US ARMY RDECOM

U.S. Army Research, Development, and Engineering Command

Research Initiatives and Funding Opportunities ARO Materials Science

ARL

TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

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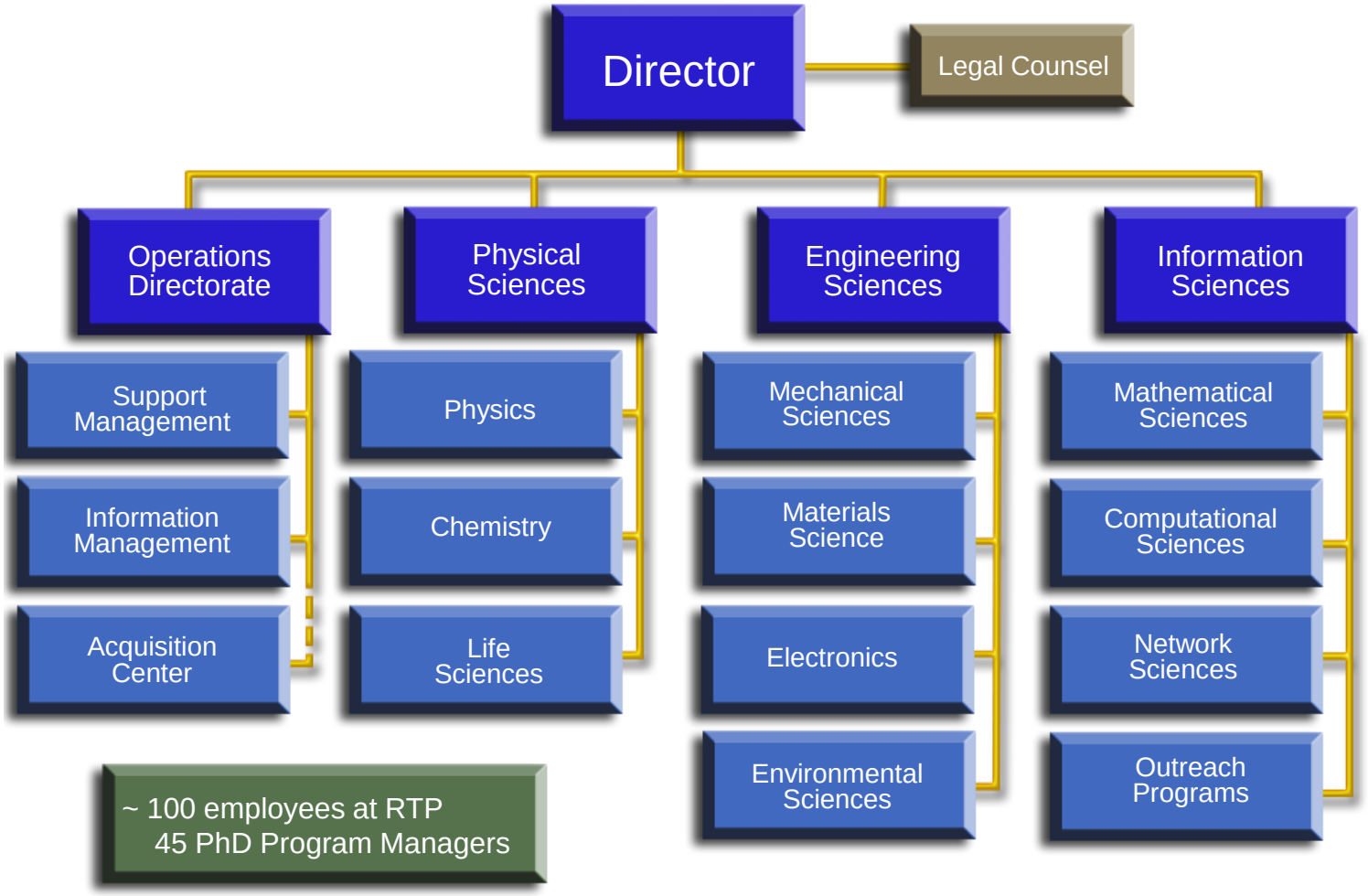
Perspective:
US Army Research Office in ***RTP, NC***



