

Welcome to FY14 PPM Summit

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Computational Materials & Data Science





Introduction

- **Name**
- **Organization/Affiliation**
- **Expertise**
- **Outcome**





PPM as a Model Program

■ Attributes

- Leverages Sandia's capabilities/expertise
- Multi-center
- *Materials Science* core foundation
- Mission relevant (customer advisory)
- World-class (technical advisory)
- Growing next-generation talent
- Balancing fundamental science & engineering
- Catalyst





Sphere of Influence

- **Stockpile Stewardship**
 - **Research Challenge**
 - **Research Foundation**
 - **Growing “Friends of ____”**
-
- **Brittle Materials S&T Roadmap**
 - **So on...**





Champions for Change

- CTO (Phillip, Rottler)
- Campaign managers (Kempka, Stinnet, McCormick, Flicker, etc.)
- Line Management (Adkins, Johannes, Aselage, Wall, etc.)





So what about LDRD?

- Good proposal
- Impact areas including PPM is a +
- Must have differentiating science
- Must address the Call
- Please coordinate !!!





Back up



2013 Competitor Analysis:

Multiscale, combined experiment+modeling, large team efforts in structural metals in U.S

Name	Lead	Web	Focus	Focus on deformation and failure?	Focus on Stochastic Behavior?	Focus on BCC structural metals?	Process modeling?	Focus on Welds?
PPM	Brad Boyce & Corbett Battaile (SNL)	www.sandia.gov/PPM	Statistical Deformation and Failure of Structural Metals	Yes	Yes	Yes	Yes	Yes
CMIME	Amit Misra & Irene Beyerlein (LANL)	cmime.lanl.gov	Interface-driven mechanical response in shock and radiation environments. Esp. in the context of nanolaminates.	Yes	No	Not specifically	Not a focus	No
HEMI / CMEDE	KT Ramesh (Johns Hopkins)	hemi.jhu.edu/cmede	Material behavior in dynamic mechanical environments. Metals, ceramics, polymers & composites. Metals focus is ultrastrong Mg.	Yes	No	No	No	No
MGI	James Warren (NIST)	www.nist.gov/mgi	Rapid material discovery through computation & data management	Not specifically	No	Not specifically	No	No
PRISMS	John Allison (U. Mich.)	prisms.engin.umich.edu	Develop new structural metals for auto industry. Focus on Mg alloy ductility & fatigue performance	Yes, esp. fatigue	No	No	Yes	Minor, if at all.
CAVS	Roger King / Mark Horstemeyer (Mississippi State)	www.cavs.msstate.edu	Focus on structural materials for auto & aerospace.	Yes	No	Not of particular focus	Yes	Some
NEUP/NEAMS	David McDowell (Georgia Tech)	www.neup.gov	Uncertainty Quantification and Management for Multiscale Nuclear Materials Modeling	Yes	Yes	Not of particular focus	Yes (irradiation)	No

