

Nano Grantees Conference

Panel 5: **BioNanoManufacturing**

Moderators:

Khershed Cooper, National Science Foundation

Placid Ferreira, University of Illinois, Urbana-Champaign

The interest in bionanomanufacturing

What?

- Bio-nanomanufacturing is defined here as the utilization of biological species such as DNA, virus, protein, bacteria, and as well as bio-inspired concepts, to design and make new materials, structures and devices with nanoscale structures and architectures

Why?

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

Questions and Discussion

- What are the synthesis/self-assembly/patterning mechanisms?
- How do these methods compare with competing methods in terms of scalability, controllability, yield, reproducibility, quality and cost?
- What are the possible disruptive applications and timeline?
- What happens to the biological species after the manufacturing?
- Toxicity, environmental, health and safety standards and regulations need to be in place

Panelists

- **William Hughes**, Boise State University
“Engineering with DNA”
- **Nicole Steinmetz**, Case Western University
“Nanomanufacturing of Virus-based Supra-Assemblies”
- **Christopher Snow**, Colorado State University
“Synthesis of Nanostructures Inside Crystalline Protein Scaffolds”

Presentations 20 mins each, followed by 30 mins Q&A