

# Our Grand Challenge:

- Benchmark the “state-of-the-art” in undergraduate Nano-Education
- Chart the future for undergraduate Nanoscale Science & Engineering Education

# From each presentation:

- What are the one or two most important lessons you have learned about nano-education at the undergraduate level?
- Identify one or two remaining challenges for undergraduate nano-education? What does the future hold for Nano-Higher-Ed?

# Breakout Session No. 1:

“Big Ideas in Nano-Ed: What Should Our Students Master?”

- What additional “big ideas” or “non-negotiables” in Nano-Ed have been overlooked? What makes them so essential?
- What’s unique about Nano-Ed (vis-à-vis general science and/or engineering education)?

# Breakout Session Nos. 2&3:

“The Grand Challenges of Nano-Education: Why Nano-Ed Matters?” “What (and How) Do We Know About How Students Learn Nanoscience/Nanotechnology?”

- What makes undergraduate Nano-Ed so important? What’s at stake if Nano-Ed did not exist? Can Nano-Ed make a difference in STEM education?
- What do we still need to learn about how undergraduates master nanoscience/nanotechnology? What is unique about Nano-Ed (vis-à-vis general science or engineering education)?

# Breakout Session No. 4:

“How Can We as Teachers Facilitate Learning?  
Course Innovations”

- What kinds of interventions/pedagogical activities have you found effective to facilitate Nano-Ed in your course(s)?
- What are the unique challenges of nano-education in the undergraduate classroom? What do we know about them? What do still need to know?

# Breakout Session No. 5:

“How Can We Facilitate Learning? Hands-on Innovations”

- What kinds of hands-on activities (labs, simulations, animations, etc.) have you found to be effective for facilitating undergraduate nano-education?
- What additional hands-on activities would you like to see to facilitate Nano-Ed at the undergraduate level? What additional “tools” are needed for Nano-Ed teaching/learning?

# Breakout Group No. 6:

## “New Approaches in Nano-Ed Degree Programs”

- What are the challenges for developing Nano-Ed degree programs (degrees, minors, concentrations, etc.) at the undergraduate level?
- What innovations in Nano-Ed degree programs have you found to be successful in preparing students for nanoscience/nanotechnology careers?