

**WEDNESDAY 4/9**

8:00	<b>Registration and Breakfast – Annapolis Atrium</b>			
9:00	<b>Welcome and Opening Remarks: Ryan Hurley – Regatta Ballroom</b>			
9:10	<b>Plenary Lecture: Brad Boyce, “Microstructural Black Swans and Deep Material Fingerprints” – Regatta Ballroom</b>			
10:10	<b>Coffee Break – Annapolis Atrium</b>			
10:30	<b>Plenary Lecture: Dan Gianola, “High-Throughput Characterization of Materials for Extreme Environments: the Challenge of Microstructure Sensitivity” – Regatta Ballroom</b>			
11:30	<b>Panel Discussion Moderated by Michael Shields (JHU) and Justin Wilkerson (TAMU) – Regatta Ballroom</b>			
12:00	<b>Lunch – Annapolis Atrium</b>			
	<b>Regatta A (MS3)</b> Advanced Experimental Techniques for Extreme Environments (Arezoo Zare, Jacob M. Diamond)	<b>Regatta B (MS10)</b> High-throughput Materials Discovery for Extreme Conditions (Michael Shields, Raymundo Arroyave, Chris Haines)	<b>Regatta C (MS5)</b> Advances in automated, high-throughput, and small-scale characterization of high strain-rate phenomena (Suraj Ravindran, Debjoy Mallick, Ankit Srivastava, Justin Wilkerson)	<b>Surgeon Meeting Room (MS1)</b> Hypervelocity Impact and Ultra-High Strain Rate Behavior (Justin Moreno, Matt Shaeffer, Jacob Rogers)
1:00-1:20	A Technique for High-Temperature Dynamic Kolsky Bar Compression: Application to Ti-6Al-4V ( <b>Emily Pittman</b> , Leslie Lamberson, Amy Clarke) <i>Invited speaker.</i>	Efficient Microstructure-Property Exploration with Active Learning and Gaussian Process Regression ( <b>Ozge Ozbayram</b> , Tyler Ragan, Tengyuan Hao, Audrey Olivier, Min Zhou, Lori Graham-Brady)	Measurement of Strain Rate Sensitivity at High Strain Rates with Instrumented Indentation Impact Testing ( <b>Jacob Hempel</b> , Brady Butler, George Pharr)	Ultra-high strain rate impact behavior in high molecular weight thermoplastics ( <b>Jacob Rogers</b> , Charles Pittman, Edwin Thomas, Justin Wilkerson, Thomas Lacy)
1:20-1:40	A Custom High Speed Thermal Imager for Extreme Loading Events ( <b>Eric Stang</b> , Xiaoyu Lian, Jacob Rosenstein, Pradeep Guduru)	Physics-constrained Gaussian Processes for Predicting Shockwave Hugoniot Curves ( <b>George Pasparakis</b> , Himanshu Sharma, Michael Shields, Lori Graham-Brady)	Delineating inertial and strain-rate hardening effects on dynamic hardness of elasto-viscoplastic materials ( <b>Ankit Srivastava</b> )	
1:40-2:00	Micro to macro-ballistics: The Geometric Scale Dependence of Specific Energy Absorption in High-velocity Microprojectile Impact Tests ( <b>Ramathasan Thevamaran</b> , Nicholas Jaegersberg, Yasara Dharmadasa, Jizhe Cai)	Virtual melting and microstructure effects in spall failure in single crystal niobium: a molecular dynamics study ( <b>William Zummo</b> , Chunyu Li, Alejandro Strachan)	Suppressed Dislocation Drag Regime in Nanocrystalline Alloys: A Microprojectile Impact Study ( <b>Qi Tang</b> , Jianxiong Li, Mostafa Hassani)	X-ray study of microjets from grooved tin samples: from unperturbed to highly destabilized edge jets ( <b>Jean-René Burie</b> , Céline Aragoncillo do Mingo, Arnaud Sollier, Thibault Le Révérend, Julie Auperin, Bratislav Lukic)
2:00-2:20		Spallation of SiC bicrystals with a symmetric tilt grain boundary ( <b>Chunyu Li</b> , Alejandro Strachan)	Informing Cold Spray via High Strain Rate Particle Impacts Captured Using Ultra-High-Speed Videography ( <b>Elias Timmons</b> , Joseph Stanzone, Mac Haas, Behrad Koohbor, Tristan Bacha)	Ejecta characterization during hypervelocity impacts in geomaterials ( <b>Sohanjit Ghosh</b> , Jacob Kim, Elizabeth Chua, Colin Goodman, Mark Foster, Ryan Hurley)
