

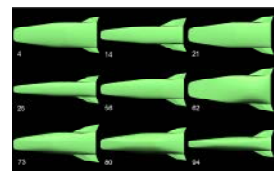
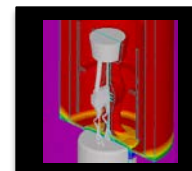
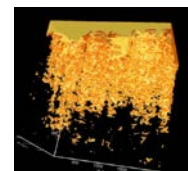
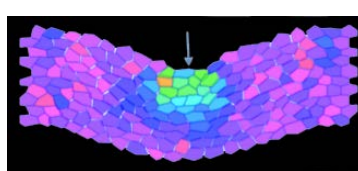
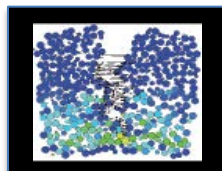
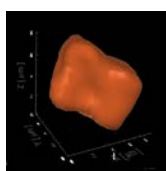
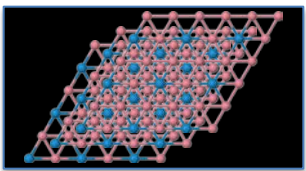
Charge to Breakouts

Identification of Grand Challenges for
Soft Materials



Grand Challenges Breakout Sessions

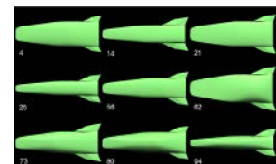
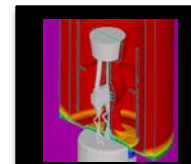
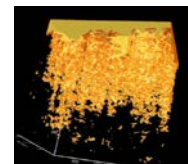
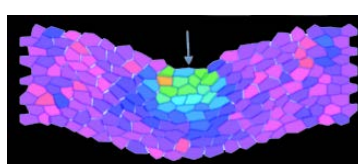
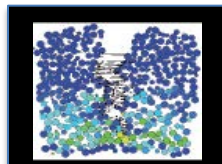
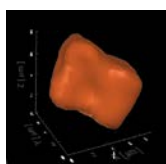
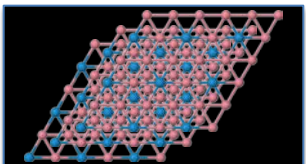
- Biomaterials
- Organic Electronics
- Polymers
- Polymer Composites



What is a Grand Challenge?

A Grand Challenge is a long-term science, engineering, or societal advance, whose realization requires innovative breakthroughs in materials discovery, development and deployment, and which will help address our country's priorities.

Adapted from the NITRD Grand Challenge Description



Breadth of MGI Grand Challenges

- **Challenges can be aspirational, general, or specific**
- **Challenges could be driven by scientific or industrial perspectives**
- **Challenges should emphasize materials science**
Fundamentals, science-based, rapid, quantitative...
- **Challenges should facilitate “discovery”**
Broad scope, comprehensive, iterative, rapid, quantitative...
- **Challenges should address “feasibility” considerations and application development requirements**
Analytically predicted structure, properties, processes, minimize iterations...
- **Challenges should facilitate transition to system or product implementation**
Rapid maturation during targeted development, zero iterations, accelerated validation, accelerated manufacturing maturity...

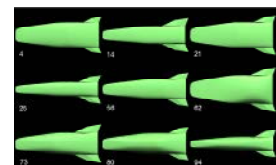
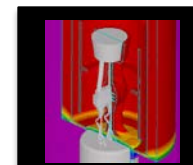
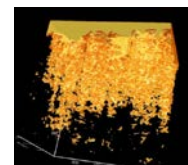
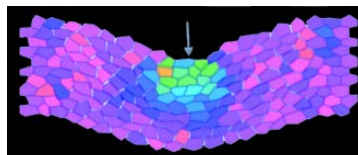
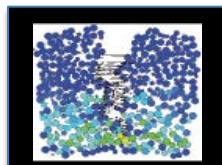
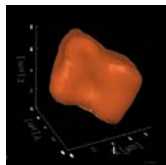
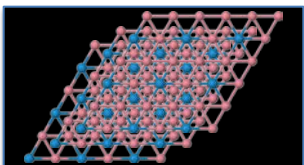
Grand Challenges Breakout Sessions

Framing Questions

“If materials scientists could _____, then new pathways of materials discovery would be possible.”

“If materials scientists could _____, materials/product engineers would be able to _____.”

“Materials/product engineers need to be able to _____, which materials scientists could enable by _____.”



Output from the Summit

- Grand Challenges for each breakout session will be summarized in presentation with a standard format
 - For presentation on Wednesday
 - For a later public Webinar by the session chairs (coordinated by NIST)
- Notes of the discussions will be compiled by a Rapporteur for each session
- A short summary of the Grand Challenges for each breakout session will be included in the MGI Strategic Plan

What is next?

- Find the location of your breakout session
- Today: Breakout sessions, including introductory presentations
- Wednesday: Breakout groups summarize and prioritize Grand Challenges
- Wednesday: Chairs report out (beginning at 10:30 am)

Questions?