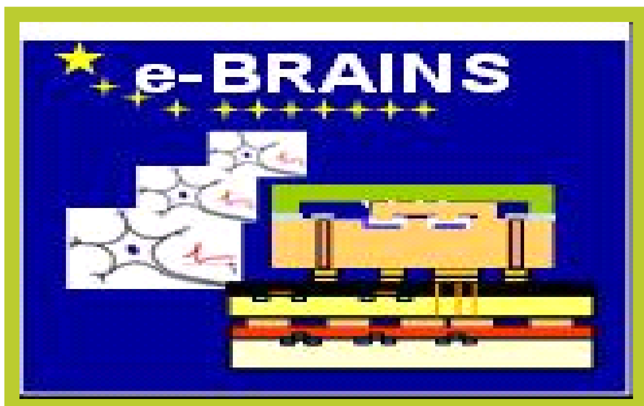
January 2011

e-BRAINS Newsletter

Issue 1



Best-Reliable Ambient Intelligent Nanosensor Systems by Heterogeneous Integration

Best-Reliable Ambient Intelligent Nanosensor Systems by Heterogeneous Integration

Best-Reliable Intelligent Ambient Nanosensor Systems – e-BRAINS – represent a giant leap for outstanding future applications in the area of ambient living with the ultimate need for integration of heterogeneous technologies, high-performance nano sensor devices, miniaturization, smart wireless communication and best-reliability.e-BRAINS with minimum volume and weight as well as reduced power consumption can be utilized in ambient living systems. Successful market entry of such innovative ambient intelligence products will be determined by the performance improvement achieved and the profitability in relation to the total system cost. The designated nano sensor systems represent a very promising innovative approach with the potential to enable high-performance and precise functions in new products. The application of nanotechnology will allow large improvements in functionality and will open a wide range of applications, especially for European companies.

IEEE International 3D System Integration Conference (3DIC)
Fraunhofer-Gesellschaft: November 16-18, Munich

IEEE International 3D System Integration Conference (3DIC)

The 2nd IEEE International 3D System Integration Conference (3DIC) will be held at the "Fraunhofer Haus" in Munich in November 16-18, 2010.
This conference combines the previous ASET and IEEE EDS Society sponsored International 3D System Integration Conference, held in Tokyo in 2007 & 2008 and the Fraunhofer and IEEE CPMT sponsored International 3D System Integration Workshop held in 2003 & 2007 in Munich. After the first combined conference in San Francisco 2009, the 2nd IEEE 3D System Integration Conference will be held in Munich in 2010, rotate to Tokyo in 2011 and then rotate back to San Francisco in 2012.
3DIC 2010 will cover all 3D integration topics, including 3D process technology, materials, equipment, circuits technology, design methodology and applications. The conference invites authors and attendees to submit and interact with 3D researchers from all around the world. Papers are solicited in the subject topics 3D integration technology (e.g. TSV), 3D IC circuits technology, 3D applications (imagers, memories, processors, MEMS etc), 3D design methodology, 3D mechanical stress and reliability design and analysis.

www.3dic-conf.org/registration/.

ICT-2009.3.9:
Microsystems and Smart Miniaturised Systems

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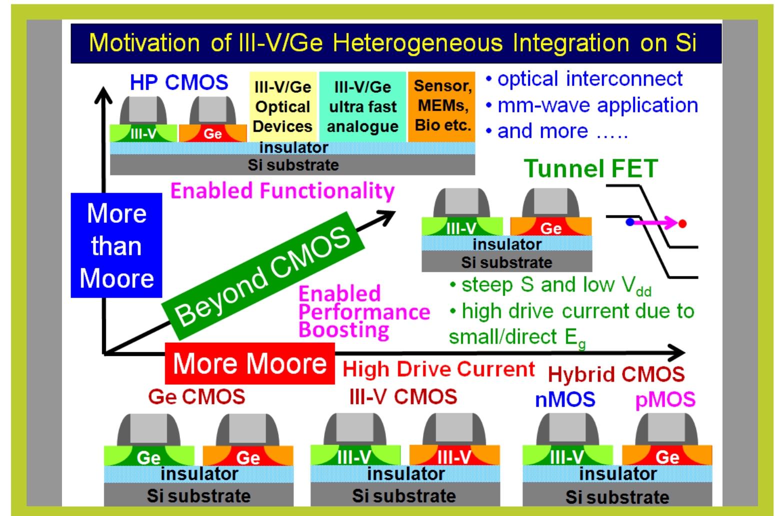
IEDM Evening Panel Session

Aggressive scaling of CMOS technology has been the key driver of microelectronics industry for more than 40 years and the International Technology Roadmap currently foresees 22-nm CMOS in production by 2015.
However, many new challenging applications of nanoelectronics that could drastically improve our quality of life will require not only more computing power and memory at lower cost and lower power consumption but also the diversification of functionality. Non-digital functions such as radio frequency and analogue circuitry, high voltage switches, various sensors and actuators and energy harvesters are more and more demanded for communications, automotive, environmental monitoring and medical applications, requiring a mixture of technologies, each optimized to the specific function.
This requires advanced research and developments into new materials, new devices, new processes and the integration of nanoelectronics and other innovative devices into single chips using so-called heterogeneous or mixed process technologies.
The future of Nanoelectronics is foreseen as a combination of More Moore and More than Moore with the heterogeneous integration of a large variety of technologies, and their exploitation in System-On-Chip or System-In-Package, combining various discrete subsystems using different optimized process technologies.
Heterogeneous Integration becomes the glue to bring all these technologies and components together into one system and support a large diversity of applications with performance that cannot be reached otherwise.
The objectives of this panel are to provide a perspective on the status and the industry needs in terms of heterogeneous integration for various application domains.



Panelists

- Eric Beyne, IMEC
- Michel Brillouet, CEA-LETI
- Shinichi Takagi, University of Tokyo
- Clark T. Nguyen, UC at Berkeley
- Mario Paniccia, Intel Corporation
- Zhong Lin Wang, Georgia Institute of Technology

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