

**Center of Excellence for Integrated Materials Modeling (CEIMM)  
Review Meeting**

**May 3-4, 2016**

**University of Illinois, Urbana-Champaign, IL**

**Room 5602, The Beckman Institute, 405 N. Matthews Avenue, Urbana, IL 61801**

**Day 1: May 3, 2016**

8:00-8:15AM:	CEIMM Overview	<b>S. Ghosh, CEIMM Director</b>
8:15-8:25AM	Preliminary Comments	<b>C. Woodward, C. Pryzbyla</b>
		<b>RX Program Monitors</b>
8:25-8:30AM	Preliminary Comments	<b>A. Sayir, AFOSR PM</b>

**METALS PROGRAM**

<b>8:30 -9:45 AM</b>	<b>Material Characterization and Analysis</b>	<b>Pollock Group</b>
8:30-9:20AM	Perspectives on linking 3D data to property models	<b>T. Pollock</b>
	Acquisition and analysis of 3D data by Tri Beam tomography	<b>W. Lenthe</b>
9:20-9:45 AM	<u>Discussion:</u> Challenges and future needs for 3D data	<b>T. Pollock</b>
		<b>M. Uchic, M. Groeber</b>
<b>9:45 AM-10AM</b>	<b>Coffee Break</b>	
<b>10:00 -11:15AM</b>	<b>Micro-scale experiments for model validation</b>	<b>Hemker Group</b>
10:00-10:45AM	Perspectives	<b>K. Hemker</b>
	Underpinning and benchmarking multi-scale models	<b>D. Eastman</b>
	at appropriate scales with micro-tensile and micro-bending experiments	
10:45-11:15AM	<u>Discussion:</u> Micro-scale experiments: An overview	<b>K. Hemker</b>
		<b>M. Uchic, P. Shade</b>
<b>11:15 -12:15PM</b>	<b>Micromechanics and Multi-Scale Modeling</b>	<b>Ghosh Group</b>
11:15-11:45PM	Perspectives	<b>S. Ghosh</b>
	3D Generation of Gamma-Gamma' microstructures	<b>M. Pinz</b>
11:45-12:15PM	Multi-scale Modeling of Ni-Based Superalloys	<b>G. Weber, A. Bagri</b>
<b>12:15 -1:30PM</b>	<b>Lunch</b>	
<b>1:30 -2:00PM</b>	<b>Micromechanics and Multi-Scale Modeling (Contd.)</b>	<b>Ghosh Group</b>
1:30-2:00PM	<u>Discussion:</u> Multi-scale modeling of Superalloys	<b>S. Ghosh</b>
		<b>C. Woodward, M. Uchic, M. Groeber</b>

2:00 -3:15 PM	Uncertainty quantification methods with experimental data and computational models	Graham-Brady Group
2:00-2:45PM	Perspectives Stochastic Simulation-based Uncertainty Quantification and Optimization of Materials Characterization	L. Graham Brady N. Wade
2:45-3:15PM	<u>Discussion:</u> Uncertainty Quantification for Material characterization	L. Graham Brady M. Uchic, M. Groeber
3:15 -3:30PM	Coffee Break	

### METALS & POLYMERS PROGRAM

3:30 -4:45PM	Discrete dislocations dynamics to discrete polymer chain-network dynamics modeling	El-Awady Group
3:30-4:15PM	Perspectives Free-Volume Evolution to Plastic Deformation in Cross-Linked Polymers from Coarse-Grained Simulations	J. El-Awady A. Aramoon
4:15-4:45PM	<u>Discussion:</u> Discrete Network Dynamics: Dislocation to Polymer Chains Simulations	J. El-Awady C. Woodward
4:45 -5:30PM	Discussions on Directions and Progress	AFRL/AFOSR PM
6:00PM	Dinner	

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### Day 2: May 4, 2016

8:00-8:45AM	Opportunities in ICME by selected speakers from Advisory Panel	Pratt & Whitney, GE Global Research, Boeing, Lockheed Martin, Sandia
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### COMPOSITES PROGRAM

8:45 -10:00AM	Imaging, Quantitative Characterization and Experiments for Model Calibration	Sottos Group
8:45-9:30AM	Perspectives Variation of Fiber/Matrix Interface and the Influence on Interphase Formation	N. Sottos C. Montgomery
9:30-10:00PM	Characterization of Transverse Crack-Formation in Composites. <u>Discussion:</u> Microscale Experiments on Composites for Calibration and Validation	M. Rossol N. Sottos D. Nepal, G. Jefferson

10:00 -10:15 AM	Coffee Break	
10:15 -11:30AM	Micromechanics & Multi-Scale Modeling	Geubelle Group
10:15-11:00AM	Perspectives NURBS-based Interface-Enriched Generalized FEM Modeling of Heterogeneous Media NIGFEM Modeling of Transverse Failure in Fiber-Reinforced Composites	P. Geubelle M. Shakiba S. Zacek
11:00-11:30AM	<u>Discussion:</u> Multi-scale modeling of PMCs:	P. Geubelle <i>C. Pryzbyla, G. Jefferson, D. Nepal</i>
11:30 -12:30PM	Micromechanics and Multi-Scale Modeling	Ghosh Group
11:30-12:15PM	Perspectives PM Composites: RVE and Boundary Conditions	S. Ghosh D. Kubair
12:15-12:30PM	<u>Discussion:</u> Failure in Polymer Matrix Composites	S. Ghosh <i>C. Pryzbyla, G. Jefferson, D. Nepal</i>
12:30 -1:30PM	Lunch	
1:30 -2:30 PM	Comments from the Advisory Board	Pratt &Whitney, GE Global Research, Boeing, Lockheed Martin, Sandia
2:30 -3:15PM	Discussions on Directions for Phase II, Progress and Integrations	AFRL Program Monitors AFOSR Program Manager CEIMM Director