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### Bibliography

- [1] **Cuda c programming guide 3.2.** 2010.
- [2] MÜLLER, M.; HEIDELBERGER, B.; HENNIX, M. ; RATCLIFF, J.. **Position based dynamics.** Journal of Visual Communication and Image Representation, 18(2):109–118, Apr. 2007.
- [3] SEEGYOUNG SEOL, E.; SHEPHARD, M. S.. **Efficient distributed mesh data structure for parallel automated adaptive analysis.** Eng. with Comput., 22(3):197–213, 2006.
- [4] KIRK, B. S.; PETERSON, J. W.; STOGNER, R. H. ; CAREY, G. F.. **Libmesh: a c++ library for parallel adaptive mesh refinement/coarsening simulations.** Engineering with Computers, 22(3):237–254, 2006.
- [5] KLEIN, P. A.; FOULK, J. W.; CHEN, E. P.; WIMMER, S. A. ; GAO, H. J.. **Physics-based modeling of brittle fracture: cohesive formulations and the application of meshfree methods.** Theoretical and Applied Fracture Mechanics, 37(1-3):99–166, 2000.
- [6] ORTIZ, M.; PANDOLFI, A.. **Finite-deformation irreversible cohesive elements for three-dimensional crack-propagation analysis.** International Journal for Numerical Methods in Engineering, 44(9):1267–1282, 1999.
- [7] CIRAK, F.; ORTIZ, M. ; PANDOLFI, A.. **A cohesive approach to thin-shell fracture and fragmentation.** Computer Methods in Applied Mechanics and Engineering, 194(21-24):2604 – 2618, 2005.
- [8] ZHANG, Z. J.; PAULINO, G. H. ; CELES, W.. **Extrinsic cohesive modelling of dynamic fracture and microbranching instability in brittle materials.** Multiple values selected, 72(8):893–923, 2007.
- [9] BELYTSCHKO, T.; CHEN, H.; XU, J. ; ZI, G.. **Dynamic crack propagation based on loss of hyperbolicity and a new discontinuous enrichment.** International Journal for Numerical Methods in Engineering, 58(12):1873–1905, 2003.
- [10] ZHANG, Z. J.; PAULINO, G. H.. **Cohesive zone modeling of dynamic failure in homogeneous and functionally graded materials.** International Journal of Plasticity, 21(6):1195 – 1254, 2005.

- [11] SHARON, E.; GROSS, P. ; FINEBERG, J.. **Local crack branching as a mechanism for instability in dynamic fracture**. *Physical Review Letters*, 74(25):5096–5099, 1995.
- [12] SHARON, E.; FINEBERG, J.. **Microbranching instability and the dynamic fracture of brittle materials**. *Physical Review B - Condensed Matter and Materials Physics*, 54(10):7128–7139, 1996.
- [13] DOOLEY, I.; MANGALA, S.; KALE, L. ; GEUBELLE, P.. **Parallel simulations of dynamic fracture using extrinsic cohesive elements**. *Journal of Scientific Computing*, 39(1):144–165, 2009.
- [14] ESPINHA, R.; CELES, W.; RODRIGUEZ, N. ; PAULINO, G. H.. **ParTopS: compact topological framework for parallel fragmentation simulations**. *Engineering with Computers*, 25(4):345–365, 2009.
- [15] ARIAS, I.; KNAP, J.; CHALIVENDRA, V.; HONG, S.; ORTIZ, M. ; ROSAKIS, A.. **Numerical modelling and experimental validation of dynamic fracture events along weak planes**. *Computer Methods in Applied Mechanics and Engineering*, 196:3833 – 3840, 2007.
- [16] MOLINARI, J.; GAZONAS, G.; RAGHUPATHY, R.; RUSINEK, A. ; ZHOU, F.. **The cohesive element approach to dynamic fragmentation: the question of energy convergence**. *International Journal for Numerical Methods in Engineering*, 69:484 – 503, 2007.
