Is there Room for Advanced Technologies in Low Power Applications?

GUEST SPEAKER

Prof Amara Amara
Research and Cooperation International
When: **23rd August 2010, 3.00 p.m. to 4.00 p.m.**
Where: **Institute of Microelectronics, Singapore**
11 Science Park Road Singapore Science Park II Singapore 117685

Abstract

The market of portable and implantable medical devices is growing drastically due to the huge need for mobile communication, ubiquitous computing, healthcare etc…

We all know that conventional CMOS is facing serious scaling limitations due mainly to the degradation of the electrostatic channel control. This leads to higher leakage and higher variability that in turn impacts dramatically both power consumption and yield. Many research efforts have been made and are still ongoing at different levels (device, circuit and architecture) to increase the lifetime of Bulk CMOS. The question is: Is there room for other device alternatives with better behavior and that can benefit from these research efforts?

In this talk, we will review briefly the conventional MOS transistor limitations and we will present some device alternatives to overcome these limitations. We will highlight our research activities from the low power perspective on Multi-Vt, Ultra Thin Body and BOX Fully Depleted SOI (UT2B-FDSOI), a new Tunneling FET device we are proposing. Finally we will conclude with the work done on 3D integration.

Speaker Biography

Prof. Amara AMARA obtained the HDR (Confirmation of Leading Research Capabilities) from Evry University, Ph.D. in computer science in 1989 and Master in microelectronics and computer science in 1984 from Paris VI University. In 1988 he joined IBM research and development laboratory at Corbeil-Essonnes as a researcher, where he was involved in SRAM memory design with advanced CMOS technologies. From 1989 to 1992, he was associate professor developing microelectronics academic programs for CEMIP (Paris and Ile-de-France Center for Microelectronics Education) and took part actively to many European Research Projects. In 1992 he joined ISEP (Paris Institute for Electronics) in charge of the Microelectronics Laboratory where he headed a joint team (Paris VI and ISEP) involved in High Speed GaAs VLSI circuit design. Currently he is Deputy Managing Director of ISEP in charge of Research and International Cooperation. His research interests are mainly focusing on Low Power circuit design and on Design and Technology Interactions for advanced Electron Devices (SOI, DGates FD SOI, Ultra Thin Body SOI, 3D Integration etc... In 1999, he did a sabbatical at Stanford University where he joined Professor De Micheli's group.

Prof. Amara is Vice President of the French IEEE Section since January 2004. From 2000 to 2004 he was Chairman of the IEEE-CAS French Chapter (Recipient of the 2004 Best Chapter of the Year Award and a Certificate of Appreciation from IEEE Regional Activities) and is currently member of the IEEE CASS Board of Governors serving in the Conference Division.

Among other activities, Prof. Amara is member of the Board of Directors of "ISEP-Enterprises" association, member of the CEMIP Executive Committee (Paris and Ile-de-France Center for Microelectronics Education), former member of the CEA Scientific Committee, and expert for the Swiss Science Foundation and the ANR (National Research Agency). He initiated and is still Chair of the Steering Committee of FTFC, a Low Voltage and Low Power Workshop, now held every year in French speaking countries.

Prof. Amara is a member of numerous Conferences Technical Program Committees and organizing Committees and he is a member of the Editorial Board of the Micro-Electronics Journal. He chaired ICICDT 2008 in Grenoble and IEEE ISCAS 2010 in Paris for which he has been awarded the Bronze Medals respectively of the cities of Grenoble and Paris. Amara published a book on Molecular Electronics and co-edited a book on Double-Gate FD SOI devices and circuits. He is co-author of more than hundred papers published in IEEE conferences and journals, invited talks and tutorials.

Registration

Pre-registration is required. Closing date is 19th August 2010. To register, please log on:
http://eastar.eventshub.sg/ems_wb_Details.aspx?CalID=28&EventID=126942

Location Map