

WEDNESDAY 4/4

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| 8:00 | Registration and Breakfast – Annapolis Atrium | | | |
| 8:45 | Welcome and Opening Remarks: Lori Graham-Brady – Regatta Ballroom | | | |
| 9:00 | Plenary Lecture: Thomas Duffy, Ultra-High Pressure Dynamic Compression: Applications to the Deep Earth and Extra-Solar Planets – Regatta Ballroom | | | |
| 10:00 | Coffee Break – Annapolis Atrium | | | |
| 10:30 | Plenary Lecture: Naresh Thadnani, Time-Resolved Optomechanical Sensing of Pressure Distributions During Shock-Compression of Heterogeneous Materials - Regatta Ballroom | | | |
| 11:30 | Panel Discussion: June Wicks and Ryan Hurley (session chairs)– Regatta Ballroom | | | |
| 12:00 | Lunch – Annapolis Atrium | | | |
| | Regatta A Architected Materials: Design, Fabrication, Characterization (Jamie Guest, Jordan Raney, Lorenzo Valdevit) | Regatta B Experimental and Computational Advances in Dynamic Behavior of Ceramics (Ghatu Subhash) | Regatta C Thermal vs athermal plasticity (Robert Hoy, Stefanos Papanikolaou) | Windjammer Grain-scale behavior of heterogeneous energetic solids (Ryan Austin, DJ Luscher, Laurence Fried) |
| 1:00-1:20 | “Interactions of static and dynamic properties of 3D printed architected metastructures” (K. Matlack, I. Arretche) | “Superstrength through Icosahedral Bonding” (C. Kunka, G. Subhash) | “Structure-property relationships from universal signatures of plasticity in thermal and athermal disordered solids” (A. J. Liu, D. Gianola, E. D. Cubuk, R. Ivancic, S. Schoenholz, D. Strickland, T. Sharp) | “Shock compression of plastic explosives under a microscope” (D. Dlott, W. Bassett, B. Johnson) |
| 1:20-1:40 | “Analysis and Design of Magneto-Elastic Metamaterials for Energy Dissipation and Wave Filtering” (A. G. Izard, L. Valdevit) | “Deciphering constitutive states of amorphized boron carbide” (A. Awasthi, G. Subhash) | “Strain localisation in soft glassy materials” (S. Fielding) | “Computational and Experimental Study of TATB Shock Initiation at the Grain Scale” (J. M. Zaugg, K. Springer, L. Fried, T. Willey, J. Tringe) |
| 1:40-2:00 | “Spinodal structures with supreme scaling laws” (M-T. Hsieh) | “Capturing dynamic crack growth and localization effects in ceramics resulting from impact events” (A. Tonge) | “A thermomechanical model for the large deformation hardening behavior of amorphous polymers throughout the glass transition” (T. Nguyen) | “Effects of nano-inclusions on the thermomechanical response of polymer-bonded simulants” (J. Wilkerson, B. Ravaji, E. Iglesias, T. Rowe) |
| 2:00-2:20 | “Fracture toughness of 3D lattice materials” (M. O'Masta, V. Deshpande, H. Cui, X. Zheng) | “The Effect of Numerical Treatments of Surfaces and Interfaces on the Ballistic Response of Ceramics” (T. Holmquist, A. Tonge) | “Particle rearrangement and softening contributions to the nonlinear mechanical response of glassy materials” (M. Fan, M. Wang, K. Zhang, J. Schroers, M. Shattuck, C. O'Hern) | “Mechanical and Transport Properties of Energetic Substances from Molecular Dynamics Simulations” (T. Sewell, M. P. Kroonblawd, N. Mathew, R. Chitsaz, S. Jiang, D.L. Thompson) |
| 2:20-2:40 | “Modeling Plasticity And Failure in Additively Manufactured Stainless Steel” (C. Alleman, J. Foulk, K. Karlson, K. Manktelow, J. Ostien, A. Stershic) | “Understanding supershear damage propagation and sub-Rayleigh crack growth from edge-on impact with peridynamics” (F. Bobaru, G. Zhang, G. Gazonas) | “Critical scaling of temporal and spatial correlations with strain rate in athermal, disordered solids” (J. Clemmer, K. M. Salerno, M. Robbins) | “Coarse-Grain Modeling and Simulation of Microstructural Heterogeneities in Energetic Material Composites” (J. Brennan, J. Larentzos, S. Izvekov, M. Lisal) |
| 2:40-3:00 | “Elastic wave propagation in 3D lattices and open-cell foams” (A. Bayat, S. Gaitanaros) | “Modeling the formation and constitutive behavior of granular fragments in highly damaged ceramics” (M. Cil, A. Bhattacharjee, L. Graham-Brady) | “Onset of mechanical nonlinearities for amorphous polymers in their glass transition regime : experimental results and model” (H. Montes, F. LeQueux, S. Cantournet, R. Masurel, P. Gelineau) | “Mechanical properties of energetic materials under impact at the single crystal and mesoscales” (M. Cawkwell) |