- [17] PAULINO, G. H.; PARK, K.; CELES, W. ; ESPINHA, R.. **Adaptive dynamic cohesive fracture simulation using nodal perturbation and edge-swap operators**. *International Journal for Numerical Methods in Engineering*, 84(11):1303–1343, 2010.
- [18] WU, W.; HENG, P. A.. **A hybrid condensed finite element model with GPU acceleration for interactive 3d soft tissue cutting: Research articles**. *Comput. Animat. Virtual Worlds*, 15(3-4):219–227, 2004.
- [19] KRAKIWSKY, S. E.; TURNER, L. E. ; OKONIEWSKI, M. M.. **Acceleration of finite-difference time-domain (fdtd) using graphics processor units GPU**. *Microwave Symposium Digest, 2004 IEEE MTT-S International*, 2:1033–1036, 2007.
- [20] TAYLOR, Z.; CHENG, M. ; OURSELIN, S.. **High-speed nonlinear finite element analysis for surgical simulation using graphics**

- processing units. *IEEE Transactions on Medical Imaging*, 27(5):650–663, 2008.
- [21] GODEL, N.; NUNN, N.; WARBURTON, T. ; CLEMENS, M.. **Scalability of higher-order discontinuous galerkin fem computations for solving electromagnetic wave propagation problems on GPU clusters.** *Magnetics, IEEE Transactions on*, 46(8):3469–3472, 2010.
- [22] REN, D. Q.; BRACKEN, E.; POLSTYANKO, S.; LAMBERT, N.; SUDA, R. ; GIANNACOPULOS, D. D.. **Power aware parallel 3-d finite element mesh refinement performance modeling and analysis with cuda/mpi on GPU and multi-core architecture.** *IEEE Transactions on Magnetics*, 48(2):335–338, 2012.
- [23] MARKALL, G. R.; SLEMMER, A.; HAM, D. A.; KELLY, P. H. J.; CANTWELL, C. D. ; SHERWIN, S. J.. **Finite element assembly strategies on multi-core and many-core architectures.** *International Journal for Numerical Methods in Fluids*, 71(1):80–97, 2012.
- [24] ZEGARD, T.; PAULINO, GLAUCIO, H.. **Toward GPU accelerated topology optimization on unstructured meshes.** *Structural and Multidisciplinary Optimization*, p. 1–13, 2013.
- [25] BUSARYEV, O.; DEY, T. K. ; WANG, H.. **Adaptive fracture simulation of multi-layered thin plates.** *ACM Trans. Graph.*, 32(4):52:1–52:6, July 2013.
- [26] MÜLLER, M.; CHENTANEZ, N. ; KIM, T.-Y.. **Real time dynamic fracture with volumetric approximate convex decompositions.** *ACM Trans. Graph.*, 32(4):115:1–115:10, July 2013.
- [27] PFAFF, T.; NARAIN, R.; DE JOYA, J. M. ; O'BRIEN, J. F.. **Adaptive tearing and cracking of thin sheets.** *ACM Trans. Graph.*, 33(4):110:1–110:9, July 2014.
- [28] KOSCHIER, D.; LIPPONER, S. ; BENDER, J.. **Adaptive Tetrahedral Meshes for Brittle Fracture Simulation.** In: Koltun, V.; Sifakis, E., editors, *EUROGRAPHICS/ ACM SIGGRAPH SYMPOSIUM ON COMPUTER ANIMATION*. The Eurographics Association, 2014.
- [29] CHEN, Z.; YAO, M.; FENG, R. ; WANG, H.. **Physics-inspired adaptive fracture refinement.** *ACM Trans. Graph.*, 33(4):113:1–113:7, July 2014.

- [30] LAWLOR, O. S.; CHAKRAVORTY, S.; WILMARTH, T. L.; CHOUDHURY, N.; DOOLEY, I.; ZHENG, G. ; KALÉ, L. V.. **ParFUM: a parallel framework for unstructured meshes for scalable dynamic physics applications.** *Engineering with Computers*, 22(3-4):215–235, 2006.
