

## BRINGING NANOTECHNOLOGY TO THE CLASSROOM: CAPTURING HIGH SCHOOL STUDENTS' AND TEACHERS' NANOTECH INTEREST

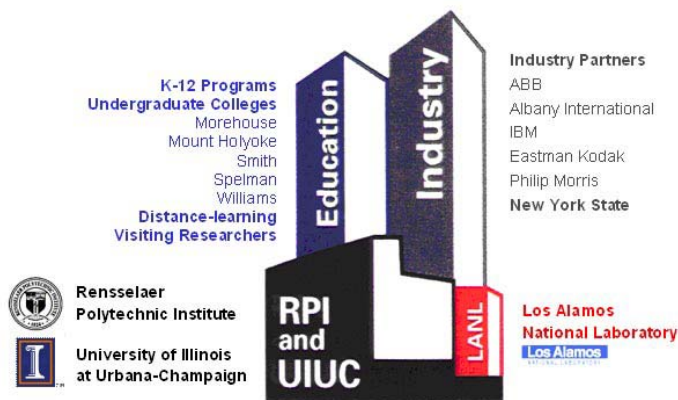
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### ABSTRACT

To attract the nation's brightest young minds to nanoscale science and engineering, “**Bringing Nanotechnology to the Classroom**” outreach program at NSEC has developed high school chemistry teaching modules that will be implemented in high school chemistry laboratory courses with a partnership with high school teachers and students. A special emphasis on high school educational material developments on hands-on experiments to educate and excite high school students in a frontier field of nanotechnology and biotechnology, as well as enhancing their understanding basic science concepts. For example, self-assembly monolayer (SAM) experiments have been developed to take advantages of existing high school laboratory classes on “silver mirror laboratory”. Using alkyl-thiol SAM formation on Ag surface, the current silver mirror experiment in high school will be further elaborated to introduce high school students to the concept of molecular modification of surfaces using SAMs. In addition, this experiment will enhance their understanding of the fundamental concepts of “hydrophobicity and hydrophilicity” as a surface properties. The high school students and teachers in the outreach program also performed microscopy experiments at NSEC to investigate nanoscale surface structures of mica, floppy disks, nanoporous membrane and particles using cutting-edge research equipments, such as atomic force microscopy and scanning electron microscopy. The microscopy surface images will be used as a teaching material in high school classroom lecture to improve their understanding of material structures in nanoscale.

**About center** - The **Center for Directed Assembly of Nanostructures** includes a diverse group of world-renowned scholars from Rensselaer, UIUC, and LANL, as well as more than 25 participating students and post-doctoral researchers. Nanotechnology pioneer **Richard W. Siegel**, Rensselaer's Robert W. Hunt Professor of Materials Science and Engineering, serves as Center director. Kenneth S. Schweizer, UIUC's Morris Professor of Materials Science and Engineering, serves as associate director. More than 25 other senior and junior faculty and staff members affiliated with the Center are responsible for numerous remarkable innovations in nanoscale and nanotechnology. Members of this outstanding internationally recognized team have received numerous awards



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for their excellence in research and education.