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| 3:00-3:30 | Coffee Break – Annapolis Atrium | | | |
| | Regatta A Architected Materials: Design, Fabrication, Characterization (Jamie Guest, Jordan Raney, Lorenzo Valdevit) | Regatta B Multiscale Approaches to modeling hierarchical materials (Raja Ganesh, Christopher Meyer) | Regatta C In situ and 3D characterization techniques for understanding deformation and fracture of engineering and geological materials (Todd Hufnagel, Mingwei Chen, Darren Pagan, June Wicks) | Windjammer Low-Dimensional Materials Under Extreme Environments (Kasra Momeni, Long-Qing Chen) |
| 3:30-3:50 | “Autonomous actuation via swelling-induced snap-through in soft structures” (J. R. Raney, Y. Jiang, L. Korpas) | “Modeling fatigue crack initiation and propagation in Ti64 alloys using coupled crystal plasticity-phase field method” (J. Cheng, S. Ghosh) | “Femtosecond X-ray diffraction measurement of twinning and lattice dynamics in laser driven tantalum” (D. McGonegle, C. Wehrenberg, M. Sliwa, P. Highway, A. Higginbotham, J. Wark) | “Novel intrinsic Phase Transition and Strengthening in Low-dimensional Nanostructures Through Defect Engineering” (H. Attariani, K. Momeni, E. Rezaei) |
| 3:50-4:10 | | “Analytically Derived Space Time Based Boundary Condition (STBC) to Account for Stress Wave Propagation in Composite RVEs at High Strain Rates” (Z. Li, S. Ghosh, D. O'Brien) | | “Data Mining to Reveal Electromechanical and Phase Change Properties of over 1000 2D Materials” (E. Reed) |
| 4:10-4:30 | “Synthesis of Epoxy Networks and Interphases with Controlled Topology” (J. Gao, M. M. Diaz Acevedo, C. F. Abrams, J. W. Gillespie, Jr., B. Z. Haque, G. Palmese) | “Parametric Homogenization Based Continuum Damage Mechanics Model for Composites” (X. Zhang, S. Ghosh, D. O'Brien) | “In situ x-ray diffraction study of shock compressed polycrystalline quartz” (S. J. Tracy, S. Turneasure, T. Duffy) | “The ReaxFF method and its applications to simulations of 2D-material growth and 2D-material response” (A. van Duin, R. Lotfi, D. Yilmaz) |
| 4:30-4:50 | “Synthetic Biology for the production of protective materials” (B. James) | “Micromechanical Finite Element modeling of dynamic localization and clustering of multiple fiber breaks that lead to tensile failure of unidirectional composites” (R. Ganesh, J. Gillespie, Jr. D. O'Brien) | “The 3D reconstruction, and microstructure/property convergence of Al7075-T651 Alloys representative volume element” (X. Tu, J. Shen, A. Shahba, S. Ghosh) | “Size-Extreme Loading Duality in Low-Dimensional Materials” (K. Momeni, H Attariani, R. LeSar) |
| 4:50-5:10 | “Real-time Architected Materials for Phononic Applications” (B. Haghpanah, L. Salgado, L. Salari-Sharif, A. Asadpoure, L. Valdevit) | “Modeling Transverse Punch Shear Damage Behavior of Unidirectional Composites” (B. Haque, M. Ali Raja Ganesh, C. Yen, D. O'Brien, J. Gillespie) | “High-Speed Microscopic Imaging of Initiation and Propagation of Dynamic Failure Events in Solids” (P. R. Guduru, P. Malhotra, Y. Liu) | “Carbon Nanofibers” (V. Crespi, T. Wang, E-S. Xu, B. Vermilyea, B. Chen, R. Hoffman) |
| 5:10-5:30 | “Design, Fabrication and Fracture of Large Area Functional Nano-architected Metamaterials” (X. “Rayne” Zheng) | “Modeling mesoscale damage mechanics of woven composites” (C. Meyer, B. Haque, E. Bonyi, D. O'Brien, J. Gillespie, K. Aslan) | “Characterizing Grain Fracture and Comminution During Quasi-Static Compaction of Granular Solids Using X-ray Measurements” (R. Hurley, D. Pagan J. Lind, E. Herbold, M. Akin) | |
| 5:45-7:15 | Poster Session / Reception, sponsored by Nanomechanics, Inc. – Annapolis Atrium Dinner on your own | | | |

