An Introduction to nanoHUB for MNT Education

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nanoHUB

What is nanoHUB?

nanoHUB.org is a free online resource and community for nano educators and researchers that contains over 6000 multimedia resources including interactive simulation tools, learning modules, homework assignments, online lectures and full courses.

Where to start exploring nanoHUB

We recommend two groups in nanoHUB where you can find curated resources for micro- and nano- technology educators:

Nanotechnology Workforce Development
https://nanohub.org/groups/nanowork

- Links to simulation activities
- Content on nanoHUB from the nano ATE Centers

NACK NETWORK

SHINE

SCME Support Center for Microsystems Education

Nano-Link Center for Nanotechnology Education

NEATEC Northeast Advanced Technological Education Center
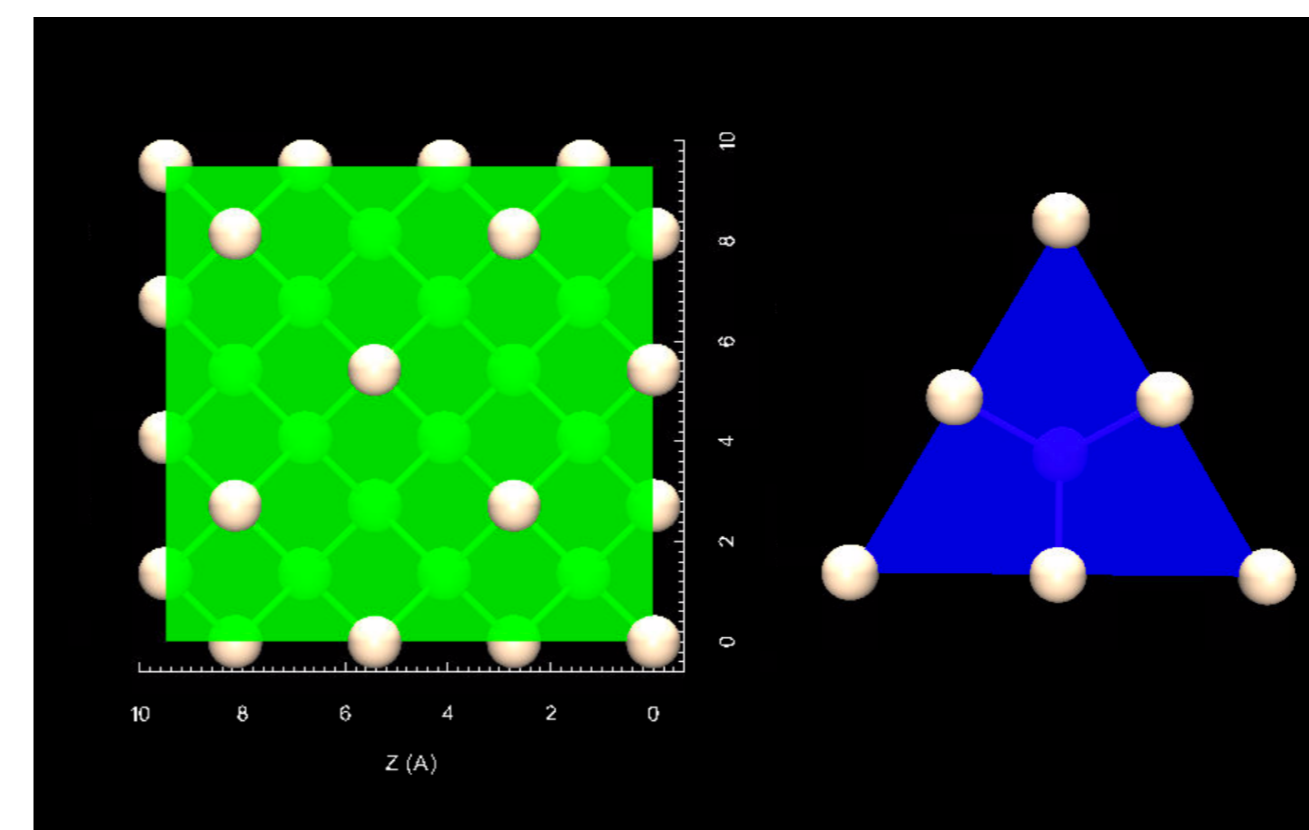
nanoHUB Beginners
https://nanohub.org/groups/nanobeginners

