

## **11th Material Point Method Workshop**

Oak Ridge National Laboratory

Building 5100, Room 140D

September 6-7, 2018

**Organizer:** Stuart Slattery

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### Day 1 Agenda - Thursday September 6, 2018

**9:00** Arrive at ORNL, Badging

**10:00** Opening Remarks and Day 1 Meeting Overview - John Turner, Stuart Slattery, *light refreshments will be provided at this time.*

**10:30** Michael Homel, Lawrence Livermore National Laboratory, *Correcting Overlap at Imperfect Contact Surfaces Using an SPH-style Density Field*

**11:00** Jingu Kang, Lawrence Livermore National Laboratory, *Modeling of Beam Elements with Frictional Contact in MPM*

**11:30** John Nairn, Oregon State University, *MPM Contact Revisited*

**12:00** Working Lunch (lunch will be provided). *Moderated discussion on developing MPM benchmark problems for accuracy and computational performance.* Discussion led by Stuart Slattery.

**1:00** Christopher Long, Los Alamos National Laboratory, *Using the Material Point Method to Model Fracture and Multi-body Interactions Within a Single Velocity Field*

**1:30** Kwitae Chong, Oak Ridge National Laboratory, *Performance Portability of PIC, APIC, and PolyPIC Velocity Updates*

**2:00** Chenfanfu Jiang, University of Pennsylvania, *The Moving Least Squares Material Point Method*

**2:30** Alexander Huth, University of Washington, *Modeling Ice Shelf Weakening with Damage Mechanics and the Generalized Interpolation Material Point Method*

**3:00** Gys Basson, *Modeling of Hydrofracturing with the Material Point Method*

**3:30** Afternoon Break (light refreshments will be provided)

**4:00** Shyamini Kularathna, University of California - Berkeley, *MPM Modelling of Porous Media Saturated with Arbitrary Incompressible Fluid*

**4:30** Alba Yerro, Virginia Polytechnic Institute and State University, *Comparison of Two Approaches of the Material Point Method to Model Soil-Water Interaction*

**5:00** Luis Zambrano-Cruzatty, Virginia Polytechnic Institute and State University, *Application of the Material Point Method for Coastal Geotechnical Engineering: Free Fall Penetrometer Deployment*

**5:30** Adjourn for travel to Lakeside Tavern for dinner

**6:00** Working Dinner at Lakeside Tavern, Dinner Speaker - Doug Kothe, Oak Ridge National Laboratory, *A History of the Development of FLIP*

**8:30** Adjourn for the evening

#### Day 2 Agenda - Friday September 7, 2018

**9:30** Day 2 Meeting Overview - John Turner, Stuart Slattery, *Light refreshments will be provided at this time.*

**10:00** Chad Hammerquist, FracGeo, *Particle-based inelasticity vs Grid-Based Updates*

**10:30** Stuart Slattery, Oak Ridge National Laboratory, *A Co-Designed HPC Library for Particle Applications*

**11:00** Ming Gao, University of Pennsylvania, *Animating Fluid Sediment Mixture*

**11:30** Duan Zhang, Los Alamos National Laboratory, *Dual Domain Material Point Method Applied to Plastic Pore Growth under Sweeping Wave Impact*

**12:00** Working Lunch (lunch will be provided). *Moderated discussion on new MPM application spaces and open problems in MPM.* Discussion led by Stuart Slattery.

**1:00** James Guilkey, University of Utah, *A Material Point Method Based Model for Diagenesis*

**1:30** Jay Jay Billings, Oak Ridge National Laboratory, *An MPM Model for Sintering in Additive Manufacturing*

**2:00** Andre Pradhana, DreamWorks Animation, *Material Point Method at DreamWorks Animation*

**2:30** Adjourn for the day