Indian Institute of Technology Kanpur

INSTITUTE LECTURE SERIES

October 31, 2023 (Tuesday) | 5.30 pm | L - 1

Semiconductors: Fueling our Future

Speaker: Dr. Renu Mehra
Vice President of Engineering, Synopsys, Inc.

About the Speaker

Dr. Renu Mehra is Vice President of Engineering for the EDA Group at Synopsys and heads the Synopsys Design Compiler® and Synopsys RTL Architect R&D teams. She is a recipient of the IIT Kanpur Distinguished Alumni Award for 2023. She received the Marie Pistilli Women in Electronic Design Award in 2021 and the YWCA Tribute to Women Award in 2020.

Dr. Mehra is a pioneer in design automation for power management and provided one of the early visions for an automated solution for this area. She was a founding member of the IEEE 1801 working group that created the Unified Power Format, now the dominant power intent specification format for the semiconductor industry.

She holds several U.S. patents and has published her work in international conferences and journals. She earned her B. Tech. in Electrical Engineering from the Indian Institute of Technology, Kanpur, and an M.S. and Ph.D. in Electrical Engineering and Computer Sciences, respectively, from U.C. Berkeley.

Abstract of the Talk

Electronic systems are penetrating every aspect of our lives from personal entertainment, homes, and workplaces, to healthcare and smart cities. These systems are powered by tiny semiconductor chips that can process massive amounts of data and perform complex calculations. Over the past 50 years semiconductor technology has been fueled by Moore's law that resulted in doubling the number of transistors on a chip every few years while the overall energy density remained constant through Dennard scaling. These two principles resulted in huge advancements in the compute power of the tiny semiconductor chip and made possible the era of smart devices that we live in.

How did semiconductor technology achieve such remarkable feats? What are the principles and challenges behind creating these chips? And how can one join this exciting field of innovation? This talk will answer these questions and more by taking the audience behind the scenes of semiconductor design including what semiconductors are, where they are used, and how they are made. The speaker will describe the fascinating process of transforming a concept into a final silicon product.

All are cordially invited to attend

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