THURSDAY 4/5

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| 8:00 | Thank you breakfast for Symposium Organizers – Mainsail Room | | | |
| 8:30 | Breakfast – Annapolis Atrium | | | |
| 9:00 | Plenary Lecture: Paul Voyles, Solving Structurally Complex Materials using Electron Microscopy - Regatta Ballroom | | | |
| 10:00 | Coffee Break – Annapolis Atrium | | | |
| 10:30 | Plenary Lecture: Xijie Wang, Control and Characterization of Non-Equilibrium Materials using MeV Ultrafast Electron Diffraction - Regatta Ballroom | | | |
| 11:30 | Panel discussion: Mingwei Chen (session chair) – Regatta Ballroom | | | |
| 12:00 | Lunch – Annapolis Atrium | | | |
| | Regatta A Slips, Twins, and Voids - III (Shailendra Joshi, Justin Wilkerson, Jeffery Lloyd) | Regatta B Ceramics for extreme environments: processing, characterization and modeling (Rich Haber) | Regatta C Multiaxial Mechanical Response of Ballistic Fibers and Fiber-Based Systems (Subramani Sockalingham, Jack Gillespie, Tusit Weerasooriya) | Windjammer Fundamentals of deformation and yielding in amorphous materials (Alessio Zaccone, Timothy Sirk) |
| 1:00-1:20 | “Dynamic fracture and dislocation dynamics” (B. Gurrutxaga-Lerma, D. Balint, D. Dini, A. Sutton) | “Sintering and mechanical properties of boron suboxide (B ₂ O ₃) composites” (A. U. Khan, V. Domnich, R. Haber) | “Numerical Model for Angled Projectile Impact into Stacked Layers of UD Sheets and Fabrics” (S. L. Phoenix, A. Yavuz) | “A machine learning approach to plasticity in athermal disordered solids” (A. J. Liu, S. Ridout, G. Zhang) |
| 1:20-1:40 | | “An Analysis and Interpretation of Planar Features in Boron Carbide: Part 2” (J. McCauley) | “Modelling of Dyneema® Composites in LS-DYNA” (M. Hazzard, U. Heisserer, H. van der Werff, S. Hallet, P. Curtis) | |
| 1:40-2:00 | “Fracture, twinning, and phase changes in ceramic crystals: theory, simulations, and applications to boron carbide” (J. Clayton, J. Knap) | “The effect of annealing on arc melted Si-doped boron carbide” (B. Yang, A. U. Khan, C. Hwang, V. Domnich, R. Haber) | “Yarn-level Computer Model for Ballistic Impact on Carbon Fiber Composite” (S. Chocron, R. Bigger, N. Scott, K. Warren, H. Bayraktar) | Anelasticity, plasticity and energy landscape in metallic glasses” (T. Egami) |
| 2:00-2:20 | “Modeling the strength of a new, high performance Mg alloy enables the first-ever assessment of GP zone strength parallel and perpendicular to the zone” (S. Agnew, J. Bhattacharya, T. Sasaki, T. Nakata, S. Kamado, K. Hono) | “High Pressure Studies of Boron Carbides with Varying B/C Ratios” (M. Schaefer, V. Domnich, R. Haber) | “Influence of HSR TC on the tensile strength of UHMWPE single ballistic fibers” (D. Casem, T. Weerasooriya, S. Sockalingham, J. Gillespie, Jr.) | “Stiffness and Structure of Coarse-Grained Polymer Models” (K. M. Salerno, N. Bernstein) |
| 2:20-2:40 | “Mechanical properties and failure of Mg ₉₇ Y ₂ Zn ₁ processed by ECAE” (J. Li, X. Chen, L. Kecskes, Q. Wei) | “Evaluation of size of zone of effective heating near Mescal zone in ceramic at hypervelocity impact” (V. Kartuzov, B. Galanov, S. Ivanov) | “Tensile characterisation of notched high performance polymeric fibres” (S. Del Rosso, L. Iannucci, P.I Curtis, D. Kempesis, P. Duke) | “Variably thermalized soft glassy rheology” (R. Hoy) |
| 2:40-3:00 | “The effect of strain rate on the plastic flow and failure of an AZ31B magnesium alloy” (V. Kannan, N. Krywopusk, L. Kecskes, T. Weihs, K.T. Ramesh) | “Boride-based ceramics for extreme environments” (T. Prikhna, V. V. Kartuzov, P. P. Barvitskiy, E. V. Katruzov, R. Haber) | “Molecular Origins of Anisotropic Shock Propagation in Crystalline and Amorphous Polyethylene” (T. O'Connor, R. Elder Y. Sliozberg, T. Sirk, J. Andzelm, M. Robbins) | |

