

MSD Division Meeting

July 12th, 2001

Outline

- Presentations
- Electrical Safety
- The Center for Nanoscale Materials
- Budget and other issues

Presentations

- Service awards
- Recognition
 - Alex Abrikosov - FRS
 - Sam Bader, John Thornton Medal AVS
 - Notable new funding - A HIGH-DENSITY MICROELECTRONIC-TISSUE HYBRID SENSOR FOR IMAGING
includes Orlando Auciello, John Carlisle, Dieter Gruen and Derrick Mancini (APS)

Retirements/Departures

- Dale Alexander, Defects group
- Nghi Lam, Defects group
- Pedro Montano, X-ray scattering
- Stan Ockers, HVEM-Tandem
- Ed Ryan, HVEM-Tandem
- Andreas Berger, Magnetism

New hires

- Axel Hoffmann, Nanomagnetism
- Valentyn Novosad, Nanomagnetism
- Bernd Kabius, Electron Microscopy

- *Searches in Neutron Scattering, X-Ray Scattering and Theory*

Electrical Safety

- Serious incident with High-Energy Capacitor (A. Smith)
- Video
- Electrical Safety House Rules (M. Pellin)

Center for Nanoscale Materials: Status

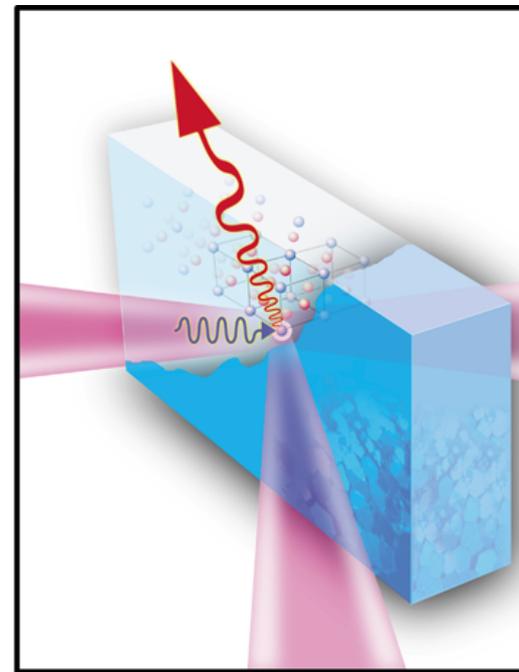
- Proposal reviewed by Panel in April 2001
 - X-Ray nanoprobe recommended for funding in '02
 - Criticism of scientific focus (too broad)
 - Renewed proposal to be prepared
 - Aim to begin construction in FY'04
 - Three centers approved for FY '03 starts
 - Berkeley, Sandia-Los Alamos, Oak Ridge
 - State funding > \$2M this year
 - \$36M promised for building in future years

Proposal review

- Negative
 - Lack of focus in scientific case
 - “Top-down” emphasis
 - Lack of soft materials
- Positive
 - Equipment (x-ray, electron microscopy)
 - Outreach, university partnering

X-Ray Nanoprobe

- Hard x-rays focussed to 30 nm
 - Nanoscale strain measurement
 - Imaging of domains, e.g., in ferroelectrics
 - Magnetism
 - Fluorescence spectro-microscopy
- Unique capability in US will attract users
- FWP being led by Brian Stephenson (joint APS/MSD)



Next Steps

- Resubmit proposal for CNM (~October)
- Submit FWP for X-ray Nanoprobe (September) FY'02 start
- Develop state funding plans for FY '02
- More initiative competition?
- Chicago Consortium for Nanoscience
- LDRD - support for staff hires, seed initiatives and univ. collaborations

Proposal issues

- **Narrow focus**
- Be highly selective - outstanding proposal
- Include more self-assembly and soft materials (outside collaborators will be needed)
- **Timeline**
 - Vision developed by end of July
 - Identify theme leaders by beginning of August
 - Prepare first draft by early September
 - External review
 - Submission in October

Proposal Development

- Management Committee
 - Gibson, Fradin, Thurnauer, Gluskin
 - Scientific review board
 - Bader, Crabtree, Wolf, Pellin, Thurnauer
- Encourage dialog, criticism, ferment, brainstorming.... (meetings, electronic exchange)
- Send white papers on **OVERALLVISION** to above group

A vision - Hybrid Nanostructures

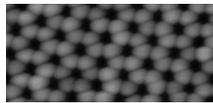
Outcome oriented:

- Control of charge and spin
- Control of light
- ...

