PURDUE UNIVERSITY

Birck Nanotechnology Center

Semiconductor Innovation - A Foundry Experience and Perspective

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Date: April 26, 2023, 1pm - 2pm
Location: BRK 1001

Abstract:

Semiconductor is synonymous with innovation. Semiconductor is pervasive and is the key to sustainable future societies. Recently, semiconductor-enabled technologies have helped us fight the Covid-19 pandemic and kept the world going. Riding on semiconductor advances, AI innovations such as ChatGPT are poised to transform human societies. For the foreseeable future, smart ubiquitous applications will demand innovation in more powerful and energy-efficient semiconductor chips and systems. There are many opportunities for open collaborative innovation of emerging semiconductor technologies and applications into the "Super Moore" era. We'll provide some perspectives on technical and business model innovations. An innovative, vibrant, efficient, and secure global semiconductor supply chain and a symbiotic semiconductor ecosystem among academia, industry, and governments will benefit the whole world.

Bio:

Dr. Jack Sun is an IEEE Life Fellow. He received his PhD degree from University of Illinois, Urbana-Champaign. He devoted his career to the advancement of semiconductor technology with outstanding contributions to the semiconductor industry globally and in Taiwan. He and co-workers did pioneer work on deep-sub-micron n+/p+-poly CMOS, cryo-CMOS, Bipolar, SiGe HBT, and BiCMOS at IBM T.J. Watson Research Center from 1983 to 1997. Prior to his latest endeavor in leading the new school at NYCU for semiconductor and AI systems talent development and research, Dr. Sun served as VP of R&D and CTO at TSMC before retiring in 2018. He and coworkers helped establish TSMC as the foundry technology leaderwith energy efficient CMOS, RF-CMOS, and 3Dx3D system scaling for smartphones, WIFI, mobile computing, GPU, FPGA, AI, HPC,.., and enabled the innovation and growth of fabless design and product companies that transformed the semiconductor industry.

Dr. Sun received many awards, including J.J. EbersAward in 2015 (IEEE Electron Devices Society), TSMC Medal of Honor, National Taiwan University Distinguished Alumni Award, ECE Distinguished Alumni Award from University of Illinois, National Management Excellence Award (ROC, 2004), Outstanding Technology Worker Award (ROC, 2003), Ten Most Outstanding Engineer Award of the Chinese Institute of Engineers (2000), and two IBM Outstanding Technical Achievement Awards (0.25um CMOS; 0.5um CMOS). He was a plenary keynote speaker for 2017 IEDM, 2014 A-SSCC,and 2013 VLSI Technology Symposium, besides many invited talks, over 200 journal/conference papers, and 18 US patents. He had served as a Board Member for SRC, Sematech, and National Research Labs (NARL, Taiwan); and as VLSI Technology Symposia / JSAP Executive Committee member, IEEE A-SSCC Steering Committee member and Conference Chair.

Host: Prof. Zhihong Chen: zhchen@purdue.edu