


University of Macau

State Key Laboratory of Analog and Mixed-Signal VLSI,
Department of Computer and Information Science, and
Department of Electrical and Computer Engineering

Topic: Nanometer IC Design and Manufacturing: Challenges, Opportunities, and Outlook

Date : 28 January 2016 (Thursday)
Time: 4:00p.m. - 5:00p.m.
Venue: G015, Faculty of Science and Technology E11, University of Macau
Speaker: Prof. David Z. PAN, Engineering Foundation Professor,
Department of Electrical and Computer Engineering, The University of Texas at Austin, TX 78712

Abstract



Integrated circuit (IC) is one of the most important inventions in the 20th Century, widely used in all modern electronics. Thanks to the famous Moore's Law (2015 marks its 50th anniversary), an unbelievable number of transistors can be packed in a small area (e.g., over 10 billion transistor within 1cm²). As the feature size enters the era of extreme scaling (14nm, 11nm, and beyond), IC design and manufacturing challenges are exacerbated, due to the adoption of multiple patterning other emerging lithography technologies.

Meanwhile, new ways of scaling such as 3D-IC have gained tremendous interest and initial industry adoption, and new devices/materials such as nanophotonics are making their headways to on-chip integration. Furthermore, IC design and CAD methodologies are being pushed to new frontiers, e.g., into bio-chips, healthcare, and Internet-of-Things. This talk will discuss some key technology trends and challenges in nanometer IC design and manufacturing, and discuss some opportunities and outlooks.

Biography

David Z. Pan received his BS degree from Peking University, and MS/PhD degrees from UCLA. He was a Research Staff Member at IBM T. J. Watson Research Center from 2000 to 2003. He is currently the Engineering Foundation Professor at the Department of Electrical and Computer Engineering, University of Texas at Austin. He has published over 240 refereed journal and conference papers. He has served in many journal editorial boards (TCAD, TVLSI, TCAD-I, TCAS-II, TODAES, etc.) and conference committees (DAC, ICCAD, DATE, ASPDAC, ISLPED, ISPD, etc.). He is a working group member of the International Technology Roadmap for Semiconductor (ITRS). He has received a number of awards, including the SRC 2013 Technical Excellence Award, DAC Top 10 Author Award in Fifth Decade (2013), DAC Prolific Author Award (2013), ASP-DAC Frequently Cited Author Award (2015), 12 Best Paper Awards at premier venues, Communications of the ACM Research Highlights (2014), ACM/SIGDA Outstanding New Faculty Award (2005), NSF CAREER Award (2007), NSFC Overseas and Hong Kong/Macau Scholars Collaborative Research Award, SRC Inventor Recognition Award three times, IBM Faculty Award four times, UCLA Engineering Distinguished Young Alumnus Award (2009), among others. He is an IEEE Fellow.

The lecture is open to the public

For enquiry: State Key Laboratory of Analog and Mixed-Signal VLSI (AMSV)
Tel. (853) 8822-8796 ; <http://www.amsv.umac.mo> ; amsv.enquiry@umac.mo



SSCS Chapter
(2012 Outstanding Chapter Award)



CAS/COM Joint-Chapter
(2009 Chapter of the Year)