

NSF Nano Grantees Conference

Panel 5: Advanced Nano- Biomanufacturing

Moderators:

Susan Daniel, Cornell University

Khershed Cooper, National Science Foundation

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The interest in Advanced Nano-biomanufacturing

What?

- Biomimetics: Use of bio-inspired concepts, functions and principles of operation
- Bio-enabled: Use of biological species such as DNA, virus, protein, bacteria to design and make new materials, structures and devices with nanoscale precision and architectures
- Nano-enabled: Use of nanomaterials or nano-scale processes to make biological constructs such as cells, proteins, etc.

Why?

- The benefits of using these enablers are programmability, precision of placement, specificity, adaptivity, ambient temperature processing, energy-efficient synthesis,, all with nanoscale manipulation and control

Questions and Discussion

- What are the most *important breakthroughs* in synthesis/self-assembly/patterning mechanisms?
- What are the barriers to *scale-up*?
- What are the possible disruptive *applications*?
- What are the specific *EHS challenges* for bio-nanomanufacturing?

Speakers/Panelists

- **Paul Rothemund**, CalTech
“Unifying Concepts in Nanomanufacturing”
- **Susan Daniel**, Cornell
“The Challenges and Potential of Advanced Bio-nanomanufacturing of ‘Humanized’ Proteins”

Presentations 20 mins each (15 + 5 Q&A), followed by 15 discussion