- [31] RADOVITZKY, R.; SEAGRAVES, A.; TUPEK, M. ; NOELS, L.. **A scalable 3D fracture and fragmentation algorithm based on a hybrid, discontinuous Galerkin, cohesive element method.** *Computer Methods in Applied Mechanics and Engineering*, 200(1-4):326–344, Jan. 2011.
- [32] BOLZ, J.; FARMER, I.; GRINSPUN, E. ; SCHRÄPPLER, P.. **Sparse matrix solvers on the GPU: Conjugate gradients and multigrid.** *ACM TRANSACTIONS ON GRAPHICS*, 22:917–924, 2003.
- [33] TEJADA, E.; ERTL, T.. **Large steps in GPU-based deformable bodies simulation.** *Simulation Modelling Practice and Theory*, 13(8):703–715, 2005.
- [34] GÖDDEKE, D.; STRZODKA, R.; MOHD-YUSOF, J.; MCCORMICK, P.; WOBKER, H.; BECKER, C. ; TUREK, S.. **Using GPUs to improve multigrid solver performance on a cluster.** *International Journal of Computational Science and Engineering (IJCSE)*, 4(1):36–55, 2008.
- [35] ANDERSON, J. A.; LORENZ, C. D. ; TRAVESSET, A.. **General purpose molecular dynamics simulations fully implemented on graphics processing units.** *J. Comput. Phys.*, 227(10):5342–5359, 2008.
- [36] RODRIGUEZ-NAVARRO, J.; SUSIN, A.. **Non structured meshes for cloth GPU simulation using fem.** p. 1–7, 2006.
- [37] GÖDDEKE, D.; STRZODKA, R. ; TUREK, S.. **Accelerating double precision FEM simulations with GPUs.** In: *PROCEEDINGS OF ASIM 2005 - 18TH SYMPOSIUM ON SIMULATION TECHNIQUE*, 2005.
- [38] CECKA, C.; LEW, A. J. ; DARVE, E.. **Assembly of finite element methods on graphics processors.** *International Journal for Numerical Methods in Engineering*, 85(5):640–669, 2011.
- [39] GEVELER, M.; RIBBROCK, D.; GÖDDEKE, D.; ZAJAC, P. ; TUREK, S.. **Towards a complete FEM-based simulation toolkit on GPUs: Unstructured grid finite element geometric multigrid solvers with strong smoothers based on sparse approximate inverses.** *Computers & Fluids*, 2012.

- [40] KOMATITSCH, D.; MICHÉA, D. ; ERLEBACHER, G.. **Porting a high-order finite-element earthquake modeling application to nvidia graphics cards using cuda**. J. Parallel Distrib. Comput., 69(5):451–460, 2009.
- [41] LIU, Y.; JIAO, S.; WU, W. ; DE, S.. **GPU accelerated fast fem deformation simulation**. In: CIRCUITS AND SYSTEMS, 2008. APCCAS 2008. IEEE ASIA PACIFIC CONFERENCE ON, p. 606–609, 2008.
- [42] FAN, Z.; QIU, F.; KAUFMAN, A. ; YOAKUM-STOVER, S.. **GPU cluster for high performance computing**. In: PROCEEDINGS OF THE 2004 ACM/IEEE CONFERENCE ON SUPERCOMPUTING, SC '04, p. 47–, 2004.
- [43] KAKAY, A.; WESTPHAL, E. ; HERTEL, R.. **Speedup of fem micromagnetic simulations with graphical processing units**. Magnetics, IEEE Transactions on, 46(6):2303–2306, 2010.
- [44] PARK, S.; SHIN, H.. **Efficient generation of adaptive Cartesian mesh for computational fluid dynamics using GPU**. International Journal for Numerical Methods in Fluids, 70(11):1393–1404, Jan. 2012.
- [45] ALHADEFF, A.; CELES, W. ; PAULINO, G. H.. **Mapping cohesive fracture and fragmentation simulations to graphics processor units**. International Journal for Numerical Methods in Engineering, 103(12):859–893, 2015.
- [46] TERZOPOULOS, D.; FLEISCHER, K.. **Modeling inelastic deformation: Viscoelasticity, plasticity, fracture**. SIGGRAPH Comput. Graph., 22(4):269–278, June 1988.
