

WEDNESDAY 4/4

8:00	Registration and Breakfast – Annapolis Atrium			
8:45	Welcome and Opening Remarks: Lori Graham-Brady – Regatta Ballroom			
9:00	Plenary Lecture: Thomas Duffy - Regatta Ballroom			
10:00	Coffee Break – Annapolis Atrium			
10:30	Plenary Lecture: Naresh Thadnani - 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)	“Shock compression of plastic explosives under a microscope” (D. Diott, 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. Zaug, K. Springer, L. Fried, T. Willey, J. Tringe)
1:40-2:00	“Instability-Tolerant Light Stiff Lattice Architectures” (M. Tootkaboni, A. Asadpoure, L. Salari-Sharif, L. Valdevit)	“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	“Spinodal structures with supreme scaling laws” (M-T. Hsieh)	“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	“Fracture toughness of 3D lattice materials” (M. O'Masta, V. Deshpande, H. Cui, X. Zheng)	“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	“Modeling Plasticity And Failure in Additively Manufactured Stainless Steel” (C. Alleman, J. Foulk, K. Karlson, K. Manktelow, J. Ostien, A. Stershic)	“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)

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)	“Energy-Renormalization for Achieving Temperature Transferable Coarse-Graining of Polymeric and Glass-Forming Materials” (W. Xia, F. Phelan, S. Keten, J. Douglas)	“Femtosecond X-ray diffraction measurement of twinning and lattice dynamics in laser driven tantalum” (D. McGonegle, C. Wehrenberg, M. Sliwa, P. Heighway, 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	“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)	“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	“Synthetic Biology for the production of protective materials” (B. James)	“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	“Isotropic auxetic metamaterials from disordered networks” (D. Reid, N. Pashine, J. Wozniak, A. Liu, S. Nagel, J. de Pablo)	“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)	“Identification of Damage State Variables from 3D Microstructure” (M. A. Homel, E. Herbold)	“Size-Extreme Loading Duality in Low-Dimensional Materials” (K. Momeni, H Attariani, R. LeSar)
4:50-5:10	“Real-time Architected Materials for Dynamic 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 Nanotreads” (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	Poster Session / Reception – Annapolis Atrium			
7:15	Dinner on your own			

THURSDAY 4/5

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)	“Dynamics of stress relaxation in semiflexible network with transient cross linkers” (S. Dharmavaram, L. Shen, A. Levine)
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. Katruzvov, 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)	“Variably thermalized soft glassy rheology” (R. Hoy)

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- 3:50	“Finite-Strain Homogenization Model for Viscoplastic Porous Single Crystals and Polycrystals” (P. Ponte Castañeda, D. Song)	“Multi-fidelity modeling using Gaussian processes and nonlinear auto-regressive schemes” (G. Karniadakis, P. Perdikaris L. Bonfiglio, M. Raissi)	“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		“Uncertainty Quantification Algorithms for Large-scale Systems” (D. Xiu)	“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. Kandan, 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)	“Effects of Nanoconfinement and Interfaces on the Thermomechanical Responses of Polymeric Materials” (W. Xia, S. Keten, J. Douglas, F. Phelan)
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)	Sounding of micropolar waveguides” (F. Pourahmadian, G. Maris, R. Regueiro)	“Dynamically Correlated Region in Sheared Interacting Colloidal Glasses Revealed by Neutron Scattering” (W-R. Chen, Z. Wang Y. Wang, T. Egami, T. Iwashita)
6:00	Reception – Mainsail and Spinnaker Rooms			
6:30	Conference Banquet with remarks from Kimberly Hall (presentations of poster awards after dinner) – Regatta Ballroom			

FRIDAY 4/6

8:00	Student Breakfast sponsored by Intel – Mainsail Room			
8:30	Breakfast – Annapolis Atrium			
9:00	Plenary Lecture and Discussion: Jean-François Molinari – 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 fluroescent 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			

