



## Publications 2012 — 2019

**Total number submitted, published, or accepted: 344**

\* Joint publications between CMEDE consortium and ARL researchers

### Ceramics

#### 2018

- 1 Cereceda Senas, D. Kats, D. Daphalapurkar, N. and Brady, L. (2018) "A micro-mechanical modeling approach for dynamic fragmentation in brittle multi-phase materials." *International Journal of Solids and Structures*, 134, 116-129. doi: <https://doi.org/10.1016/j.ijsolstr.2017.10.026>.
- 2 Cil, M. B. Hurley, R. and Brady, L. (2018) "A breakage model for granular materials considering the impacts of breakage and relative density on critical state." *International Journal for Numerical and Analytical Methods in Geomechanics*, Submitted.
- 3 Hwang, C. Ornek, M. Reddy, M. Domnich, V. Miller, S. Hemker, K. and Haber, R. (2018) "Effect of synthesis conditions of BCNO on the formation and structural ordering of BN at 1200 °C and 1 GPa." *Diamond and Related Materials*, 87, 156-162. doi: <https://doi.org/10.1016/j.diamond.2018.06.002>.
- 4 Hwang, C. Yang, Q. Xiang, S. Domnich, V. Khan, A. Xie, K. Hemker, K. and Haber, R. (2018) "Fabrication of Dense B4C-Pre-ceramic Polymer Derived SiC Composite." *Journal of European Ceramic Society*, Submitted.
- 5 \*Hwang, C. DiPietro, S. Xie, K. Yang, Q. Celik, A. M. Khan, A. Domnich, V. Walck, S. Hemker, K. and Haber, R. (2018) "Incorporating TiB2 into B4C through sputter deposition and hot pressing." *Journal of the American Ceramics Society*, Submitted.
- 6 \*Khan, A. Etzold, A. Yang, X. Domnich, V. Xie, K. Hwang, C. Behler, K. Chen, M. An, Q. LaSalvia, J. Hemker, K. Goddard, W. and Haber, R. (2018) "Locating Si atoms in Si-doped boron carbide: A route to understand amorphization mitigation mechanism." *Acta Materialia*, 187, 106-113. doi: <https://doi.org/10.1016/j.actamat.2018.07.021>.
- 7 Large Strain Indentation." *J. Phys. Chem. C*, 121(30), 16644-16649. doi: <https://doi.org/10.1021/acs.jpcc.7b05429>.
- 2 An, Q. and Goddard, W. (2017) "Improved Ductility of B12 Icosahedra-based Superhard Materials through Icosahedral Slip." *J. Phys. Chem. C*, 121(21), 11831-11838. doi: <https://doi.org/10.1021/acs.jpcc.7b01761>.
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- 4 An, Q. and Goddard, W. (2017) "Nanotwins soften boron-rich boron carbide (B13C2)." *Applied Physics Letters*, 110(11), 11902-11902. doi: <http://dx.doi.org/10.1063/1.4978644>.
- 5 An, Q. Reddy, M. Xie, K. Hemker, K. and Goddard, W. (2017) "An et al. Reply." *Phys. Rev. Lett.*, 118(8), 89602-89602. doi: <https://doi.org/10.1103/PhysRevLett.118.089602>.
- 6 Cereceda Senas, D. Brady, L. and Daphalapurkar, N. (2017) "Modeling dynamic fragmentation of heterogeneous brittle materials." *International Journal of Impact Engineering*, 99, 85-101. doi: <https://doi.org/10.1016/j.ijimpeng.2016.09.012>.
- 7 Farbaniec, L. Hogan, J. Xie, K. Shaeffer, M. Hemker, K. and Ramesh, K. (2017) "Damage evolution of hot-pressed boron carbide under confined dynamic compression." *International Journal of Impact Engineering*, 99, 75-84. doi: <https://doi.org/10.1016/j.ijimpeng.2016.09.008>.
- 8 Hernández-Rivera, E. Coleman, S. and Tschopp, M. (2017) "Using Similarity Metrics to Quantify Differences in High-Throughput Data Sets: Application to X-ray Diffraction Patterns." *ACS Combinatorial Science*, 19(1), 25-36. doi: <http://dx.doi.org/10.1021/acscombsci.6b00142>.
- 9 \*Hogan, J. Farbaniec, L. Mallick, D. Domnich, V. Kuwelkar, K. Sano, T. McCauley, J. W. and Ramesh, K. (2017) "Fragmentation of an advanced ceramic under ballistic impact: Mechanisms and microstructure." *International*