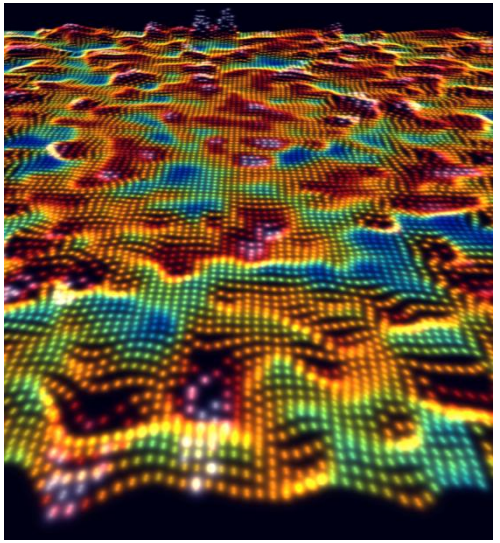
Materials Science Division Vision

To realize unprecedented material properties by embracing long-term, high risk, high-payoff opportunities for the US Army with special emphasis on: Materials by Design, Mechanical Behavior of Materials, Physical Properties of Materials, and Synthesis and Processing.

Materials Science Division
“Unprecedented Material Properties”

Materials by Design:
Dr. John Prater

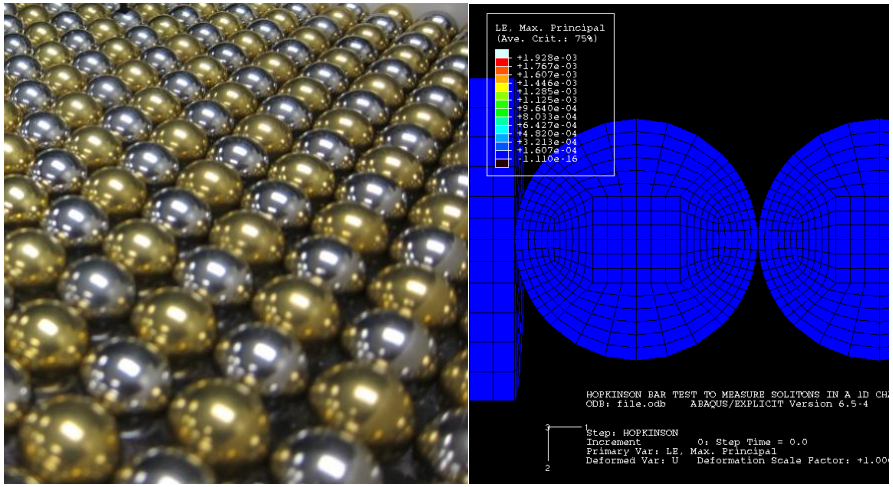
- Reconfigurable Assembled Materials
- Multifunctional Materials



First Electron Density Map of Mn-Doped GaAs Surface Near Metal-Insulator Transition

Mechanical Behavior of Materials:
Dr. David Stepp

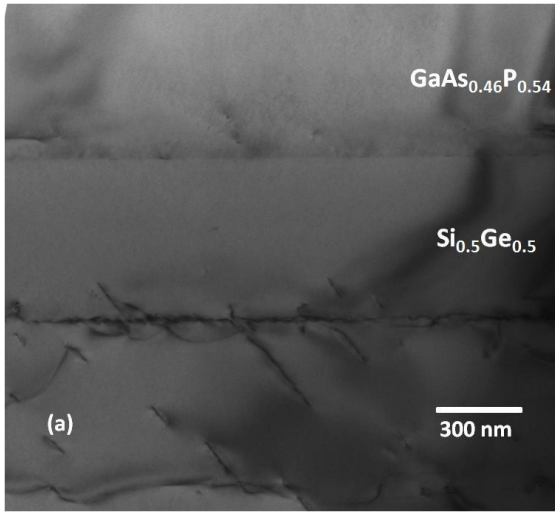
- High Strain-Rate Phenomena
- Materials Enhancement Theory



