of FETs for THz spectroscopy started at the beginning of 90s with the work of Dyakonov and Shur, who predicted that a steady current flow in a FET channel can become unstable against generation of the plasma waves. These waves can, in turn, lead to the emission of the electromagnetic radiation at the plasma wave frequency. The same authors have shown that the nonlinear properties of the 2D plasma in the transistor channel can be used for detection of THz radiation. We present an overview (see W.Knap, et al, J.Infrared Millimeter and THz Waves, 30,1319 (2009)) of the main results concerning THz detection by FETs. We show that FETs are sensitive and fast enough to be used in focal plane arrays of new THz cameras, the possibility of imaging up to 1.6 THz with room temperature FETs, and the influence of magnetic field on THz detection by FETs. Studies of sub-THz detection by Silicon-CMOS will also be presented.
- Thursday 10, 17:45h
[Trends of Components and Systems in the European R&D Programme.](#)
Isabel Vergara. Project Officer, Micro and Nanosystems, ICT Programme, European Commission, Directorate-General Information Society and Media.
Abstract: The idea of the presentation is covering the various initiatives that have recently been launched or are in the gestation period, in the European R&D programme areas of interest (Nanoelectronics, Microsystems, ENIAC, ARTEMIS, FET, etc.)...
- Friday 11, 11:30h
[Low-cost, high-sensitivity sensing systems for environmental and biomedical applications.](#)
M. Jamal Deen, Senior Canada Research Chair in Information Technology, Director, Micro- and Nano-Systems Laboratory, Electrical and Computer Engineering Department, McMaster University, Canada.
Abstract: In this presentation, we will discuss an electrical sensing system detecting pathogens related to water and food quality. We will also describe an optical sensing system for auto-fluorescence imaging that are used to provide diagnostic biological/medical information on the functional properties of tissues for early detection of cancers.