

Journal Papers

- [1] M. BUSSLER, P. DIEHL, D. PFLÜGER, S. FREY, F. SADLO, T. ERTL, AND M. A. SCHWEITZER, *Visualization of Fracture Progression in Peridynamics*, Computer & Graphics, 67 (2017), pp. 45–57.
- [2] P. DIEHL, F. FRANZELIN, D. PFLÜGER, AND G. C. GANZENMÜLLER, *Bond-based peridynamics: a quantitative study of Mode I crack opening*, International Journal of Fracture, 2 (2016), pp. 157–170.
- [3] P. DIEHL, I. TABIAI, F. W. BAUMANN, D. THERRIAULT, AND M. LEVESQUE, *Long term availability of raw experimental data in experimental fracture mechanics*, Engineering Fracture Mechanics, 197 (2018), pp. 21–26.

Series- and conference contributions

- [1] P. DIEHL, M. BUSSLER, D. PFLÜGER, S. FREY, T. ERTL, F. SADLO, AND M. A. SCHWEITZER, *Extraction of Fragments and Waves After Impact Damage in Particle-Based Simulations*, Springer International Publishing, Cham, 2017, pp. 17–34.
- [2] P. DIEHL AND M. A. SCHWEITZER, *Efficient neighbor search for particle methods on GPUs*, in Mesh-free Methods for Partial Differential Equations VII, M. Griebel and M. A. Schweitzer, eds., vol. 100 of Lecture Notes in Computational Science and Engineering, Springer, 2014, pp. 81–95.
- [3] ———, *Simulation of wave propagation and impact damage in brittle materials using peridynamics*, in Recent Trends in Computational Engineering – CE2014, M. Mehl, M. Bischoff, and M. Schäfer, eds., vol. 105 of Lecture Notes in Computational Science and Engineering, Springer, 2015, pp. 251–265.
- [4] F. FRANZELIN, P. DIEHL, AND D. PFLÜGER, *Non-intrusive uncertainty quantification with sparse grids for multivariate peridynamic simulations*, in Meshfree Methods for Partial Differential Equations VII, M. Griebel and M. A. Schweitzer, eds., vol. 100 of Lecture Notes in Computational Science and Engineering, Springer International Publishing, 2014, pp. 115–143.
- [5] T. HELLER, P. DIEHL, Z. BYERLY, J. BIDDISCOMBE, AND H. KAISER, *HPX – An open source C++ Standard Library for Parallelism and Concurrency*, in Proceedings of OpenSuCo 2017, Denver, Colorado USA, November 2017 (OpenSuCo 17), 2017, p. 5.
- [6] T. HELLER, H. KAISER, P. DIEHL, D. FEY, AND M. A. SCHWEITZER, *Closing the Performance Gap with Modern C++*, in High Performance Computing: ISC High Performance 2016 International Workshops, ExaComm, E-MuCoCoS, HPC-IODC, IXPUG, IWOPH, P³MA, VHPC, WOPSSS, Frankfurt, Germany, June 19–23, 2016, Revised Selected Papers, M. Taufer, B. Mohr, and J. M. Kunkel, eds., vol. 9945 of Lecture Notes in Computer Science, Springer International Publishing, 2016, pp. 18–31.

Technical reports

- [1] P. DIEHL, R. LIPTON, AND M. A. SCHWEITZER, *Numerical verification of a bond-based softening peridynamic model for small displacements: Deducing material parameters from classical linear theory*, tech. rep., Institut für Numerische Simulation, 2016.

