

# DMR Response: Report of the MPSAC Subcommittee on Materials Instrumentation

Mary Galvin



# Committee

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*Margaret Murnane, University of Colorado*

*Yves Petroff, Brazilian Synchrotron Light Laboratory*

*Dave Tirrell, Caltech*

*Peter Voorhees, Northwestern University*



# Recommendations

## Major facilities

1. DMR *should only fund the construction and operation of unique large facilities*
  - DMR agrees.
2. Endorsed the recommendation of the National Academy report that *the NSF should continue to provide support for the operations of the NHMFL and the development of the next generation of high-field magnets*
  - DMR agrees – continuing to support the NHMFL and magnet development



# CHESS Upgrade

- *NSF should require CHESS to develop and submit a detailed case for the unique science opportunities that the upgrade will enable.....A compelling case for the uniqueness of the CHESS upgrade will be a critical factor in the ultimate decision on whether to proceed or not.*
- **DMR agrees that CHESS must make a case for the unique science that CHESS enables and have communicated this to them.**

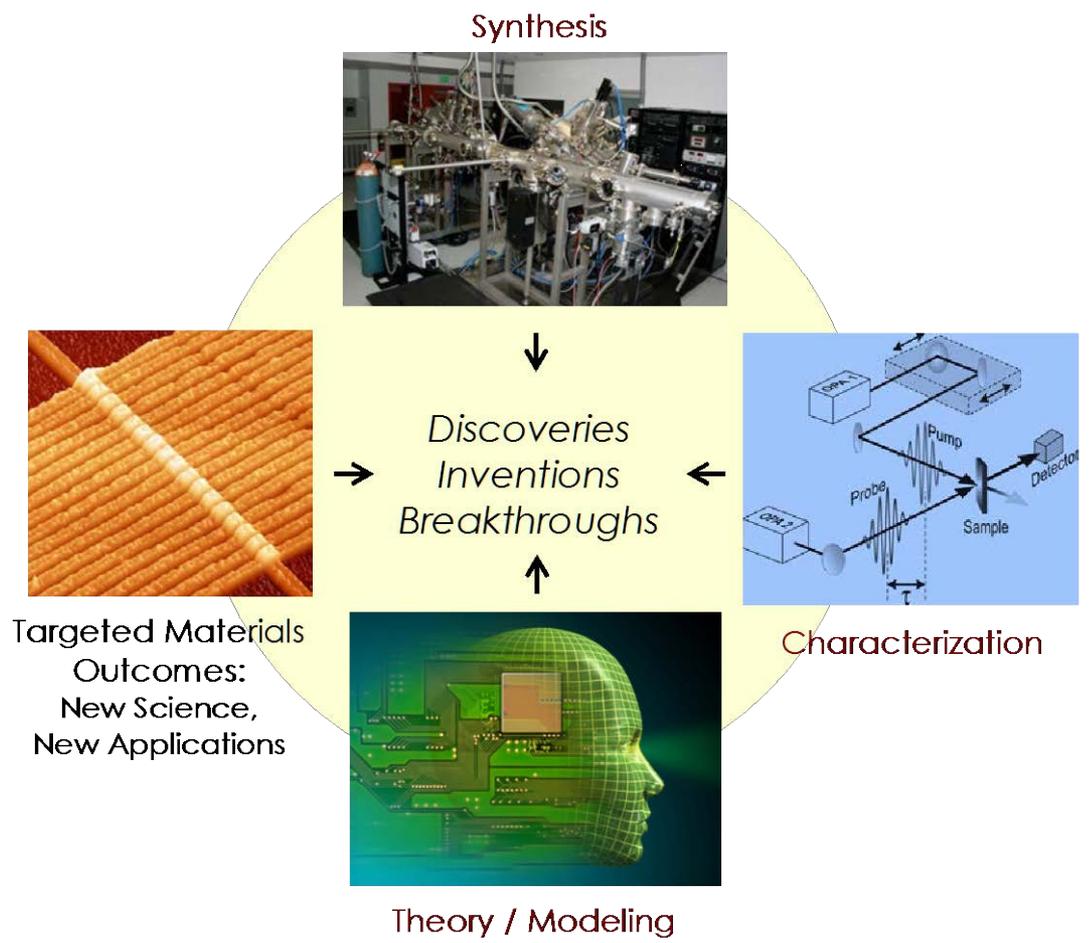


# Materials Innovation Platforms

## Closing the Loop

From talk by Charles Ahn – needs for Hard Materials

US Nobel prizes in hard materials – Other than theory they come from Bell or IBM labs



# Science Challenges

- **Materials synthesis and discovery – primary bottleneck in advancing the frontier.**
  - US currently behind in synthesis of hard materials.
  - Points to needs in synthesis of *soft and bio-inspired materials with targeted functionality*
- ***Opportunity to dramatically accelerate the pace of scientific discovery and innovation: tightly closing the loop***
  - Closing the loop goes *beyond communication*- incorporate characterization tools into synthesis *in situ*
  - Combine high speed data collection with high speed computation



# Response

- Endorse the concept of *Closing the Loop*
  - Consistent with DMREF program and MGI
  - Agree with needs and challenges that have been identified
- Requested \$8M in FY15 Budget Request to Congress for Materials Innovation Platforms
  - Midscale user facilities that incorporate research done in a *Closing the Loop* manner



# Specifics for MIPS

- Panel states this should not be done at expense of IIA programs.
  - DMR response: We are not doing it at expense of IIA programs. Have requested additional funds in FY15
- Panel has specific recommendations for MIPS beyond *Closing the Loop*
  - Response: DMR values these recommendations.
  - Currently working on solicitation - dependent on FY15 appropriation at Request level
- Expect to have workshops going forward to engage the community and get advice on future science targets.

