

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE
2A&B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032, India

Seminar Notice

Org. by
Theoretical Physics Department

Title:	CMOS Technology - Past, Present and Future
Speaker:	Souvik Mahapatra, IIT Bombay, Mumbai
Date:	November 7, 2017 (Tuesday)
Time:	12:00 noon
Venue:	Theoretical Physics Seminar Room (C406), 3rd Floor, Centenary Building, IACS
Abstract:	Semiconductor CMOS technology has enabled great products from smart phones and laptops to internet, cloud based computation and data storage that benefit our everyday lives. In this talk, we will discuss the basics of CMOS technology, the "well known" Moore's law scaling, and innovations in materials, processes and architectures that have enabled the semiconductor "chips" that power these products today. Next we will discuss future technology trends, challenges and potential roadblocks, and innovations needed to continue Moore's scaling. Finally, we will discuss key reliability challenges that plague the performance of these products, which must be overcome to guarantee error-free operation of these chips till the end of product life. Souvik Mahapatra received his PhD from IIT Bombay in 1999. During 2000-01, he was with Bell Laboratories, Murray Hill, USA. Since 2002, he is with the Department of Electrical Engineering at IIT Bombay and presently a full professor. His current research interests are CMOS device scaling and reliability, and device-circuit co-design for co-optimisation of power, performance and reliability. He has published more than 150 papers in peer reviewed journals and international conferences, delivered invited talks at major international conferences including IEEE IEDM and IRPS, and has been actively collaborating with several global semiconductor industries. He is a fellow of INAE, fellow of IEEE (for contributions to CMOS transistor gate stack reliability), a distinguished lecturer of IEEE Electron Devices Society, and holds visiting faculty position at Purdue University and University of Notre Dame (USA).

All are cordially invited to attend the seminar