#### 2017

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- Journal of Impact Engineering, 102, 47-54. doi: <https://doi.org/10.1016/j.ijimpeng.2016.12.008>.
- 10 Khan, A. Domnich, V. and Haber, R. (2017) "Boron carbide based ceramics: Problems and possible solutions." *ACerS Bulletin*, 96(6), 30-35. doi: <http://ceramics.org/publications-and-resources/the-bulletin/bulletin-archives>.
  - 11 Ramesh, K. Stickle, A. and Kimberley, J. (2017) "Rocks, Shocks and Asteroids, and Some Interesting Research Directions in Mechanics." *Experimental Mechanics*, 57(8), 1149-1159. doi: <http://dx.doi.org/10.1007/s11340-017-0324-9>.
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  - 15 Toksoy, M. Rafaniello, B. Xie, K. Ma, L. Hemker, K. and Haber, R. (2017) "Densification and characterization of rapid carbothermal synthesized boron carbide." *International Journal of Applied Ceramic Technology*, 14(3), 443-453. doi: <http://dx.doi.org/10.1111/ijac.12654>.
  - 16 \*Tonge, A. and Ramesh, K. (2017) "Corrigendum to: Multi-scale defect interactions in high-rate brittle material failure. Part I: Model formulation and application to AlON." *Journal of the Mechanics and Physics of Solids*, 106, 313-314. doi: <https://doi.org/10.1016/j.jmps.2017.05.020>.
  - 17 Xie, K. Domnich, V. Farbaniec, L. Chen, B. Kuwelkar, K. Ma, L. McCauley, J. W. Haber, R. Ramesh, K. and Chen, M. (2017) "Microstructural Characterization of Boron-rich Boron Carbide." *Acta Materialia*, 136, 202-214. doi: <http://dx.doi.org/10.1016/j.actamat.2017.06.063>.
- 2016**
- 1 An, Q. Reddy, M. Xie, K. Hemker, K. and Goddard, W. (2016) "New Ground-State Crystal Structure of Elemental Boron." *Phys. Rev. Lett.*, 117(8), 85501-85501. doi: <https://doi.org/10.1103/PhysRevLett.117.085501>.
  - 2 An, Q. Reddy, M. Qian, J. Hemker, K. Chen, M. and Goddard, W. (2016) "Nucleation of amorphous shear bands at nanotwins in boron suboxide." *Nature Communications*, 7, 1-7. doi: <https://doi.org/10.1038/ncomms11001>.
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  - 5 An, Q. Goddard, W. Xie, K. Sim, G. Hemker, K. Munhollon, T. Toksoy, M. and Haber, R. (2016) "Superstrength through Nanotwinning." *Nano Letters*, 16(12), 7573-7579. doi: <http://pubs.acs.org/doi/abs/10.1021/acs.nanolett.6b03414>.
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  - 10 Hogan, J. Farbaniec, L. Daphalapurkar, N. and Ramesh, K. (2016) "On Compressive Brittle Fragmentation." *Journal of the American Ceramic Society*, 99(6), 2159-2169. doi: <https://doi.org/10.1111/j.1744-7402.2012.02817.x>.

- <https://doi.org/10.1111/jace.14171>.
- 11 \*Hogan, J. Farbaniec, L. Sano, T. Shaeffer, M. and Ramesh, K. (2016) "The effects of defects on the uniaxial compressive strength and failure of an advanced ceramic." *Acta Materialia*, 102, 263-272. doi: <https://doi.org/10.1016/j.actamat.2015.09.028>.
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  - 13 Li, G. An, Q. Goddard, W. Hanus, R. Zhai, P. Zhang, Q. and Snyder, G. (2016) "Atomistic explanation of brittle failure of thermoelectric skutterudite CoSb 3." *Acta Materialia*, 103, 775-780. doi: <https://doi.org/10.1016/j.actamat.2015.11.021>.
  - 14 Liu, J. and Brady, L. (2016) "Effective anisotropic compliance relationships for wing-cracked brittle materials under compression." *International Journal of Solids and Structures*, 100, 151-168. doi: <http://dx.doi.org/10.1016/j.ijsolstr.2016.08.012>.
  - 15 Liu, J. and Brady, L. (2016) "Perturbation-based surrogate models for dynamic failure of brittle materials in a multiscale and probabilistic context." *International Journal for Multiscale Computational Engineering*, 14(3), 273-290. doi: <https://doi.org/10.1615/IntJMultCompEng.2016015857>.
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  - 23 \*Zhao, S. Kad, B. Remington, B. LaSalvia, J. Wehrenberg, C. Behler, K. and Meyers, M. (2016) "Directional amorphization of boron carbide subjected to laser shock compression." *Proceedings of the National Academy of Sciences*, 113(43), 12088-12093. doi: <http://dx.doi.org/10.1073/pnas.1604613113>.

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- 1 An, Q. and Goddard, W. (2015) "Atomistic Origin of Brittle Failure of Boron Carbide from Large-Scale Reactive Dynamics Simulations: Suggestions toward Improved Ductility." *Phys. Rev. Lett.*, 115, 5501-5506. doi: <http://dx.doi.org/10.1103/PhysRevLett.115.105501>.
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- 2014**
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- 3 \*Batyrev, I. Taylor, D. Gazonas, G. and McCauley, J. W. (2014) "Density functional theory and evolution algorithm calculations of elastic properties of AlON." *Journal of Applied Physics*, 115(2), 23505-23505. doi: <https://doi.org/10.1063/1.4859435>.
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## 2013

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## 2012

## Composites

### 2018

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- 2 An, Q. Tamrakar, S. Gillespie, J. Rider, A. and Thostenson, E. (2018) "Tailored Glass Fiber Interphases via Electrophoretic Deposition of Carbon Nanotubes: Fiber and Interphase Characterization." *Composite Science and Technology*, doi: <https://doi.org/10.1016/j.compscitech.2018.01.003>. Accepted.
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## Uncategorized

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## Summary

*submitted, published, or accepted*

	2012	2013	2014	2015	2016	2017	2018	2019	Total
<b>Ceramics</b>	7	4	6	21	23	17	6	0	84
<b>Composites</b>	6	2	6	13	17	9	18	0	71
<b>Metals</b>	6	11	20	12	20	18	6	0	93
<b>Polymers</b>	10	8	11	8	9	20	7	0	73
<b>Integrative</b>	2	4	6	4	3	3	0	0	22
<b>Uncategorized</b>	0	0	0	0	0	0	1	0	1
<b>Total</b>	31	29	49	58	72	67	38	0	344
<b>Joint</b>	8	8	10	9	13	15	8	0	71