- How to personalize your nanoHUB Dashboard
- How to run a simulation tool
- How to set up a group and utilize group functionalities
- How to get started with Jupyter Notebooks in nanoHUB
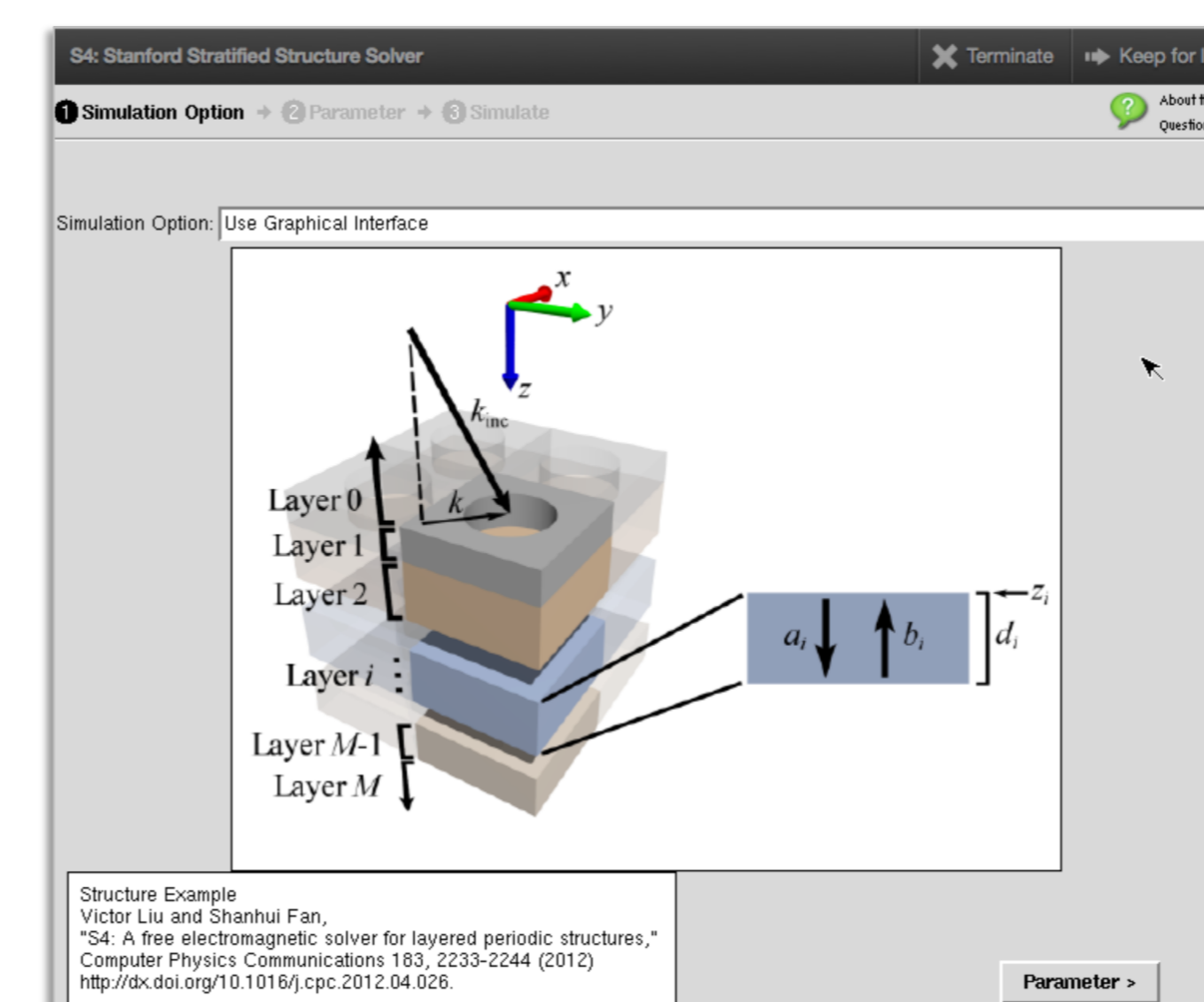- How to get help

