

NanoEngineer-1 Workshop

Event Location

Foundations of Nanoscience (FNANO 08) Conference
Self-Assembled Architectures and Devices
Snowbird, Utah
April 24, 7:00 - 8:30pm

Description

This is a 90 minute hands-on workshop for NanoEngineer-1 (NE1), the world's first 3D CAD/CAM program for structural DNA nanotechnology (SDN) research and education. Attendees are invited to bring their laptops with NE1 pre-installed* and follow a series of instructor led tutorials.

Tutorials

After a brief introduction of the NE1 graphical user interface and the PAM-3+5 reduced model of DNA, the presenter will demonstrate how to build a number of well-known DNA motifs and structures, including a set of double crossover (DX) tiles and 2D arrays made from them, a DNA tetrahedron, a DNA nanotube and a Rothemund DNA origami tile.

The presenter will also demonstrate how these DNA models can be relaxed/minimized using GROMACS and analyzed for identifying stress points, puckering regions and/or structural flaws in the design.

Finally, a demonstration showing how NE1 plug-ins like QuteMolX and POV-Ray can create stunning, high-quality renderings of DNA models suitable for publication and the web.

Bonus

NE1 can produce a "Bill of Materials" from the DNA model which contains all strands and their sequences in the design. This can be used to order DNA directly from suppliers of custom oligonucleotides such as Intergrated DNA Technologies.

*A special Nanorex 1GB flash drive will be given to all conference attendees when they pick up their conference materials at the registration desk. The flash drive will include self-installers of NE1 for all major platforms. A Nanorex help desk located in the lobby area will be manned at all times by a Nanorex employee to offer assistance to anyone needing help installing and/or using the NE1 software.