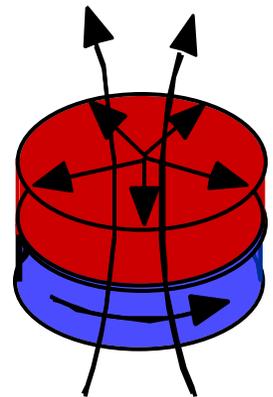
Confinement



Organization



Proximity



Or materials/phenomena oriented:
e.g. nanophotonics, carbon hybrids?

Bio-inorganic hybrids

Budget Issues

<i>FY</i>	<i>Operating (K\$)</i>	<i>Increase</i>	<i>Equipment (K\$)</i>
98	16894		11
99	16985	0.5%	19
00	18550	9.2%	22
01	19323	4.2%	22

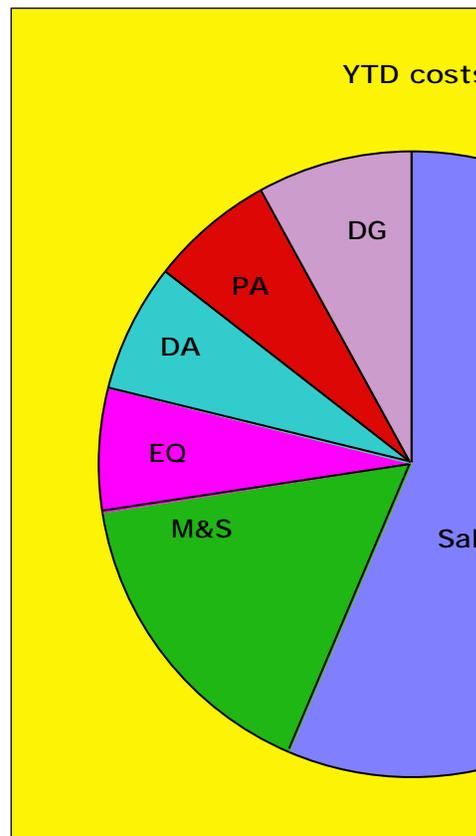
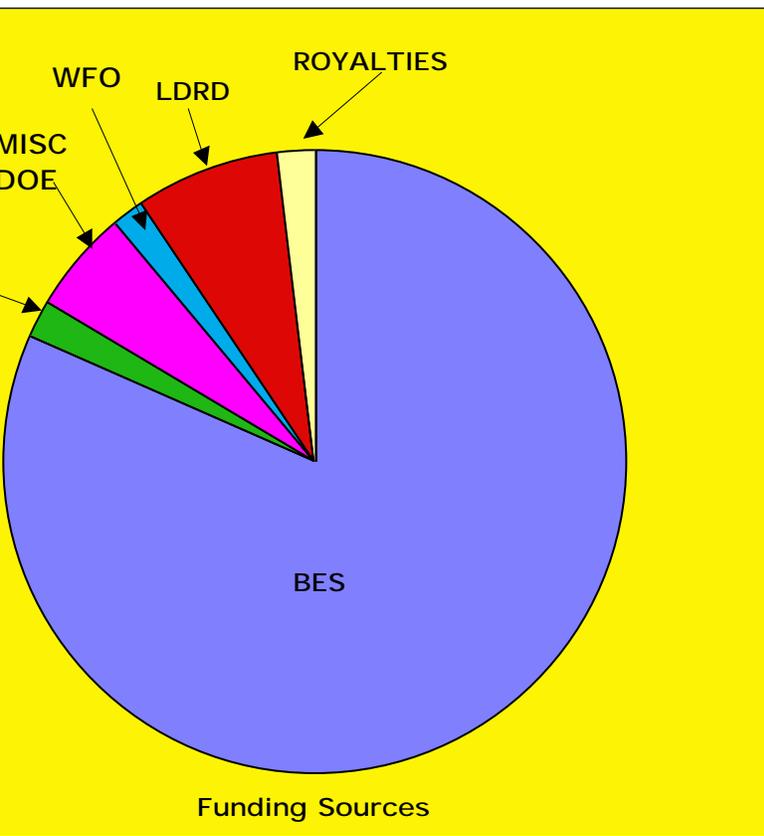
- FY01

- Year-end looks OK (new initiatives crucial)
 - Remember to spend all LDRD

- FY02

- Flat budget or worse (based on President's budget) - as last year
- Need for LDRD, State et.c.
- Must compete successfully for new money

MSD Income and Expenses



Other Issues

- ISM Self-Assessment
- Cyber Security
 - Committee
 - Loren Thompson, Dimitri Argyriou, Dan Rosenmann, Larry Curtiss, Paul Domagala
- Other?