- [47] NORTON, A.; BACON, R. ; TURK, G.. **Animation of fracture by physical modeling**. Technical Report RC 15371, IBM US Research Centers (Yorktown, San Jose, Almaden, US), 1990.
- [48] MÜLLER, M.; MCMILLAN, L.; DORSEY, J. ; JAGNOW, R.. **Real-time simulation of deformation and fracture of stiff materials**. In: PROCEEDINGS OF THE EUROGRAPHIC WORKSHOP ON COMPUTER ANIMATION AND SIMULATION, p. 113–124, New York, NY, USA, 2001. Springer-Verlag New York, Inc.
- [49] PAULY, M.; KEISER, R.; ADAMS, B.; DUTRÉ, P.; GROSS, M. ; GUIBAS, L. J.. **Meshless animation of fracturing solids**. ACM Trans. Graph., 24(3):957–964, July 2005.

- [50] ZHENG, C.; JAMES, D. L.. **Rigid-body fracture sound with pre-computed soundbanks**. ACM Transactions on Graphics (Proceedings of SIGGRAPH 2010), 29(3), July 2010.
- [51] KIRK, D. B.; HWU, W.-M. W.. **Programming Massively Parallel Processors: A Hands-on Approach**. Morgan Kaufmann Publishers Inc., 1st edition, 2010.
- [52] SANDERS, J.; KANDROT, E.. **CUDA by Example: An Introduction to General-Purpose GPU Programming**. Addison-Wesley Professional, 1 edition, 2010.
- [53] DE BORST, R.. **Fracture in quasi-brittle materials: a review of continuum damage-based approaches**. Engineering Fracture Mechanics, 69(2):95–112, 2002.
- [54] DUGDALE, D.. **Yielding of steel sheets containing slits**. Journal of the Mechanics and Physics of Solids, 8(2):100–104, 1960.
- [55] BARENBLATT, G. I.. **The mathematical theory of equilibrium cracks in brittle fracture**. Advances in applied mechanics, 7(55-129):104, 1962.
- [56] PARK, K.; PAULINO, G. H. ; ROESLER, J. R.. **A unified potential-based cohesive model of mixed-mode fracture**. Journal of the Mechanics and Physics of Solids, 57(6):891–908, 2009.
- [57] PARK, K.; PAULINO, G. H.. **Cohesive zone models: a critical review of traction-separation relationships across fracture surfaces**. Applied Mechanics Reviews, 64(6):060802, 2011.
- [58] CAMACHO, G.; ORTIZ, M.. **Computational modelling of impact damage in brittle materials**. International Journal of Solids and Structures, 33(20-22):2899–2938, 1996.
- [59] NEWMARK, N. M.. **A Method of Computation for Structural Dynamics**. Journal of the Engineering Mechanics Division, 85(7):67–94, 1959.
- [60] CELES, W.; PAULINO, G. H. ; ESPINHA, R.. **A compact adjacency-based topological data structure for finite element mesh representation**. International Journal for Numerical Methods in Engineering, 64(11):1529–1556, 2005.

- [61] PAULINO, G. H.; CELES, W.; ESPINHA, R. ; ZHANG, Z. J.. **A general topology-based framework for adaptive insertion of cohesive elements in finite element meshes.** *Engineering with Computers*, 24(1):59–78, 2008.
- [62] WELSH, D. J.; POWELL, M. B.. **An upper bound for the chromatic number of a graph and its application to timetabling problems.** *The Computer Journal*, 10(1):85–86, 1967.
- [63] PANDOLFI, A.; ORTIZ, M.. **Solid modeling aspects of three-dimensional fragmentation.** *Engineering with Computers*, 14(4):287–308, 1998.
- [64] BOYALAKUNTALA, D. S.; MURTHY, J. Y.. **Hierarchical compact models for simulation of electronic chip packages.** *Components and Packaging Technologies, IEEE Transactions on*, 25(2):192–203, 2002.