Invited talks and Presentations

- [1] P. DIEHL, *Efficient k-nearest neighbor search on the GPU*. Seventh International Workshop Mesh-free Methods for Partial Differential Equations, 09.09-11.09 2013, Bonn, Germany.
- [2] ———, *Coupling CPU and GPU to simulate efficient dynamic cracks and fractures in solids*. 12th U.S. National Congress on Computational Mechanics (USNCCM12), 21.07-25.07 2013, Reilagh, US.
- [3] ———, *Simulation of high-speed velocity impact on ceramic materials using the Peridynamic technique*. III International Conference on Particle-Based Methods. Fundamentals and Applications. Particles 2013, 18.09-20.09 2013, Stuttgart, Germany.
- [4] ———, *Simulation of wave propagation and impact damage in brittle materials using the peridynamics technique*. 11th. World Congress on Computational Mechanics (WCCM XI), 20.07-25.07 2014, Barcelona, Spain.
- [5] ———, *Sensivity study for wave propagation and impact damage in brittle materials using peridynamics*. ASME International mechanical Engineering Congress and Exposition, 14.11-20.11 2014, Montreal, Canada.
- [6] ———, *Efficient particle-based simulation of dynamic cracks and fractures in ceramic material*. GPU Technology Conference 2014, 24.03-27.03 2014, San Francisco, US.
- [7] ———, *Simulation of wave propagation and impact damage in brittle materials using the peridynamics technique*. 3rd Workshop on Computational Engineering, 06.10-10.10 2014, Stuttgart, Germany.
- [8] ———, *A sensitivity study for critical traction in quasi-static peridynamics simulations*. 1st. PAN-American Congress on Computational Mechanics, 27.04-30.04 2015, Buenos Aires, Argentina.
- [9] ———, *A benchmark study for mode I crack opening for brittle materials*. 13th US National Congress on Computational Mechanics (USNCCM), 26.07-30.07 2015, San Diego, US.
- [10] ———, *Energy equivalence for the horizon independent bond-based peridynamic softening model according to classical theory*. The Mathematics of Finite Elements and Applications 2016 (MAFE-LAP), 14.06-17.06 2016, London, UK.
- [11] ———, *Numerical Validation of the bond-based Softening Model*. SIAM Mathematical Aspects of Material Science 2016, 07.05-12.05 2016, Philadelphia, US.
- [12] ———, *Visualization of Fragments, Stress and Fracture Progression in Peridynamics*. Isogeometric Analysis and Meshfree Methods, 10.10-12.10 2016, San Diego, USA.
- [13] ———, *Modeling ductile materials with bond-based softening peridynamic model*. 12th. World Congress on Computational Mechanics (WCCM XII), 24.07-29.07 2016, Seoul, Korea.
- [14] ———, *Modeling and simulation of crack and fractures with peridynamics in brittle materials*. HIM Junior Seminar, 08.02. 2017, Bonn, Germany.
- [15] ———, *Experimental Validation of Elastic State Based Peridynamic for PMMA and epoxy materials*. 14th U.S. National Congress on Computational Mechanics (USNCCM14), 17.07-20.07 2017, Montreal, Canada.

- [16] —, *A Review for Benchmark Experiments against Peridynamic Models*. Nonlocal Methods in Fracture, 15.01-16.01 2018, Austin, USA.
- [17] —, *Extracting constitutive mechanical parameters in linear elasticity using the virtual fields method within the ordinary state-based peridynamics framework*. Optimization days 2018, 07.05-09.05 2018, Montreal, Canada.
- [18] —, *A Review for Benchmark Experiments against Peridynamic Models*. 13th. World Congress on Computational Mechanics (WCCM XIII), 23.07-27.07 2018, New York City, US.
- [19] —, *Extracting constitutive mechanical parameters in linear elasticity using the virtual fields method within the ordinary state-based peridynamics framework*. 18th U.S. National Congress for Theoretical and Applied Mechanics, 04.06-09.06 2018, Rosemont, US.

Posters

- [1] P. DIEHL, *Applying Tools and Techniques from Software Engineering in Computational Mechanics*. 12th U.S. National Congress on Computational Mechanics (USNCCM12), 21.07-25.07 2013, Raleigh, US.
- [2] —, *Numerical verification of the bond-based peridynamic softening model against classical theory*. Nonlocal Models in Mathematics, Computation, Science, and Engineering, 26.11-28.11 2015, Oak Ridge, US.

Theses

- [1] P. DIEHL, *Implementierung eines Peridynamik-Verfahrens auf GPU*, Diplomarbeit, Institute of Parallel and Distributed Systems, University of Stuttgart, 2012.
- [2] —, *Modelling and Simulation of cracks and fractures with peridynamics in brittle materials*, Doktorarbeit, University of Bonn, 2017.

Preprints

- [1] P. DIEHL, P. K. JHA, H. KAISER, R. LIPTON, AND M. LEVESQUE, *Implementation of peridynamics utilizing hpx—the c++ standard library for parallelism and concurrency*, arXiv preprint arXiv:1806.06917, (2018).
- [2] R. TOHID, B. WAGLE, S. SHIRZAD, P. DIEHL, A. SERIO, A. KHEIRKHAHAN, P. AMINI, K. WILLIAMS, K. ISAACS, K. HUCK, ET AL., *Asynchronous execution of python code on task based runtime systems*, arXiv preprint arXiv:1810.07591, (2018).

Raw experimental data

- [1] I. TABIAI, R. DELORME, P. DIEHL, L. L. LEBEL, AND M. LEVESQUE, *PMMA 3 point bending test until failure loaded in displacement*, Feb. 2018.