2:20-2:40	Real-time observation of twinning, detwinning, and melting in shock-loaded AZ31B-H24 magnesium alloy ( <b>Cyril Williams</b> , Debjoy Mallick, Jeff Lloyd, Jonathan Ligda, John Clayton)	Mesoscale Modeling of Microstructural Effects on Inelastic Behavior of High Entropy Alloys ( <b>Thomas Ralph</b> , Manish Vasoya, Vahid Attari, Daniel Salas, Ibrahim Karaman, Dimitris Lagoudas)	A High-Throughput LIPIT System for V50 Testing ( <b>Daniel Portillo</b> , Michael Heim, Christopher Sorini, Sidney Chocron, Alex Lakocy, Matt Barsotti)	Internal Deformation Measurement of an IDOX/Estane Polymer Composite Cylinder under Loading Using Digital Volume Correlation ( <b>Hongbing Lu</b> , Ehsan Mehrdad, Pooyan Brandon, Yao Ren)
2:40-3:00	Characterizing dynamic failure around shock-loaded voids via high-speed x-ray imaging and digital image correlation ( <b>Tom Pilvelait</b> , Srijan Neogi, David Henann, Pradeep Guduru)	Accelerated Multi-Objective Alloy Discovery through Efficient Bayesian Methods: Application to the FCC Alloy Space ( <b>Raymundo Arroyave</b> , Mrinalini Mulukutla, Trevor Hastings, Ankit Srivastava, James Paramore, Ibrahim Karaman)	Development of Laser-Driven Microscale Ballistic Test Apparatus ( <b>Alexander Lakocy</b> , Matt Barsotti, Eddie O’Hare, Sidney Chocron, Daniel Portillo, Michael Heim)	Bayesian Calibration for High-Velocity Impact Problems through Ensemble-Based Data Assimilation ( <b>Rong Jin</b> , Guangyao Wang, KT Ramesh, Xingsheng Sun)

3:00-3:20	<b>Coffee Break – Annapolis Atrium</b>			
	<b>Regatta A (MS3)</b> Advanced Experimental Techniques for Extreme Environments ( <b>Arezoo Zare, Jacob M. Diamond</b> )	<b>Regatta B (MS8)</b> Experiments and modeling of geological and infrastructural materials in extreme environments ( <b>Mohmad Mohsin Thakur, Brett Kuwik, Lei Yang, Sohanjit Ghosh</b> )	<b>Regatta C (MS5)</b> Advances in automated, high-throughput, and small-scale characterization of high strain-rate phenomena ( <b>Suraj Ravindran, Debjoy Mallick, Ankit Srivastava, Justin Wilkerson</b> )	<b>Surgeon Meeting Room (MS1)</b> Hypervelocity Impact and Ultra-High Strain Rate Behavior ( <b>Justin Moreno, Matt Shaeffer, Jacob Rogers</b> )
3:20-3:40	Corrosion and Deposition in Flowing Molten Salt ( <b>Stephen Raiman</b> ) <i>Invited speaker.</i>	Nanoindentation-based characterization of concrete damage due to high-velocity projectile impact ( <b>Zhifei Deng</b> )	Computational Homogenization Modeling of Dynamic Fragmentation in Additive-Manufactured Porous Rings ( <b>Caleb Foster, Justin Wilkerson, José Rodríguez-Martínez</b> )	Ballistic and shock response of UHMWPE ( <b>Minh Lê, Piyush Wanchoo, Jacob Diamond, Justin Moreno, Jason Parker, KT Ramesh</b> )
3:40-4:00	Optimizing data collection and processing workflow for three-dimensional tomography of corroded nuclear structural materials using focused ion-beam microscopy ( <b>Trishelle Copeland-Johnson, Mario Matos, Matthew Anderson, Fei Xu, Christopher Bearcroft, Tanner Mauseth</b> )	Effect of fatigue damage on the shock and spall behavior of $\alpha$ Fe and 4340 steel ( <b>Scott Turnage, Joseph Indeck</b> )	Microscale direct-impact mechanics of mechanical metamaterials ( <b>Jet Lem, Collin DesRoberts, Samuel Figueroa, Steven Kooi, Carlos Portela</b> )	Penetration and Hugoniot Experiments on Rubber ( <b>Jacob Diamond, Krithika Balakrishnan, Konrad Muly, Justin Moreno, Matt Shanaman, KT Ramesh</b> )
