



Issue 59

This month we have several exciting things to share with you! Check out our new webinar series, new resources, industry news and more, below.

Giving Tuesday

Consider a gift to nanoHUB

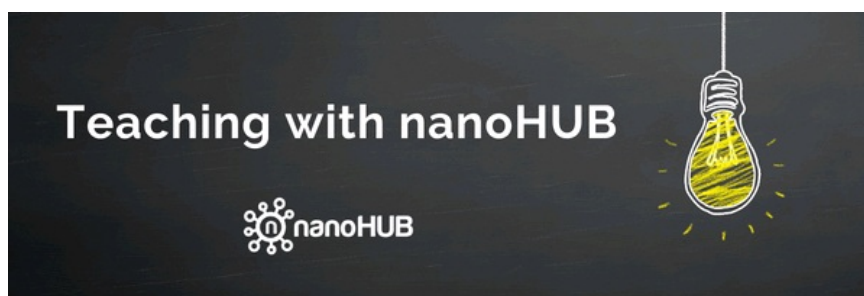
Happy Giving Tuesday! Supporting the mission of nanoHUB is as easy as a few mouse clicks. A gift to nanoHUB enables us to continue educating students through modeling and simulation.

**GIVING
TUESDAY**

With a donation, you're helping us keep this invaluable resource available to our growing community. You can make a difference.

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Upcoming Events



Teaching and learning with the MIT Atomic Scale Modeling Toolkit's classical and quantum atomic modeling applications

We're excited to announce our new Winter 2023 Series – Teaching with nanoHUB! You're invited to attend our first session. It will explore the [MIT Atomic-Scale Modeling Toolkit](#) with [Dr. Enrique Guerrero](#). He will demonstrate more advanced features and compute phonon and Raman spectra using density functional perturbation theory.

Date and time

Wednesday, December 7, 2022 from 12 – 1 PM EST

[Register here](#)

Micromagnetic simulation of magnetic nanowires (MNW) using OOMMF to predict heating ability

The second webinar in our Teaching with nanoHUB Winter 2023 series will feature the [OOMMF: Object Oriented MicroMagnetic Framework](#) tool with [Yicong Chen](#). Yicong is a Ph.D Candidate in Prof. [Beth Stadler's](#) lab at the University of Minnesota whose research focuses on the Micromagnetic simulation of magnetic nanowires using OOMMF. More webinar details will be available soon on the [nanoHUB Events page](#), and you can register now at the link below.

Date and time

Wednesday, January 11, 2023 from 1:30 – 2:30 PM EST

[Register here](#)

New Resources on nanoHUB

A Condensed Matter Physics class and a Course-Based Undergraduate Research Experience (CURE) with the MIT Atomic-Scale Modeling Toolkit

[In this presentation](#), [Dr. David Strubbe](#) of the *University of California, Merced*, discusses how he has been using the [MIT Atomic-Scale Modeling Toolkit](#) as a part of his undergraduate and graduate class on condensed matter physics. Dr. Strubbe demonstrates how he used the simulation tools to help students

understand condensed matter physics and ultimately make their own contribution to research.

This presentation is part 1, part 2 can be viewed below (Interactive Modeling of Materials with Density Functional Theory Using the Quantum ESPRESSO Interface within the MIT Atomic-Scale Modeling Toolkit.)

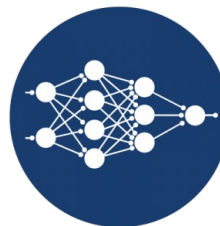
Interactive Modeling of Materials with Density Functional Theory Using the Quantum ESPRESSO Interface within the MIT Atomic Scale Modeling Toolkit

This [newly published resource](#) features the Quantum ESPRESSO interface within the [MIT Atomic-Scale Modeling Toolkit](#) with interactive examples. In this presentation, [Dr. Enrique Guerrero](#) reviews the basics of density functional theory and focuses on the tool's capabilities.

The handout that is presented in this presentation can be found here: [A Guide to the MIT Atomic Scale Modeling Toolkit for nanoHUB](#).

Gaussian Process Regression for Surface Interpolation

This [presentation](#), by Zhiqiao Dong and Manan Mehta, introduces the fundamentals of GPR and its application to surface interpolation. It also covers a new technique called filtered kriging (FK), which uses a pre-filter to improve interpolation performance. The FK method will be illustrated using periodic surfaces manufactured by two photon lithography.



Check out the [Data Science and Machine Learning series page](#) to view other topics and presentations in the series.

Semiconductor News

Science special issue: 75 years of transistors

Check out the [latest issue of Science](#). It touches on the history of transistor technology over the last 75 years.

This special issue also includes a perspective by Dr. Mark Lundstrom, the founding director of nanoHUB, and Dr. Muhammad A. Alam, Jai N. Gupta Professor of Electrical Engineering at Purdue University: [Moore's law: The journey ahead](#).

Learn more about [nanoHUB's Semiconductor Workforce Development](#) resources.

Check out some of their resources on transistors and semiconductors on nanoHUB:

- [Reflections on the Past, Present, and Future of Device Research](#)
- [Primer on Semiconductor Fundamentals](#)
- [Solid State Devices](#)
- [Reliability Physics of Nanotransistors](#)

nanoHUB Updates

New Navigation Menu

You may have noticed a few changes to the nanoHUB navigation menu. We condensed menu items to help you quickly and easily find the material you are looking for on nanoHUB.

Please take a moment to share your thoughts on these changes and any ideas you have to further improve navigation on nanoHUB via our [contact us form](#).

Do you have a suggestion or nanoHUB success story you'd like to share? Use our [Contact Us form](#) and you may see your submission in a future newsletter!

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