Example Simulation Activities

Si (100) and Si (111) Planes
Use the Crystal Viewer tool to view crystal structures with surfaces that are specific planes, specified by Miller indices.
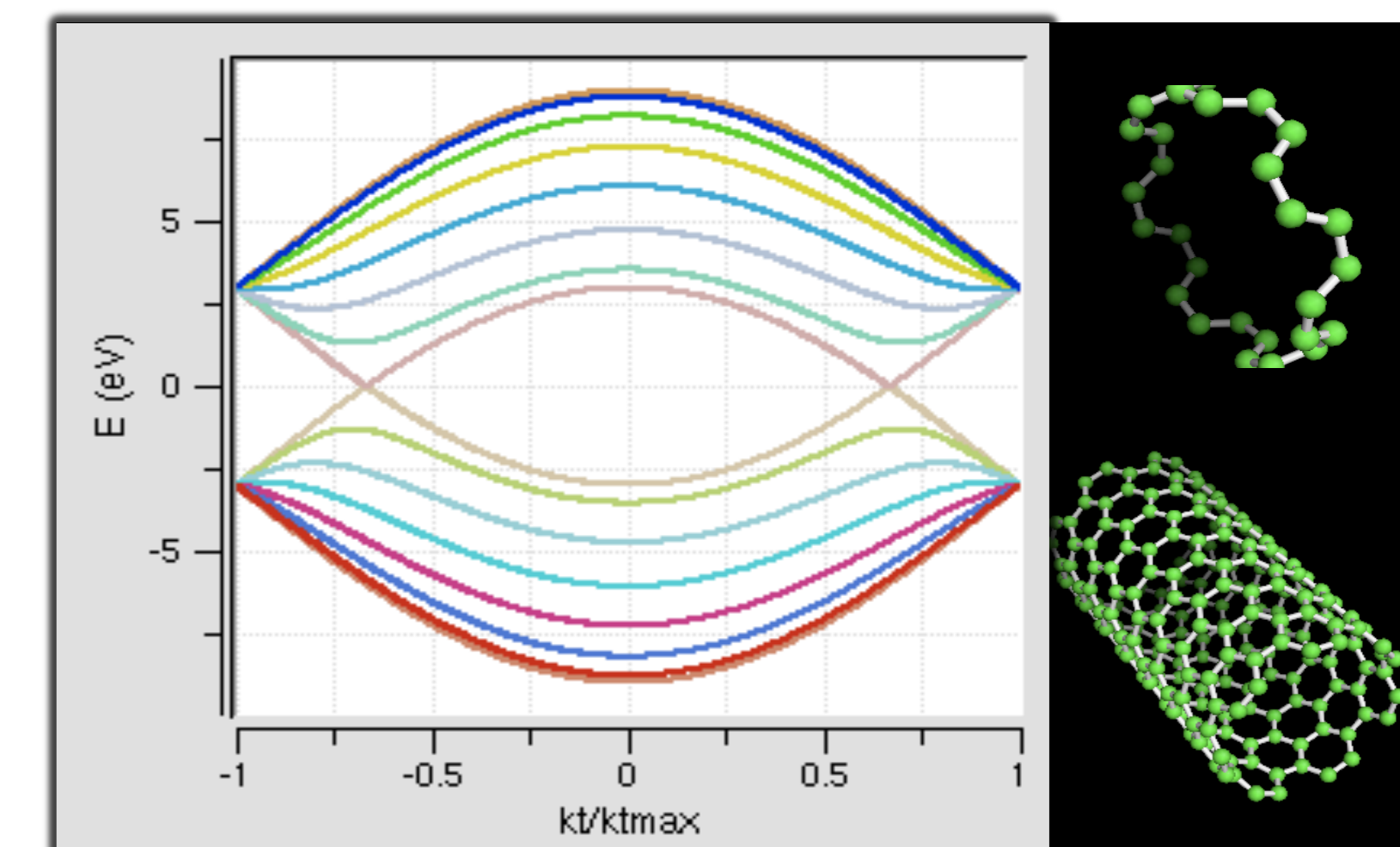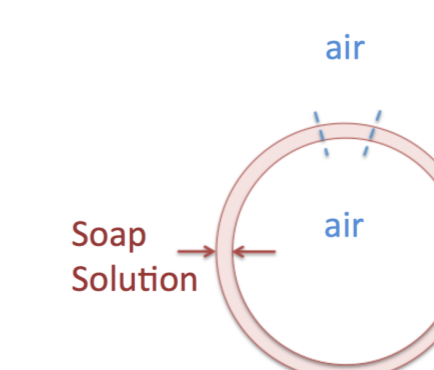

Identify geometries of carbon nanotubes and examine energy band diagrams with the CNT-bands tool.

Colors of Thin Films worksheet: teaches how to simulate reflections of thin films using the S4: Stanford Stratified Structure Solver and then analyze the results to predict the color of the film.

jupyter

Project Jupyter exists to develop open-source software, open-standards, and services for interactive computing across dozens of programming languages.

Jupyter Notebooks installed in nanoHUB are available with libraries already installed and course lessons available in Python, Octave, Matlab and R.

NSF