4:00-4:20		Computational modeling of brittle rocks subjected to very high velocity impact ( <b>Lei Yang</b> )	Optimizing the Energy Absorption Capacity of Auxetic Mechanical Metamaterials by Density Gradation ( <b>Behrad Koohbor, Matther Heras, Caitlyn Knoerzer, Nicholas Pagliocca</b> )	Exploring the Hugoniot Elastic Limit of Additively Manufactured SiC-based Ceramics at High Temperatures ( <b>Lucas Rackers, KT Ramesh, Konrad Muly, Christopher Hansen</b> )
4:20-4:40	The Effect of Prolonged Space Travel on Mission Critical Shuttle Components ( <b>Elijah Davis, Khalid Hattar</b> )	Dynamic deformation of granite under multiaxial compression ( <b>Xingyuan Zhao, KT Ramesh, Todd Hufnagel</b> )	Elucidating the Molecular Basis of Strength and Damping in Polyurethane-Urea Elastomers ( <b>Roland Goh, Gladys Tan, Bryan Lim, Jet Lem, Carlos Portela, Daria Andreeva</b> )	Laser Microflyer Impact Experiments on Silicon Carbide ( <b>Konrad Muly, Ahmad Mirzaei, KT Ramesh</b> )
4:40-5:00	Valuable High Energy X-Ray (HEX) and High-Pressure Pair Distribution Function (PDF) Studies Under Extreme Conditions ( <b>Xinguo Hong</b> )		Automated Split Hopkinson Bar ( <b>Suraj Ravindran, Mouliswar Kumaresan, Vladimir Kornev, Pranav Kartha</b> )	Automated Laser-Driven Plate Impact Experiments to Evaluate Copper Spall Strength Across Grain Size, Orientation, Strain Rate, and Pressure ( <b>Piyush Wanchoo, Rohit Berlia, Tim Weihs, KT Ramesh</b> )
5:00-5:20	In situ high-pressure wide-angle XPCS: revealing anomalous acceleration of steady relaxation dynamics in metallic glasses during compression ( <b>Qiaoshi [Charles] Zeng</b> )			
5:20-6:50	<b>Poster Session / Reception – Annapolis Atrium</b>			
	<b>Dinner on your own</b>			

**THURSDAY 4/10**

8:00	<b>Thank you breakfast for Symposium Organizers – Annapolis Atrium</b>		
8:30	<b>Breakfast – Annapolis Atrium</b>		
9:00	<b>Plenary Lecture: Kaushik Bhattacharya, “Data-driven constitutive relations: Multiscale modeling and experimental inference” – Regatta Ballroom</b>		
10:00	<b>Coffee Break – Annapolis Atrium</b>		
10:30	<b>Plenary Lecture: Ghatu Subhash, “Machine Learning Methods for Material Discovery, Constitutive Behavior, and Defect Detection” – Regatta Ballroom</b>		
11:30	<b>Panel Discussion Moderated by Somdatta Goswami (JHU) – Regatta Ballroom</b>		
12:00	<b>Lunch – Annapolis Atrium</b>		
	<b>Regatta A (MS9)</b> <b>Particle-based Methods for Multiscale and Multiphysics Modeling - Recent Advances (Zhou Lei, Duan Z. Zhang)</b>	<b>Regatta B (MS11)</b> <b>Discrete Matters (Theocharis Baxevanis, Tian [Tim] Chen, Shailendra P. Joshi)</b>	<b>Regatta C (MS4)</b> <b>Machine Learning Applications and Innovations for Computational Material Science (Noah Wade, Ashwini Gupta, Lori Graham-Brady)</b>
1:00-1:20	Recent Advances of Multiscale Modeling and Evaluation of Architected Material Responses to Impact Loading ( <b>Zhen Chen</b> )	Uncovering The Mechanics of Architected Materials Under Dynamic Conditions ( <b>Carlos Portela</b> , Thomas Butruille, Rachel Sun, Rishi Kommalapati, Jet Lem)	PyVUMAT: Enabling rapid integration of machine learning models in computational mechanics ( <b>Joshua Crone</b> )
1:20-1:40		Nonlinear Impact Analysis of Mechanical Metamaterials with Reduced Order Models ( <b>Alireza Amirkhizi</b> , Weidi Wang, Willoughby Cheney, Erdem Caliskan, Reza Abedi)	Finite-element-based physics-informed neural networks (FE-PINNs): Application to boundary value problems of solid mechanics ( <b>Manish Vasoya</b> , Pranav Sunil, Ryan Sills)