First Nonlinear Stress Wave Mitigation in Granular Media

Physical Properties of Materials:
Dr. Pani Varanasi

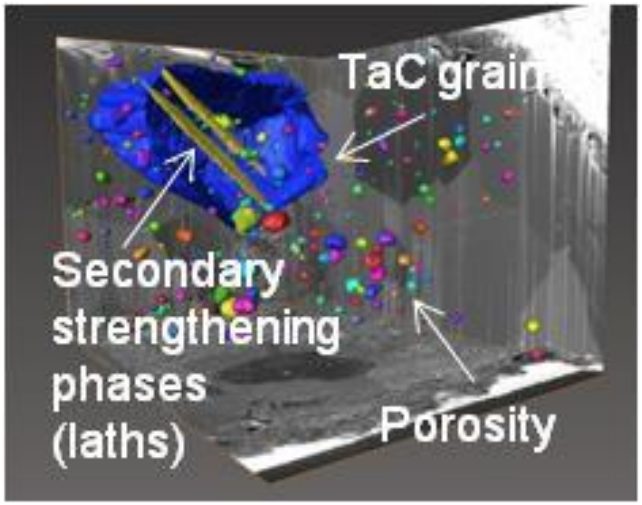
- Defect Science & Engineering
- Freestanding 2D Materials



First High Quality GaAsP/Si_xGe_{1-x} Interfaces

Synthesis and Processing:
Dr. Suveen Mathaudhu

- Metastable Materials and Structures
- Novel Processing Strategies



First 3D Characterization of Tantalum Carbide Deformation Mechanisms

U.S. Army Research Office
Complementary Materials Research in Other Divisions

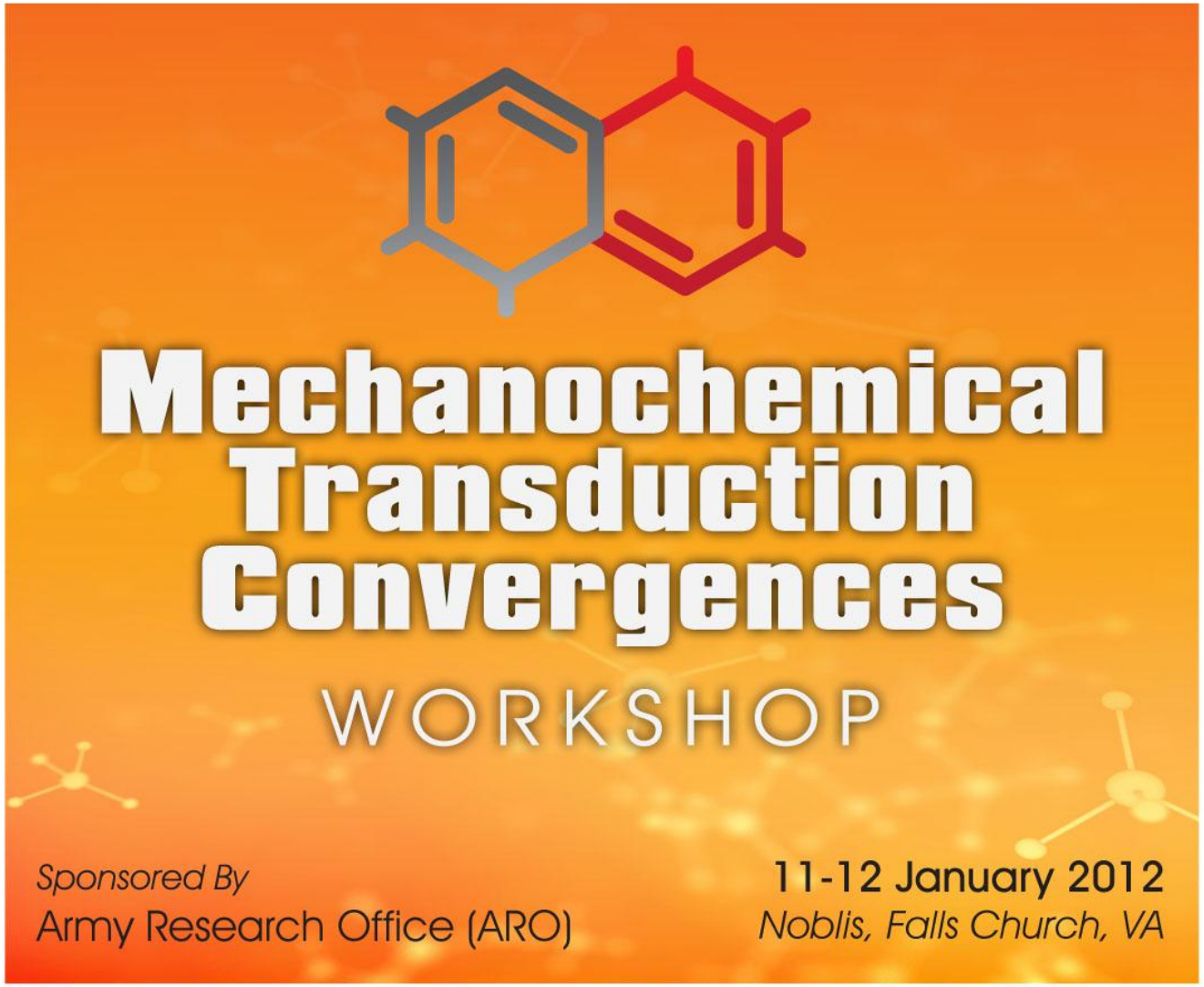
Mechanical Sciences Division
- Solid Mechanics
- Actuation, Dynamics and Mechanisms
- Propulsion and Energetics

