

# MRSEC Organizational Meeting

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## □ Today:

- Review program requirements.
- Discuss and identify a small number of Interdisciplinary Research Groups.

## □ Important information:

- [www.mrsec.org](http://www.mrsec.org)
- Program solicitation: nsf07563

# Important deadlines

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- RGP letter of intent: June 13
- RGP concept paper (6 pages plus budget): June 26
- NSF preproposal: September 5
- NSF full proposal (by invitation):  
January 18, 2008
- Awards announced by the NSF  
September/October 2008

# Division of Materials Research

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“The mission of the Division of Materials Research is to make new discoveries about the behavior of matter and materials; to create new materials and new knowledge about materials phenomena; to address fundamental materials questions that often transcend traditional scientific and engineering disciplines and may lead to new technologies; to prepare the next generation of materials researchers; to develop and support the instruments and facilities that are crucial to advance the field; and to share the excitement and significance of materials science with the public at large.”

# DMR structure

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- Mathematical and Physical Sciences (MPS) Directorate
  - Astronomical Sciences
  - Chemistry
  - Materials Research
  - Mathematical Sciences
  - Physics
- DMR “clusters”:
  - Metals, Ceramics, and Electronic Materials
  - Condensed Matter and Materials Physics
  - Solid State and Materials Chemistry, Polymers, and Biomaterials
  - Instrumentation, Centers, and Special Programs Cluster
- DMR budget: ~\$250M (largest in MPS)

# MRSEC Centers

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- MRSEC Centers (29): Brown, California Institute of Technology, Carnegie Mellon University, Columbia University, Cornell University, Harvard University, Johns Hopkins University, Massachusetts Institute of Technology, Northwestern University, Pennsylvania State University, Princeton University, Stanford/ IBM ARC/ UC Davis/ UC Berkeley, SUNY at Stony Brook, University of Alabama, University of California at Santa Barbara, University of Chicago, University of Colorado, University of Maryland, University of Massachusetts Amherst, University of Minnesota, University of Nebraska, University of Oklahoma / University of Arkansas, University of Pennsylvania PREM partner, University of Southern Mississippi, University of Virginia, University of Washington, University of Wisconsin-Madison, Yale University

# Emerging focus areas

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- New intellectual focus areas (from Lance Haworth, Acting DMR Director, at the 2007 APS DCMP Executive Committee meeting):
  - “transformative materials”
  - nanoscale materials and phenomena
  - complex systems, including biomaterials
  - computational discovery and innovation
  - fundamental research addressing the science beyond Moore’s law

# MRSEC structure

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- 12-15 total awards, \$29M anticipated budget
- Awards are for 6 years, \$1.0-\$5.0M/year.
- Average current award is \$1.9M/year.
- IRGs: from 1-5. 2-3 is typical, ~\$800K/IRG
  - 1 IRG: 9 centers
  - 2 IRGs: 6 centers
  - 3 IRGs: 10 centers
  - 4 IRGs: 3 centers
  - 5 IRGs: 1 center
- Education and outreach
- Industrial partners

# IRG topics

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<http://www.mrsec.org/research/>

- Biomolecular / Biomimetic Materials (13)
- Coatings / Ceramics (4)
- Condensed Matter Phenomena (10)
- Magnetics / Ferroelectrics / Spintronics (17)
- Mechanics of Materials (10)
- Nanostructures / Nanoparticles (28)
- Polymers (12)
- Semiconductors / Photonics / Organic Electronics (12)
- Soft Materials, Colloids (11)
- Synthesis / Processing (8)

# Some relevant UF facilities

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- NIMET: Nanoscale Institute for Medical and Engineering Technologies
- High Performance Computing Center
- National High Magnetic Field Laboratory/High B/T
- MAIC
- REU programs (physics, chemistry, engineering)
- NIRT grants (physics, chemistry)
- KDI grant (QTP)
- Others...

# History

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## □ FY 2002

- New centers: University of Nebraska, Penn State, University of Southern Mississippi
- 10 successful recompetes

## □ FY 2005

- New centers: University of Washington, Yale
- 11 successful recompetes