1:40-2:00	Higher order homogenization of Direct Numeric Simulation results of a mock plastic bonded explosive ( <b>Nathan Miller</b> , Thomas Allard, Richard Regueiro, Fabio Di Gioacchino, Erik Jensen, Pooyan Javadzadeh)	An “effective” macro-hyperelastic description of periodic bistable auxetic surfaces ( <b>Theocharis Baxevanis</b> , Emmanuel Sansusthy Tardio, Tian [Tim] Chen)	HYDRA: Symbolic feature engineering of overparameterized Eulerian hyperelasticity models for fast inference time ( <b>Nhon Phan</b> , WaiChung Sun, John Clayton)
2:00-2:20	Data-Driven Scale Bridging for Damage in Granular Packings (Eric Bryant, <b>Bozo Vazic</b> , Kane Bennett)	Structural Materials with Engineered Meso-Scale Architectures: A Case Study on Fracture of Lamellar Materials ( <b>Mohit Gupta</b> , Hiileinani Dikilato, Eric Strang, Pradeep Guduru)	Scalable Multi-GPU Training of Neural Operators: Advancing Generalization in High-Dimensional Physical Systems ( <b>Luis Santos</b> , Deane Roehl, Somdatta Goswami)
2:20-2:40	The Dual-Domain Material Point Method for Triangular Meshes ( <b>Zhou Lei</b> , Xiaoyu Zhang, Duan Zhang)	Squishy Granular Mechanics ( <b>Jyoti Sonawane</b> , Shailendra Joshi)	Optimal metal alloy design for enhanced spall strength using AI driven optimization framework ( <b>Ashwini Gupta</b> , Indrashish Saha, Tamer Zaki, Lori Graham-Brady)
2:40-3:00	Calibration and Validation of a Material Point Method Ceramic Damage Model for Split-Hopkinson Pressure Bar Simulations ( <b>Jay Appleton</b> , Michael Homel, Cameron Crook, Richard Regueiro, Henry Tufo, Gus Becker)	Exploring multi material mechanical metamaterials ( <b>Shaikeea Angkur</b> , Ethan Biedenstein)	
3:00-3:20	<b>Coffee Break – Annapolis Atrium</b>		
	<b>Regatta A (MS9)</b> <b>Particle-based Methods for Multiscale and Multiphysics Modeling - Recent Advances (Zhou Lei, Duan Z. Zhang)</b>	<b>Regatta B (MS11)</b> <b>Discrete Matters (Theocharis Baxevanis, Tian [Tim] Chen, Shailendra P. Joshi)</b>	<b>Regatta C (MS4)</b> <b>Machine Learning Applications and Innovations for Computational Material Science (Noah Wade, Ashwini Gupta, Lori Graham-Brady)</b>
3:20-3:40	Size and Shape Dependence of Hydrogen-Induced Phase Transformation and Sorption Hysteresis in Palladium Nanoparticles ( <b>Xingsheng Sun</b> , Rong Jin)	Enhancing Toughness Using Layered Architectures and Fracture Size-Effects ( <b>Lucas Meza</b> , Zainab Patel, Kush Dwivedi, Abdulaziz Alrashed, Ian Good)	Automatic Differentiation in Dynamic Topology Optimization ( <b>Kevin Korner</b> , Julian Andrej, Rob Rieben, Jon Belof, Will Schill)

3:40-4:00	Discrete Eshelby Inclusions in Amorphous Solids ( <b>Evan Willmarth</b> , Weiwei Jin, Dong Wang, Mark Shattuck, Corey Ohern)	Modeling fracture in rate-dependent polymer networks: A quasi-continuum approach ( <b>Ahmed Elbanna</b> , Ahmed Ghareeb)	Physics-Informed Latent Neural Operator for Real-time Predictions of Complex Physical Systems ( <b>Sharmila Karumuri</b> , Lori Graham-Brady, Somdatta Goswami)
4:00-4:20	Particle-based meshfree models for predicting the shock propagation through heterogeneous viscoelastic solids ( <b>Benjamin Xu</b> , Thomas O'Connor)	Disrupting shock waves with phase transformations ( <b>Jeffrey Lloyd</b> )	Non-linear Material Response Prediction Using Diffusion and Neural Operator Models ( <b>Purna Vindhya Kota</b> , Meer Mehran Rashid, Somdatta Goswami, Lori Graham-Brady)
4:20-4:40	Material point methods implementable in unstructured meshes and their consistency and accuracy improvements ( <b>Duan Zhang</b> , Kyle Perez, Jiajia Waters, Paul Barclay)	Flow control of hypersonic shock-wave/boundary-layer interactions using phononic metamaterials ( <b>David Restrepo</b> , Juan David Navarro, David Balderas, Christopher Combs)	Deep Learning for Instance Segmentation with Object Tracking for Microscopic Crystallization Kinetics of Homopolymer in Dilute Phase ( <b>Guanjin Wang</b> , Paul Roberts, Anthony Kotula, Thao [Vicky] Nguyen, David Elbert)