Electronics Division
- Solid State Devices
- Optoelectronics
- Sensors and Detectors
- Electromagnetics/RF Circuit Integration
- Terahertz Science and Technology
- Power Electronics

Physics Division
- Condensed Matter Physics
- Quantum Information Science
- Atomic and Molecular Physics
- Optical Physics and Imaging Science

Chemical Sciences Division
- Electrochemistry
- Polymer Chemistry
- Reactive Chemical Systems
- Reaction Dynamics

Life Sciences Division
- Biochemistry
- Microbiology and Biodegradation
- Neurophysiology and Cognitive Neuroscience


Mechanochemical
Transduction
Convergences
WORKSHOP
Sponsored By
Army Research Office (ARO)
11-12 January 2012
Noblis, Falls Church, VA

ARO Broad Agency Announcement

- **http://www.arl.army.mil/www/default.cfm?page=29**
- Paragraph description of each area
- Program manager contact info

MURI Broad Agency Announcement

- Current and past BAAs for descriptions of each topic
- Program manager contact info

Special Articles

- **http://www.mrs.org/materials360/**
- “Materials with Spin Controlled Thermal Properties”
- “Mechanochemically Adaptive Materials”
- “Directed 3D Self Assembly of Reconfigurable Materials”
- “The Making of Captain America’s Shield”
- “Beyond Graphene - Novel Nanosheets of 2D Crystalline Materials with Revolutionary Properties”

Proposal Evaluation and Selection

ARO Broad Agency Announcement Awards

Single investigator awards
~$125K/year for 3-5 years

Conference / symposium / workshop grants
~$5-10K for 12 months

Short Term Innovative Research (STIR)
$50K for 9 months

Young Investigator Program (YIP)
~$50K/year for 3 years

Presidential Early Career Award for Scientists and Engineers (PECASE)
$200K/year for 5 years

Historically Black College/University and Minority Institutions (HBCU/MI)
~$350K for 3 years

Other Awards Based on ARO Broad Agency Announcement

Defense University Research Instrumentation Program (DURIP)

~$150-200K for 12 months

Tribal Colleges and Universities (TCUs)

~$150K for 12 months

Hispanic Serving Institutions (HSIs)

~$400K for 3 years

High School Apprenticeship Program (HSAP)

~$3K for 12 months (per apprentice, up to two)

Special Announcement Awards

Multidisciplinary University Research Initiative (MURI)

up to $6.5M for 5 years

Small Business Innovative Research (SBIR)

$70K for 6 months → $50K for 4 months → $730K for 24 months

Small Business Technology Transfer (STTR)

$100K for 6 months → $750K for 24 months

1. Uncertainty
   A. NNI, MGI, and AMP, *"Oh my!"*
   B. Rumors (*pay attention to the dollars*)
   C. Contrary to popular opinion, OSTP does not run the world

2. Perennial Rule: **<u>Study the Solicitations</u>**

3. The Materials Genome Initiative (*frankly*)
   A. "Deep" – overlooked history of great successes
   B. "Wide"
   C. History, NIH, and Google
   D. Why I support it enthusiastically

1. “Mission agencies really want devices and products”
2. “Referencing the ***MGI*** will make my proposal better”
3. “DoD always funds the same people”
4. “Program managers don’t want to hear my half-baked ideas”

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http://www.arl.army.mil/www/default.cfm?page=29