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| 3:00 | Coffee Break – Annapolis Atrium | Coffee Break – Annapolis Atrium | Coffee Break – Annapolis Atrium | Coffee Break – Annapolis Atrium |
| | Regatta A Slips, Twins, and Voids - III (Shailendra Joshi, Justin Wilkerson, Jeffery Lloyd) | Regatta B Surrogate Modeling for uncertainty quantification and materials design (Xin-Cindy Wang, Kenneth Leiter, Joshua Crona, Alex Breuer, Jarek Knap) | Regatta C High rate multiscale mechanics of particulate materials and soils (David Fox, Rich Regueiro) | Windjammer Fundamentals of deformation and yielding in amorphous materials (Alessio Zaccone, Timothy Sirk) |
| 3:30-4:50 | “Finite-Strain Homogenization Model for Viscoplastic Porous Single Crystals and Polycrystals” (P. Ponte Castañeda, D. Song) | “Uncertainty Quantification Algorithms for Large-scale Systems” (D. Xiu) | “Dynamic Behavior of Mason Sand under Combined Compression-Shear at High-strain Rates” (H. Lu, H. Luo, Z. Hu, X. Wang) | “Stress anisotropy in quasi-statically sheared granular packings” (C. O’Hern, S. Chen) |
| 3:50-4:10 | | | “DEM particle fracture model and its simulation of SHPB experiments on sand” (R. Regueiro, B. Zhang, E. Herbold, M.I Homel) | “Taking the numerical calculation of granular entropy forward: a new look at the yielding transition” (S. Martiniani, J. Klicpera, A. Zaccone, B.I Chakraborty, D. Frenkel) |
| 4:10-4:30 | “Void Growth in HCP Single Crystals” (S. P. Joshi) | “Surrogate Modeling and Confidence-Based Reliability Assessment and Uncertainty Quantification” (K.K. Choi, M. Moon, H. Cho Nicholas Gaul David Lamb) | “Can recurrent neural networks be used in high-rate soil simulations?” (B. Banerjee) | “Microscopic dynamics in attractive polymer nanocomposites subjected to large deformations” (A. Faraone, E. Senses, M. Tyagi, B. Natarajan, S. Narayanan) |
| 4:30-4:50 | “Quantifying the role of second phase particles in failure of magnesium alloys” (J. Lloyd, A. Matejunas, R. Becker, T. Walter, M. Priddy, J. Kimberley) | “Multi-fidelity high-throughput screening of electrochemical stability of battery electrolytes” (K. Leiter, X. Cindy Wang, C. Eisner, J. Knap, O. Borodin) | “Surface instabilities in shock loaded granular media” (V. Deshpande, K. Kandam, S. Khaderi, H. Wadley) | “Microscopic dynamics of stress relaxation in a nanocolloidal soft glass” (Y. Chen, S. Narayanan, J. Harden, R. Leheny) |
| 4:50-5:10 | “Inertial effects on spall stress inferred from free surface velocity” (R. Becker) | “Universal fragment descriptors for predicting properties of inorganic crystals” (C. Oses, O. Isayev, C. Toher, E. Gossett, S. Curtarolo, A. Tropsha) | “Mechanical Upscaling from Particulate Materials to Large Deformation Continuum: algorithms, challenges and observations” (B. Yan, R. Regueiro) | |
| 5:10-5:30 | “Incorporation of Microinertia into a Cocks-Ashby-kinetics-based Porosity Model” (J. Moore, N. Barton) | “Free energy reconstruction using mean force surrogate models” (A. Bhaduri, L. Graham-Brady, C. Abrams) | “1D FEM-DEM and MPM-DEM Hierarchical Multiscale Modeling of a Split Hopkinson Pressure Bar Experiment on Dry Colorado Mason Sand” (E. Jensen, R. Regueiro) | |
| 6:00 | Reception – Annapolis Atrium | | | |
| 6:30 | Conference Banquet with speakers Kimberly Hall & Justin Hardison, Nottene Studio, “Talk, Talk, Talk: The Art of Collaboration” (presentations of poster awards after dinner) – Regatta Ballroom | | | |

