

UCSD NANOENGINEERING/CHEMICAL ENGINEERING
SPECIAL SEMINARThursday, August 29, 2019
Seminar Presentation: 10:00am - 11:00am
SME room 448*“Using nanoHUB in Research and Education”***Tanya Faltens Ph.D.***Educational Content Creation Manager for the
Network for Computational Nanotechnology (NCN)
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Abstract: nanoHUB.org is a virtual nanotechnology user facility that supports the National Nanotechnology Initiative with a highly successful cyber-infrastructure for theory, modeling, simulation and education that serves over 1.4 million researchers, educators, students, and professionals annually. This powerful platform provides a collaborative environment through its group and project functionalities and is an established venue for deployment of scientific codes that allow developers to quickly and easily publish their existing code with a user-friendly graphical user interface. nanoHUB has been supported by the U.S. National Science Foundation since 2002 to serve the nanotechnology community.

This presentation and hands-on workshop will introduce you to nanoHUB's simulation tools and educational resources, which include research seminars, short courses on cutting-edge topics such as nanoelectronics, nanophotonic modeling and rechargeable batteries, full courses on a variety of science and engineering topics, and simulation-powered tutorials. Currently, nanoHUB provides a library of more than 5,500 resources to over 1.4 million users worldwide, with over 550 simulation tools that are used by over 16,000 annually.

A key feature of nanoHUB's simulation tools is that they run in the cloud, and do not require local installation. In addition to the traditional Rapture-based nanoHUB simulation tools, Jupyter notebooks are now securely installed in nanoHUB and can access a large number of installed mathematical and graphical packages. Significantly, Jupyter notebooks can call the Rapture-based tools as a service, and can be used to create end-to-end scientific workflows.

The process for publishing simulation tools and other resources in nanoHUB will also be covered. Both the Web of Science and Google Scholar list nanoHUB simulation tools as proper publications, giving credit to the tool authors. nanoHUB's impact is reflected by 2,180+ citations and over 30,900 secondary citations to nanoHUB in the scientific literature, yielding an h-index of 82.

Attendees should bring a wifi-enabled laptop to be able to participate fully in the workshop. Before the workshop begins, they can sign up for a free nanoHUB account if they do not already have one, at the following page: <https://nanohub.org/register/>.

Biosketch: Tanya Faltens is the Educational Content Creation Manager for the Network for Computational Nanotechnology (NCN), which created the open access nanoHUB.org cyber-platform. Her technical background is in Materials Science and Engineering (Ph.D. UCLA 2002). Dr. Faltens taught materials engineering courses for 6 years at Cal Poly Pomona, and introduced nanoHUB simulation tools to her students during that time. Now at Purdue University, she works with faculty and students who create and use simulation tools as well as engineering education researchers who are investigating the effective use of simulations in the classroom.