- [65] DUCROS, F.; FERRAND, V.; NICOUD, F.; WEBER, C.; DARRACQ, D.; GACHERIEU, C. ; POINSOT, T.. **Large-eddy simulation of the shock-/turbulence interaction.** *Journal of Computational Physics*, 152(2):517–549, 1999.
- [66] FRYXELL, B.; OLSON, K.; RICKER, P.; TIMMES, F. X.; ZINGALE, M.; LAMB, D. Q.; MACNEICE, P.; ROSNER, R.; TRURAN, J. W. ; TUFO, H.. **FLASH: An adaptive mesh hydrodynamics code for modeling astrophysical thermonuclear flashes.** *The Astrophysical Journal Supplement Series*, 131(1):273, 2000.
- [67] ESPINHA, R.; PARK, K.; PAULINO, G. H. ; CELES, W.. **Comput. Methods Appl. Mech. Engrg.** *Computer Methods in Applied Mechanics and Engineering*, 266(C):144–161, Nov. 2013.
- [68] PARK, K.; PAULINO, G. H.; CELES, W. ; ESPINHA, R.. **Adaptive mesh refinement and coarsening for cohesive zone modeling of dynamic fracture.** *International Journal for Numerical Methods in Engineering*, 92(1):1–35, 2012.
- [69] VELHO, L.; GOMES, J.. **Variable Resolution 4-k Meshes: Concepts and Applications.** *Computer Graphics Forum*, 19(4):195–212, 2000.
- [70] BISHOP, J. E.. **Simulating the pervasive fracture of materials and structures using randomly close packed Voronoi tessellations.** *Computational Mechanics*, 44(4):455–471, 2009.

- [71] ZHANG, Z.. **Extrinsic Cohesive Modeling of Dynamic Fracture and Microbranching Instability Using A Topological Data Structure**. PhD thesis, 2007.
- [72] SPRING, D. W.; LEON, S. E. ; PAULINO, G. H.. **Unstructured polygonal meshes with adaptive refinement for the numerical simulation of dynamic cohesive fracture**. International Journal of Fracture, 2014.
- [73] MILLER, O.; FREUND, L. B. ; NEEDLEMAN, A.. **Energy dissipation in dynamic fracture of brittle materials**. Modelling and Simulation in Materials Science and Engineering, 7(4):573, 1999.
- [74] ESPINHA, R.; PARK, K.; PAULINO, G. H. ; CELES, W.. **Scalable parallel dynamic fracture simulation using an extrinsic cohesive zone model**. PhD thesis, 2013.
- [75] JOHN, R.; SHAH, S. P.. **Mixed-mode fracture of concrete subjected to impact loading**. Journal of Structural Engineering, 116(3):585–602, 1990.
- [76] MÜLLER, M.; DORSEY, J.; MCMILLAN, L.; JAGNOW, R. ; CUTLER, B.. **Stable real-time deformations**. In: PROCEEDINGS OF THE 2002 ACM SIGGRAPH/EUROGRAPHICS SYMPOSIUM ON COMPUTER ANIMATION, SCA '02, p. 49–54, New York, NY, USA, 2002. ACM.
- [77] O'BRIEN, J. F.; HODGINS, J. K.. **Graphical modeling and animation of brittle fracture**. In: PROCEEDINGS OF ACM SIGGRAPH 1999, p. 137–146. ACM Press/Addison-Wesley Publishing Co., Aug. 1999.
- [78] BARAFF, D.; WITKIN, A.. **Large steps in cloth simulation**. In: PROCEEDINGS OF THE 25TH ANNUAL CONFERENCE ON COMPUTER GRAPHICS AND INTERACTIVE TECHNIQUES, SIGGRAPH '98, p. 43–54, New York, NY, USA, 1998. ACM.
- [79] TESCHNER, M.; HEIDELBERGER, B.; MULLER, M. ; GROSS, M.. **A versatile and robust model for geometrically complex deformable solids**. In: COMPUTER GRAPHICS INTERNATIONAL, 2004. PROCEEDINGS, p. 312–319, June 2004.