FRIDAY 4/6

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| 8:00 | Student Breakfast sponsored by Intel – Mainsail Room | | | |
| 8:30 | Breakfast – Annapolis Atrium | | | |
| 9:00 | Plenary Lecture and Discussion: Jean-François Molinari, Dynamic Crack Propagation in Heterogeneous Materials – Regatta Ballroom KT Ramesh (session chair) | | | |
| 10:00 | Coffee Break– Annapolis Atrium | | | |
| | Regatta A Slips, Twins, and Voids - III (Shailendra Joshi, Justin Wilkerson, Jeffery Lloyd) | Regatta B Statistical Approaches to Materials Modeling (Philippe Geubelle, Lori Graham-Brady) | Regatta C Modeling and Characterization of Fiber-Matrix Interphase (Sanjib Chowdhury, Timothy Sirk, Jack Gillespie) | Windjammer Bio- and bio-inspired materials and polymers (Bill Proud) |
| 10:30-10:50 | “Grain orientation and local strain effects on void growth in titanium” (M. Pushkareva, F. Sket, J. Segurado, J. Llorca, A. Weck) | “Heteroscedastic Gaussian process regression of optically-active semiconductor population evolution” (B. Kraczek) | “Molecular Modeling of Glass Fiber-Sizing Interphase” (S. Chowdhury , R. Elder, T. Sirk, D. Hartman, J. Gillespie) | “Response behavior of a surrogate head model subjected to blast-induced pressure wave impact from an explosive charge” (R. Banton) |
| 10:50-11:10 | | “Bayesian inference of the spatial distributions of material properties” (V. Deshpande , A. Vigliotti, G. Csanyi) | “Computational modeling of high-rate loading of the interphase in silica-polydicyclopentadiene composites” (R. Elder , M. Walter, B. Patterson, D. Knorr T. Sirk) | “Impact Acceleration Model of Mild Traumatic Brain Injury in Mice” (J. Rosen) |
| 11:10-11:30 | “Modeling plastic slip, twinning and phase transformation in single crystal titanium under dynamic loading conditions” (B. Feng , C. Bronkhorst, F. Addessio, B. Morrow, R. Lebensohn, E. Cerreta) | “Material Properties and Morphology Parameters Sensitivity Analysis in Polymer-Bonded Polycrystalline Energetic Materials” (C. Oskay, X. Zhang) | “Are Silanes the Primary Driver of Interface Strength in Glass Fiber Composites ? (An exploration of the relationship of chemical and physical parameters in the micromechanical characterisation of the apparent interfacial strength in glass fiber composites)” (J. Thomason , L. Yang, R. Minty) | “Failure Models for Soft Materials in Particle Based Methods” (Z. Hertel , S. Schumacher, R. Kraft) |
| 11:30-11:50 | “Spall failure along grain boundaries: elastic and slip anisotropy vs. inherent grain boundary weakness” (T. Nguyen , D.J. Luscher, J. Wilkerson) | “A probability density function for two-dimensional polycrystalline structures” (C. DiMarco , J. Hone, J. Kysar) | “Sensing interphase damage from fiber fracture with a fluorescent mechanophore” (R. Sheridan , J. Woodcock, R. Beams, J. Gilman, G. Holmes, C. Brinson) | “Modelling coupon testing of Dyneema laminates” (L. Iannucci, S. Del Rosso , P.Curtis, P. Dukes) |
| 11:50-12:10 | “Combined Crystal Plasticity and Grain Boundary Modeling of Creep in Ferritic-Martensitic Steels at Moderate and Low Stresses” (T. Truster , O. Nassif) | “Dense packing of cell monolayers: Jamming of deformable polygons” (A. Boromand , A. Signoriello, F. Ye, M.Shattuck, C. O’Hern) | “Dynamic Visualization of Fiber/Matrix Interfacial Normal Debonding Behavior” (J-M. Chu , B. Claus, D. O’Brien, T. Sun, K. Fezzaa, W. Chen) | “Quantitative Comparison of Atomistic Simulations with Experiment for Cross-linked Epoxy” (K. S. Khare , F. Phelan, Jr.) |
| 12:10-12:30 | “Predicting deformation patterning in magnesium using stabilized spectral homogenization” (V. Ananthan, D. Kochmann, A.Tutcuoglu) | “Sensitivity of the Transverse Failure of Fiber-Reinforced Composites on the Distribution of Material and Geometrical Parameters” (P. Geubelle , A. Klepacki D. Brandyberry) | “Biaxial Compression & Inertial Impact of Woven Polymer Matrix Composites” (L. Lamberson , A. Paradiso, X. Cadot) | |
| 12:30 | Lunch – Annapolis Atrium | | | |
| 1:30 | ADJOURN | | | |

