PRISMS Center
Annual Workshop Agenda
August 9-10, 2018
Beyster Room 1670
University of Michigan
Draft Program

NOTE: Times include discussion times. All speakers should allow at 5-10 minutes for Q+A at the end of their talks!

Thursday August 9

8:00am **Registration**

8:30am **Welcome and PRISMS Center Overview**
John Allison

Alloying effects on deformation
Session Chair:

9:00am **Mechanism of Ductility in Mg Alloys**
Guest Speaker: Bill Curtin, EPFL

9:40am **First principles study of nonbasal deformation modes in Mg alloys**
Guest Speaker: Maryam Ghazisaeidi, OSU

10:20-10:40 Break
Precipitate Evolution and Dislocation Interactions
Session Chair:

10:40am **Predicting precipitate microstructure in Mg-Nd alloys with phase field simulations of nucleation, growth, and coarsening**
Steve DeWitt, Zhihua Huang, Amit Misra and John Allison

11:10am **Dislocation-precipitate interactions in Mg alloys**
Zhihua Huang, John Allison, Amit Misra

11:30am **Modeling dislocation-precipitate interactions**
Chaoming Yang, Arunibha Roy and Liang Qi

12:00-1:15 Lunch (Provided - Pierpont Commons East Room)

Measuring and Predicting Mechanical Behavior
Session Chair:

1:30pm **New Approaches for Combining *In-Situ* High-Energy X-ray Diffraction Measurements with Finite Element Modeling**

Guest Speaker: Darren Pagan, Cornell High Energy Synchrotron Source (CHESS)

2:10pm **Investigation of Deformation Twinning in Mg Alloy during in-situ Compression**
Zhe Chen and Sam Daly, UCSB

2:40pm **Cyclic Deformation and Twin Formation in Mg and Mg alloys**
Aeriel Murphy and John Allison

3:10pm **PRISMS-Plasticity Modeling of Monotonic and Cyclic Deformation**
Reza Yaghoobi and Veera Sundararaghavan

3:40-4:00pm Break

PRISMS New Directions
Session Chair

4:00pm **Corrosion Use Case Overview**
David Montiel, Emmanuelle Marquis, Liang Qi, Steve DeWitt and Katsuyo Thornton

4:30pm **Order parameter dependent free energy prediction**
Anirudh Natarajan and Anton Van der Ven

5:30-8pm ***Poster session and reception with hors d'oeuvres***
East Room Pierpont Commons

Friday August 10
Beyster Hall Room 1670

Predicting Fatigue Behavior (1)
Session Chair: Sam Daly

9:00am **Three-Dimensional Characterization and Modeling of Crack Propagation in Polycrystalline Metals**
Guest Speaker: Ashley Spear, University of Utah

9:40am **Modeling the Effects of Microstructure on Dwell Fatigue Crack Growth in Ti-6Al-4V**
Guest Speaker: Adam Pilchak, AFRL

10:20am **Characterizing crack growth in magnesium alloys in 2D and 3D**
John Allison, Jake Adams, Duncan Greeley, Wayne Jones

10:50-11:20 Break

Predicting Fatigue Behavior (2)
Chair - Wayne Jones

11:20am **Modeling the influence of microstructural features on microstructurally short cracks in a Mg alloy**
Veera Sundararaghavan and Shardul Panwar

11:50am **Coupling microstructure-sensitive modeling and in situ experiments to improve fatigue life predictions**
Guest Speaker: Mike Sangid, Purdue University

12:30-1:30 Lunch (Provided - in Pierpont Commons East Room)

PRISMS Methods Reviews

1:45 pm **DFT-FE**
Vikram Gavini

2:15 pm **Materials Commons**
Glenn Tarcea

2:35 pm **CASM**
Brian Puchala

2:55 pm **PRISMS-PF**
Steve DeWitt

3:15 pm **PRISMS-Plasticity**
Reza Yaghoobi

3:35 pm **Concluding Remarks**
John Allison