4:40-5:00		An Analysis of Anisotropic Material Failure under Shear and Tension ( <b>Neha Arora</b> , Shailendra Joshi)	Development and Optimization of 4D-Printed Morphing Wings Using Shape Memory Polymer Composites ( <b>Feng Zhu</b> )
5:00-5:20		Digital Processing of Fabrics from Programmable Knitting ( <b>Tian [Tim] Chen</b> )	
5:30	<b>Reception – Annapolis Atrium</b>		
6:15	<b>Conference Banquet with speakers – Regatta Ballroom</b>		

# FRIDAY 4/11

8:30	Breakfast – Annapolis Atrium		
9:00	Plenary Lecture: Elizabeth Congdon, “Materials Making an Impact: Enabling Missions in Space through Technology System Development” with Q&A Moderated by Angela Stickle (APL) – Regatta Ballroom		
10:00	Coffee Break– Annapolis Atrium		
	<b>Regatta A (MS6)</b> Machine Learning Methods for Structure and Damage Detection (Ghatu Subhash)	<b>Regatta B (MS7)</b> Soft Tissue Mechanics in Dynamic Events: Integrating Finite Element, Multiscale, and Constitutive Modeling Approaches (Tyson Loudon, Reuben Kraft, Amy Dagro)	<b>Regatta C (MS2)</b> Response of Brittle and Quasi-brittle Composites Across Length Scales (Christopher S. Meyer, Kedar Kirane, Reza Abedi)
10:30-10:50	Real-Time Inference of Defects and Impedance Using Deep Operator Networks ( <b>Dibakar Roy Sarkar</b> , Somdatta Goswami)	A Multiphase Continuum Mechanics Model for Shock Loading of Lung Parenchyma ( <b>Zachariah Irwin</b> , Richard Regueiro, John Clayton)	Microplane Constitutive Model for Tension-Compression Asymmetry and Pressure-Sensitive Damage in Brittle Polymers ( <b>Kedar Kirane</b> , Sanket Wardhekar)
10:50-11:10		Modeling and Validation of Bone Conduction Effects from Impulse Noise and the Role of Inner Ear Tissue Interface Conditions ( <b>Gary Tan</b> , Thomas O’Shaughnessy, Amit Bagchi)	Developing Mixed-Mode Traction Laws for Crystalline UHMWPE Fibrils through Molecular Dynamics ( <b>Nuwan Dewapriya</b> , John Gillespie Jr., Joseph Deitzel)
11:10-11:30	Probabilistic Neural Networks (PNNs) for Modeling Aleatoric Uncertainty in dynamic strength and toughness of 1D heterogeneous materials ( <b>Reza Abedi</b> , Colin Furey, Farhad Pourkamali-Anaraki, Alireza Amirkhizi, Christopher Hansen)	A method to characterize the cavitation pressure of soft matter under superimposed azimuthal shear ( <b>Alexandria Trevino</b> , Jacob Rogers, Justin Wilkerson)	Microscale Model for Intergranular and Transgranular Damage and Fracture in Polycrystalline Ceramics ( <b>Tengyuan Hao</b> , Tyler Ragan, Daniel Olsen, Min Zhou)
11:30-11:50	Deep Learning for Quantitative Dynamic Fragmentation Analysis ( <b>Erwin Cazares Gamez</b> , Brian Schuster)	A High-Rate, Region-Specific Material Characterization of Porcine Brain Tissue using Thin-Layer Inertial Microcavitation Rheometry ( <b>Elizabeth Bremer-Sai</b> , Surya Kolluri, Anastasia Tzoumaka, David Henann, Christian Franck)	The length scale dependency of phase field method: and comparison with the crack band model ( <b>Reza Abedi</b> , Giang Huynh, Kedar Kirane)
11:50-12:10		Seamlessly Bridging Scales: AI-Driven Numerical Solver for Dynamic Tissue Mechanics ( <b>Wei Wang</b> , Haihui Ruan, Somdatta Goswami)	
12:10-12:30		Individualized Morphing of Human Body Models for Biomechanical Analysis in High-G Environments ( <b>Ann Reyes</b> , Reuben Kraft)	
12:30	Lunch – Annapolis Atrium		
1:30	ADJOURN		