Symposium on Undergraduate Nano-Education:
"Addressing the Challenges of Nanoscale Science & Engineering Education"

Presentation:
A Modular Curriculum for Graduate Education in Nanotechnology
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Presenter Biography:
Brad Thiel is a Professor of Nanoscale Science in the College of Nanoscale Science and Engineering at the University at Albany, and the Director of the SEMATECH Advanced Metrology Development Program. His research and teaching interests are in the areas of charged particle beam microscopy, materials characterization, structure-property relationships, and semiconductor metrology. He has had extensive experience teaching in both the US lecture system as well as the Cambridge supervision system. These experiences led him to play a significant role in designing the current graduate education system at the College of Nanoscale Science and Engineering.

Abstract:
Founding a graduate program in nanotechnology from a "clean slate", rather than through evolution or coalescence of existing programs, provides unique challenges and opportunities for curriculum design. Students brought in from a wide variety of undergraduate backgrounds must be brought up to a common level of fluency in math, physics, chemistry, and structure-property relations. Conversely, the curriculum must also provide the foundations for more advanced and specialized study in support of broad research areas. One solution is to offer a broad range of modular, one credit courses in single topic "core competencies". In these Foundations of Nanotechnology Modules, students are introduced to the information set and problem solving tools that would have been acquired on a given topic in a traditional undergraduate program, but taught at a graduate level in an applied research context. This structure provides the flexibility needed for diverse undergraduate backgrounds and research interests while optimizing time spent in lecture courses.