June 26, 2022 Sunday Workshop:
Semiconductor device simulation tools for education using the (free) nanoHUB cyberinfrastructure.
Tanya Faltens, PhD. Network for Computational Nanotechnology, Purdue University
Minneapolis Convention Center, Room 208

Workshop Goals

The goals of this workshop are to:

1) Familiarize participants with semiconductor education resources on nanoHUB.
2) Enable instructors to use nanoHUB simulations in their own courses.
3) Connect instructors with similar teaching interests via the nanoHUB **semiconductors group** and **faculty group**.
4) Start a conversation on what this community would like to be able to do with semiconductor simulations.

Workshop Objectives

After this workshop, participants will be able to:

- Run, save and share nanoHUB semiconductor simulations.
- Use simulations to explore semiconductor device concepts.
- Use nanoHUB features that support classes.
- Connect with other instructors who have similar teaching interests.

Proposed Agenda

9:00 am	Welcome and Introductions
	Set up your free nanoHUB account: https://nanohub.org/register/
	Join the semiconductors group: https://nanohub.org/groups/semiconductors
	Workshop material is on this page: https://nanohub.org/groups/semiconductors/asee2022
9:20 am	Overview of nanoHUB and its semiconductor education and workforce development resources
9:35 am	Visualizing (100), (110), and (111) planes in the silicon crystal structure using Crystal Viewer
	How to save and share simulation results
	Reflection and discussion on this activity
9:50 am	10 min Break
10:00 am	Band diagrams and carrier concentrations using Illinois Solid State Electronic Devices Classes Tools
	Reflection and discussion on this activity
10:30 am	Drift diffusion and pn junctions using ABACUS
	Reflection and discussion on this activity
10:50 am	10 min Break
11:00 am	MOS capacitors and MOSFETS using ABACUS
	Reflection and discussion on this activity
11:35 pm	nanoHUB features that support classes
11:45 pm	Wrap up and workshop feedback
12:00 pm	Adjourn