**2018 Mach Conference
POSTER SESSION**

1. Fabrication of Dense B₄C-Pre-ceramic Polymer Derived SiC Composite
Presenter: Chawon Hwang, Rutgers University
2. Atomic modeling of high-speed compression of defective samples of boron carbide
Presenter: Igor Kartuzov, IPMS NAS of Ukraine
3. Failure of Advanced Ceramics: From Intact Materials to Granular Powder
Presenter: James Hogan, University of Alberta
6. Time-resolved x-ray imaging of void collapse in silicone and TNT
Presenter: Michael Armstrong, Lawrence Livermore National Laboratory
7. Lattice Heat Conductivity Revisited
Presenter: Tommy Sewell, University of Missouri-Columbia
8. Projectile penetration into synthetic clay
Presenter: Stephan Bless, New York University
9. Damage characterisation for cement and concrete using microwave induced damage
Presenter: Gareth Tear, Imperial College London
10. Penetration and Perforation Mechanics of Dyneema HB26
Presenter: Bazle Haque, University of Delaware - Composite Center
11. A Novel Damage Detection Technique of Nanocomposite Carbon Fiber Reinforce Polymer
Presenter: Michael Coatney, US Army Research Laboratory (VTD)
12. MEDE Data Science Cloud Version 2: Workgroup Based Data Science for Materials Scientists and Engineers
Presenter: David Elbert, Johns Hopkins University
13. Developing a Hypervelocity Impact Facility at Johns Hopkins University
Presenter: Matt Shaeffer, JHU
14. Mesoscale Informed Simulations of Shock-to-Detonation Transitions in Porous Energetic Materials
Presenter: Nirmal Kumar Rai, The University of Iowa
15. Multiscale Modeling of Shocks Interacting with a Cloud of Particles
Presenter: Oishik Sen, The University of Iowa
16. Dynamic Properties of 3D Woven Metallic Materials
Presenter: Hak Yong Lee, Johns Hopkins University
17. Analytical model for granular phase transition of highly damaged ceramics
Presenter: Amartya Bhattacharjee, Johns Hopkins University
18. Optimization of Consolidation Parameters and Characterization of Bulk Silicon Doped Boron Carbides
Presenter: Michael Gagnepain, Rutgers University
19. High Temperature Stability of Stress-Induced Amorphous Phase in Boron Carbide of Varying Stoichiometry
Presenter: Mark Schaefer, Rutgers University
20. Dynamic Spherical Indentation of Single Crystal Quartz to Study Amorphization
Presenter: Kimberly Andes, Johns Hopkins University
21. Simulations of compressive and tensile response of HMX grains in HTPB and Sylgard binders
Presenter: Akshay Dandekar, Purdue University
22. Hot-spot formation in β -HMX based polymer-bonded explosives due to friction at crack surfaces
Presenter: Camilo A. Duarte, Purdue University

