



TCAD – Circuit Simulation Workshop

Indian Institute of Technology, Bombay (IITB) is pleased to announce an online workshop on “TCAD – Circuit Simulation” during August 1-5, 2022, in partnership with **Synopsys**, under the aegis of the Indian Nanoelectronics Users' Programme (INUP). **INUP** was started in 2008 by IITB and IISc, with support from the **Ministry of Electronics & Information Technology**, in order to nurture the semiconductor and nanoelectronics ecosystem in India through broad-based training. Today, it is run by a network of six leading institutes across the country, under the name **INUP-i2i**.

Synopsys is one of the largest Electronic Design Automation (EDA) Company in the world.

Technology Computer-Aided Design (TCAD) is the simulation of semiconductor fabrication processes and device properties. It is used extensively in the industry for semiconductor technology development – in order to reduce cost over a purely experimental approach. This simulation workshop will take the participants all the way from process and device (TCAD) to circuits, using the 28nm silicon CMOS node as an example. It will be taught significantly by experts from Synopsys, who have developed the most popular TCAD tools, with introductory bridging content taught by IITB faculty experts.

Online applications are invited from interested researchers in academia and industry for participation in this workshop. It will be a unique opportunity for researchers and students to experience intensive training on the effective usage of semiconductor process, device, and circuit simulation tools.

Outline of the workshop

- Introduction to TCAD: models, system of equations, discretization, numerics, visualization
- Overview of 28nm Node: process modules, electrical targets -Describes the node that will serve as the example thru the workshop
- Process Simulation: Tutorial + *Lab* on 2D TCAD process simulation
- Device Simulation: Tutorial + *Lab* on 2D TCAD device simulation
- Compact Model Extraction: Tutorial + *Lab* on BSIM4 SPICE model extraction from TCAD output
- Ring Oscillators: theory and role in technology development - Provides high-level understanding of ring oscillator design and usage
- Ring Oscillator Simulation: Tutorial + *Lab* on ring oscillator simulation
- Advanced Topics

Organizing committee

- Prof. Souvik Mahapatra, IITB
- Prof. Swaroop Ganguly, IITB
- Prof. Ashwin Tulapurkar, IITB
- Prof. Saurabh Lodha, IITB
- Prof. Udayan Ganguly, IITB
- Dr. K. Nageswari, IITB
- Dr. Deepti Rukade, IITB
- Dr. Karim El Sayed, Synopsys
- Neel Gopalan, Synopsys
- Dr. Plamen Asenov, Synopsys
- Ric Borges, Synopsys
- Dr. Shela Aboud, Synopsys
- Dr. Patrick Haspel, Synopsys

Registration Deadline: **July 21, 2022**
Confirmation of Registration: **July 25, 2022**
Workshop dates: **August 1-5, 2022**

Contact us:

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**Limited seats,
register now!**