UCSD/CEER-Sandia Workshop on Meshfree and Related Computational Methods*
November 14 – 15, 2017
Qualcomm Conference Room, First Floor, Jacobs Hall
University of California, San Diego (UCSD)

Technical Program

Tuesday, November 14

8:15 – 8:30   Opening [J. S. Chen, UCSD; P. Bochev, Sandia]

8:30 – 9:00   Recent Advances in Reproducing Kernel Particle Method - I: Consistency and Kernel Stability, Implicit Gradient Regularization [J. S. Chen, UCSD]

9:00 – 9:30   Recent Advances in Reproducing Kernel Particle Method – II: Variationally Consistent Quadrature, Rank Stability [M. Hillman, Penn State]

9:30 – 10:00   Recent Advances in Reproducing Kernel Particle Method – III: Applications to Damage, Fracture, Shocks and Blast Modeling [J. S. Chen, UCSD]

10:00 – 10: 20 Coffee Break

10:20 – 10:50 Consistent Conservative Meshfree Discretization [N. Trask, Sandia]

10:50 – 11:20 Improving the Accuracy of MPM [K. Peterson, Sandia]

11:20 – 11:40 Conforming Window Functions for Meshfree Methods [J. Koester, Sandia/UCSD]

11:40 – 12:00 Mixed RKPM Formulation for Fully Coupled Hydro-Mechanical Analysis of Fluid-Saturated Porous Media [H. Wei, UCSD]

12:00 – 13:30 Lunch Break

13:30 – 14:00 Approximation Properties of Functional Reconstructions Using GMLS [M. Perego, Sandia]

14:00 – 14:30 Enhanced-Strain Error Estimation Procedures in Galerkin Mesh-Based and Meshfree Methods [M. Ruter, Hannover]

14:30 – 14:50 An Embedded Reproducing Kernel Particle Method for Simulating Inhomogeneous Media [F. Beckwith, UCSD]

14:50 – 15:10 Reproducing Kernel Enhanced Peridynamics [M. Pasetto, UCSD]

15:10 – 15:30 Coffee Break

15:30 – 16:00 The Compadre Toolkit [P. Kuberry, Sandia]

16:00 – 16:30 Synergistic Meshfree and Polyhedral Finite Element Methods [J. Bishop, Sandia]

16:30 – 17:00 VoroCrust: Robust Polyhedral Meshing of Non-Convex Domains Without Clipping [Mohamed Ebeida, Sandia]

17:00 – 17:30 Meshfree Approximation of Integral Operators [Gary Dilts, Los Alamos]

Wednesday, November 15

8:30 – 9:00   Partition of Unity Methods for Geometric PDE [M. Holst, UCSD]

9:00 – 9:30   On the Convergence of Adaptive Feedback Loops [R. Bank, UCSD]

9:30 – 9:50   Reduced Order Modeling in Fracture Mechanics by RKPM [Q. He, UCSD]

9:50 – 10:10   Coffee Break

10:10 – 10:40 IGA-Meshfree Coupling for Air-Blast FSI [Y. Bazilevs, UCSD]

10:40 – 11:10 Topology Optimization at UC San Diego [A. Kim, UCSD]

11:10 – 11:30 Eulerian Reproducing Kernel Particle Method for Shock Modeling [T. H. Huang, UCSD]

11:30 – 12:45 Lunch Break

12:45 – 13:00 Seminar Preparation

13:00 – 14:00 Structural Engineering Seminar: Compatible Meshless Methods [P. Bochev, Sandia] (SME 248)

14:10 – 14:40 Using RKPM within an MPM Framework to Model Brittle Fracture [Chris Long, Los Alamos]

14:40 – 15:10 An explicit-implicit partitioning approach for fracture modeling in Sierra Mechanics [Martin Heinstein, Sandia]

15:10 – 15:30 RKPM Modeling of Explosive Welding [J. Baek, UCSD]

15:30 – 16:00 Discussions and Closing

Other participants from Sandia: Steve Attaway, Mike Skroch, John Korbin, Scott Michell, Mike Tupek, David Hensinger

* This workshop is co-organized by Center for Extreme Events Research (CEER) of UCSD and Sandia National Laboratories in Albuquerque