**2018 Mach Conference
POSTER SESSION**

- 23.** 1D FEM-DEM and MPM-DEM Hierarchical Multiscale Modeling of a Split Hopkinson Pressure Bar Experiment on Dry Colorado Mason Sand
Presenter: Erik Jensen, University of Colorado Boulder
- 24.** Analysis of powdered SiO₂ under dynamic shock compression
Presenter: Dorothy Miller, Lawrence Livermore National Laboratory (LLNL)
- 25.** Three-dimensional microstructural characterization of magnesium and magnesium alloys
Presenter: Hao Sheng, Johns Hopkins University
- 26.** In situ visualization of the dynamic failure of geomaterials using X-ray phase contrast imaging
Presenter: Andrew Leong, Johns Hopkins University
- 27.** Direct comparison between experiments and simulations of jetting in additively manufactured lattices
Presenter: A.K. Robinson, LLNL
- 28.** Investigation of Structural and Magnetic Properties of FePt Thin Films Grown on Si (100).
Presenter: Atiyya Davis, Morgan State University
- 29.** Identification of Defect Formation and Propagation Mechanisms in the Piezoelectric Crystals with Fluorescent Nanoparticles
Presenter: Joshua Samba, Morgan State University
- 30.** Boron carbide high-temperature thermoelectric nanocomposites
Presenter: Mobolaji Zondode, Morgan State University
- 31.** Micromechanical Finite Element modeling of dynamic localization and clustering of multiple fiber breaks that lead to tensile failure of unidirectional composites
Presenter: Raja Ganesh, University of Delaware
- 32.** Effect of Microstructure on the Transverse Compressive Strength of UHMWPE Composites at High Strain-rates
Presenter: Jason Parker, Johns Hopkins University/ U.S. Army Natick Soldier Research, Development and Engineering Center
- 33.** Modeling fatigue crack initiation and propagation in Ti64 alloys using coupled crystal plasticity-phase field method
Presenter: Jiahao Cheng, Johns Hopkins University
- 34.** Space Time Based Boundary Condition for Microscopic model and Explicit Homogenization
Presenter: Zhiye Li, Johns Hopkins
- 35.** Dynamic Fracture of epoxide polymers
Presenter: Amanda Bellafatto, Drexel University
- 36.** Microstructure characterization and compressive response of two dilatant polymeric foams
Presenter: Kapil Bharadwaj Bhagavathula, The University of Alberta, Edmonton
- 37.** Development of an automated method for macro-scale damage characterization of a plain-weave S-2 glass epoxy composite laminate
Presenter: Enock Bonyi, Morgan State University
- 38.** High Resolution Scanning Electrochemical Microscope with Aptamer Based Nanoscale Electrodes
Presenter: Nafetalai Fifita, Morgan State University
- 39.** MAGNETIC CHARACTERIZATION OF GRAPHENE/Fe/SiO₂
Presenter: Moses A. Kayondo, Morgan State University
- 40.** A novel approach for single UHMWPE fibre modelling and experimental validation
Presenter: Dimitrios Kempesis, Imperial College

**2018 Mach Conference
POSTER SESSION**

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| <p>41. Effect of confined rolling on microstructure and mechanical properties of Magnesium Alloys Presenter: Pavitra Krishnan, UNC Charlotte</p> <p>42. Compressive Behavior of Woven Fiberglass Polymer Matrix Composites under Multi-axial and Environmental Loading Conditions Presenter: Ariana Paradiso, Drexel University</p> <p>43. Impact Pre-damage on Basalt Under Catastrophic Uniaxial Compression Presenter: Jacqueline Tawney, Drexel University</p> <p>44. Fracture Properties of Group V Transition Metal Carbides Presenter: Xingyuan Zhao, Drexel University</p> <p>45. Kinetics of microstructure evolution and spall of Mg with supersaturated vacancies Presenter: Sara Adibi, Texas A&M University</p> <p>46. High frequency in situ fatigue testing of FCC microcrystals Presenter: Steven Lavenstein, Johns Hopkins University</p> <p>47. Effect of temperature on the suppression of twinning in a-axis textured magnesium and magnesium alloys Presenter: Roshan Plamthottam, Johns Hopkins University</p> <p>48. Stochastic modelling of discontinuous dynamic recrystallization in magnesium alloys Presenter: Abbas Tutcuoglu, California Institute of Technology</p> <p>49. Rate Dependence of Plastic flow and Failure in Rolled AZ31B Presenter: Meng Zhao, Johns Hopkins University</p> <p>50. Uncertainty propagation of a composite model using sensitivity information from NIGFEM method Presenter: Anindya Bhaduri, Johns Hopkins University</p> | <p>51. A piecewise polynomial approximation scheme based on the Hashin-Shtrikman variational principle of polycrystals Presenter: Nicolas Venkovic, Johns Hopkins University</p> <p>52. Uncertainty Quantification of Data Collection and Data Processing in Materials Characterization Presenter: Noah Wade, JHU</p> |
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