

California teens use Rice's NanoKids for virtual nanotech training

June 21 2006

A team of "virtual" teachers developed by a Rice University nanotechnology researcher are going to help some of California's brightest high school students design, build and test new structures, one atom at a time.

The NanoKids and "nanocar" are key components of the curriculum when students report for the Nanotechnology and Robotics class at the California State Summer School for Mathematics and Science (COSMOS) on July 9 at the University of California, Santa Cruz. Both were born in the Rice University labs of James M. Tour, the Chao Professor of Chemistry, professor of mechanical engineering and materials science and professor of computer science.

Students will design and animate the NanoKids, which are characters based on actual anthropomorphic molecules synthesized in the laboratory. The NanoKids help students and teachers visualize molecular-scale science in a way that is fun and easy to understand. The world's first single-molecule car comes complete with chassis, axles and four buckyball wheels. In a kind of reverse CAD process, students will use powerful new molecular modeling software to build the nanocar and learn how to animate it moving across a gold surface, illustrating the same phenomena demonstrated in Tour's lab earlier this year.

"The idea is to use these figures, in an animated sense, to instruct school kids on the beauty of nanoscale research using entities that operate at that size domain," Tour said.

Helping the students "see" what they are doing on the nanoscale will be an early version of NanoEngineer-1 developed by Nanorex Inc., the world's first developer of tools for the design, simulation and analysis of atomically precise molecular machine systems.

"This is NanoEngineer-1's first job in the 'real world', and I am very pleased it will introduce students to the fundamentals of molecular modeling and molecular dynamics simulations," said Nanorex CEO Mark Sims. "It is our hope that Nanorex, through educational partnerships like this one with COSMOS, will help change the way we all think about nanotechnology by no longer defining it within the framework of existing applications and products. I'm eager to see what these bright, creative kids come up with."

Rice University's models and Nanorex's tools will bring students closer than ever to "actually building things atom by atom," said COSMOS instructor Miguel F. Aznar, director of education for the Foresight Nanotech Institute. "This will be the first time we've been able to give high school students hands-on practice with nanotechnology structures. It makes nanotechnology tangible, connecting it to the science they've studied."

Source: Rice University

Citation: California teens use Rice's NanoKids for virtual nanotech training (2006, June 21) retrieved 12 May 2024 from <https://phys.org/news/2006-06-california-teens-rice-nanokids-virtual.html>

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