

Mechanical Engineering

Session **K**

Room: 153 Noyes

10:30 - 10:50 AM	Hannah V. Ramsperger	Combustion in porous media burners: Computational and experimental investigation of thermo-structural material response to predict burner fracture locations	Matthias Ihme <i>Professor of Mechanical Engineering, Stanford University</i> Michael Mello <i>Teaching Professor of Mechanical and Civil Engineering</i>
10:50 - 11:10 AM	Jacobo de Juan Millon <i>Samuel N. Vodopia and Carol J. Hasson SURF Fellow</i>	Non-deterministic categorical Lyapunov theory	Aaron D. Ames <i>Bren Professor of Mechanical and Civil Engineering, Control and Dynamical Systems, and Aerospace</i> Joe Moeller <i>Postdoctoral Scholar Research Associate in Mechanical and Civil Engineering</i>
11:10 - 11:30 AM	Piash Mondol <i>Larson Scholar</i>	Categorical Lyapunov theory for nondeterministic dynamical systems	Aaron D. Ames <i>Bren Professor of Mechanical and Civil Engineering, Control and Dynamical Systems, and Aerospace</i> Joe Moeller <i>Postdoctoral Scholar Research Associate in Mechanical and Civil Engineering</i>
11:30 - 11:50 AM	Raymond A. Provost <i>M.A.Q. Lutful Haq SURF Fellow</i>	Bandwidth-aware collaborative mapping between a humanoid and an aerial robot	Aaron D. Ames <i>Bren Professor of Mechanical and Civil Engineering, Control and Dynamical Systems, and Aerospace</i> Ryan M. Bena <i>Postdoctoral Scholar Research Associate in Mechanical and Civil Engineering</i> Erina Yamaguchi <i>Graduate Student in Aerospace</i>
11:50 AM - 1:00 PM	LUNCH		
1:00 - 1:20 PM	Logan A. Smith-Perkins <i>Kiyo and Eiko Tomiyasu SURF Scholar</i>	Improving the modelling of cement carbonation and carbon uptake via Multiphysics software	Melany L. Hunt <i>Dotty and Dick Hayman Professor of Mechanical Engineering</i>

1:20 - 1:40 PM	Susanna S. Cao <i>DaRin Butz SURF Fellow</i>	Roll-slip detection for robotic tactile sensing in contact-rich manipulation	Monroe D. Kennedy <i>Assistant Professor of Mechanical Engineering, Stanford University</i> Jinho So <i>Graduate Student in Mechanical Engineering, Stanford University</i> Joel W. Burdick <i>Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering and Bioengineering; Research Scientist, JPL</i>
1:40 - 2:00 PM	Annie M. Hu <i>Carl F. Braun SURF Fellow</i>	An iodine-referenced laser stabilization system for high-precision cavity ringdown spectroscopy of electron-enhanced atomic layer processes (EE-ALP)	Austin J. Minnich <i>Professor of Mechanical Engineering and Applied Physics</i> Emily Shi <i>Graduate Student in Chemistry</i>
2:00 - 2:20 PM	Rhea S. Senan <i>DaRin Butz SURF Fellow</i>	Monocular gate detection and localization vision pipeline for autonomous drone racing with adaptive and condition-aware perception	Joel W. Burdick <i>Richard L. and Dorothy M. Hayman Professor of Mechanical Engineering and Bioengineering; Research Scientist, JPL</i> Jason Siu <i>Graduate Student in Aerospace</i>
2:20 - 2:30 PM	BREAK		
2:30 - 2:50 PM	Evan T. Huang	SINDy-LLM: Large language model-augmented framework for the sparse identification of nonlinear dynamics	Steven Brunton <i>Professor of Mechanical Engineering, University of Washington</i> Michael Garcia <i>Graduate Student, University of Washington</i> Adam C. Wierman <i>Carl F Braun Professor of Computing and Mathematical Sciences</i>
2:50 - 3:10 PM	Nicholas A. Ciordas	Neural ODE across the cylinder wake bifurcation	Steven Brunton <i>Professor of Mechanical Engineering, University of Washington</i> Mario Sinani <i>Graduate Student in Mechanical Engineering, University of Washington</i> Soon-Jo Chung <i>Bren Professor of Control and Dynamical Systems; Senior Research Scientist, JPL</i>

3:10 - 3:30 PM	Audrey Y. Na	Sparse sensing of fluid-structure interaction dynamics using neural operators	Steven Brunton <i>Professor of Mechanical Engineering, University of Washington</i> Mario Sinani <i>Graduate Student in Mechanical Engineering, University of Washington</i> Melany L. Hunt <i>Dotty and Dick Hayman Professor of Mechanical Engineering</i>
3:30 - 3:50 PM	Carolina L. Jones <i>W.E.F.K. SURF Fellow</i>	Developing a reusable, low-cost microfluidic device to investigate freezing fluid infiltration in porous media	Xiaojing Fu <i>Assistant Professor of Mechanical and Civil Engineering; William H. Hurt Scholar</i> Aman Eujayl <i>Graduate Student in Mechanical Engineering</i>
3:50 - 4:10 PM	Minseung Choi <i>Arthur R. Adams SURF Fellow</i>	Effects of dimensionality and forcing conditions on vortex formation and interactions	Tim E. Colonius <i>Frank and Ora Lee Marble Professor of Mechanical Engineering and Medical Engineering</i> Caroline Cardinale <i>Graduate Student in Mechanical Engineering</i>