Tuesday, 18 June

7:30am	**Board of Governors** *Gates-Thomas Room 235*
1pm	**Objective Resilience** *Gates-Thomas 320*
2pm	**Stability** *Gates-Thomas Room 235*
2pm	**Computational Mechanics** *Gates-Thomas Hall Auditorium 135 (88)*
2pm	**Experimental Analysis & Instrumentation** *Gates-Thomas 241*
3pm	**Fluid Dynamics** *Gates-Thomas Room 115 (44)*
3pm	**Nanomechanics and Micromechanics** *Gates-Thomas Room 327*
4pm	**Granular Materials** *Gates-Thomas Hall Auditorium 135 (88)*
4:30pm	**Properties of Materials** *Gates-Thomas 241*
5pm	**Modeling Inelasticity & Multiscale Behavior** *Gates-Thomas Room 235*
5pm	**Structural Health Monitoring and Control** *Gates-Thomas Room 115 (44)*
5pm	**Mechanics of Pavements** *Gates-Thomas 320*
5pm	**Elasticity** *Gates-Thomas Room 327*
6pm	**Welcome Reception** *Dabney Garden and Lounge (230)*
6pm	**Dynamics** *Gates-Thomas Hall Auditorium 135 (88)*
7:30pm	**Probabilistic Methods** *Gates-Thomas Room 115 (44)*
8pm	**Poromechanics** *Gates-Thomas Hall Auditorium 135 (88)*

Wednesday, 19 June

8:30am	**Plenary 1** *Beckman Auditorium (1,136)*
	Morphing materials in freeform objects, at the micro- and macro-scales » Prof. Chiara Daraio
9:30am	**Coffee break/Poster session** *Beckman Mall*
9:30am	**Poster Display** *Beckman Mall*

Continued from **Wednesday, 19 June**

2d Simulation of the Bioinspired Dual-Anchor Burrowing Mechanism in Dry Sand
» Mr. Sichuan Huang, Prof. Junliang "Julian" Tao

A Spectral Collocation Method for Finite Deformation Analysis in Sphere-Like Geometry
» Mr. Pei-Chuan Chao, Prof. Mettupalayam Sivaselvan

Nitsche's Method for the Shape Deformation of a Single Component Vesicle
» Dr. Tae-Yeon Kim, Dr. Wen Jiang, Dr. Jeong-Hoon Song

Investigation of the Binding Mechanism in Aggrecan Cleavage Sites: A Molecular Dynamics Approach
» Mr. Deng Li, Dr. Shu-Wei Chang

Joint Calibration of a Hyper-viscoelastic Model for Brain Tissue
» Dr. Patrick Brewick, Dr. kirubel teferra

Molecular Structure of Nanoscale Hydrogel Base on Glycol Chitosan: Molecular Dynamics and Multiscale Modeling
» Mr. Shun-Chieh Hsu, Dr. Shu-Wei Chang, Dr. Shan-hui Hsu

Recovery of Tractions Exerted by Cells in Fibrous Extracellular Matrices
» Dr. Dawei Song, Mr. Nicholas Hugenberg, Prof. Assad Oberai

Self-Adaptive Gel-Point Patch for Myocardial Infarction
» Mr. Yue Liu, Dr. Xiao Lin, Mr. Aobing Bai, Mr. Huanhuan Cai, Prof. Huajian Gao, Prof. Lei Yang, Prof. Ning Sun

Effect of Sand as Medium for Microbial Activities on Healing Concrete Cracks
» Ms. Xijin Zhang, Dr. Yuan Guo, Prof. Xiong Yu

Improving Airfoil Aerodynamics with Shark Skin Inspired Design
» Mr. Joshua Ott, Mr. Manuel Lazalde, Prof. Grace Gu

The Mechanics of Bio-Cemented Sands
» Mr. Charalampos Konstantinou, Dr. Giovanna Biscontin

Internal Curing in Ultra-High Performance Concrete Using Biochar
» Mr. Anjaneya Dixit, Mr. Souradeep Gupta, Dr. Sze Dai Pang, Dr. Harn Wei Kua

Sustainable Improvement to the Crack Resistance of Clayey Soils
» Mr. Michael Izzo, Dr. Marta Miletic

Exploration of a New Methodology for the Application of MICP in Soils
» Mr. Miguel Valencia-Galindo, Mr. Ramón Nazar-Soto, Dr. Esteban Sáez-Robert, Dr. Carlos Ovalle

Topology optimization of nonlinear frame structures based on hysteretic finite element modeling
» Mr. Navid Changizi, Dr. Gordon P. Warn

Robust Topology Optimization of Frame Structures Under Member Imperfections and Manufacturability Constraints
» Mr. Nicholas Valm, Dr. Mazdak Tootkaboni, Dr. Alireza Asadpoure

Topology optimization of light stiff structures with seeded hierarchy
» Mrs. Leili Javidannia, Mr. Mohammod Minhajur Rahman, Mr. Seyed Ardalan Nejat, Dr. Alireza Asadpoure, Dr. Mazdak Tootkaboni

A Stabilized DG Framework for Dynamic Thermomechanical Contact Mechanics with Interfaces
» Dr. Pinlei Chen, Ms. Wan Wan

Continued from **Wednesday, 19 June**

A modeling framework for coupled plasticity and species diffusion with applications to degradation
» Mr. Mohammad Sarraf Joshaghani, Dr. Kalyana Nakshatrala

Stress states in tramway rails, predicted through a principle of virtual power-based, enhanced beam theory approach
» Ms. Patricia Hasslinger, Dr. Stefan Scheiner, Prof. Christian Hellmich

Numerical Analysis of an ISO Container Subjected to Blast Loadings
» Mr. David Roman Castro, Dr. Catherine Stephens, Mr. Donald Nelson, Dr. Paul Sparks, Dr. Luis Suarez

EFFECTS OF TIME-DEPENDENT BEHAVIOR OF CONCRETE ON THE PROGRESSIVE COLLAPSE OF REINFORCED CONCRETE STRUCTURES
» Ms. Livia Mello, Prof. Roberto Ballarini, Prof. Jia-Liang Le

Numerical Analysis of Reinforced Concrete Slabs Retrofitted with Fiber-Reinforced Polymer (FRP) and Mechanical Anchors Subjected to Blast Loads
» Dr. Genevieve Pezzola, Dr. Lauren Stewart

NHERI WOW and RMDT Facilities Collaboration: Hybrid Simulation of Communication Tower Atop a Building
» Prof. Amal Elawady, Prof. Arindam Chowdhury, Prof. James Ricles, Prof. Peter Irwin, Mr. Thomas Marullo

Numerical Integration Methods for Real-Time Hybrid Simulation of Structures Subjected to Earthquake Loading
» Mr. Alejandro Palacio, Prof. Mariantonieta Gutierrez Soto

A Reproducing Kernel Particle Finite Volume Method for Linear and Nonlinear Mechanics
» Mr. SAILI YANG, Prof. Mike Hillman

Investigation of self-sealing phenomena in the Callovo-Oxfordian claystone through micromechanics based numerical simulations
» Mr. Joffrey Bluthé, Dr. Benoît Bary, Dr. Eric Lemarchand, Dr. Luc Dormieux

On the thermal conductivity degradation across cracks in a model capturing brittle and ductile fracture using the phase-field method
» Mr. Lampros Svolos, Prof. Curt Bronkhorst, Prof. Haim Waisman

A Hybrid Bayesian and Bézier-based solution to evaluate the mixed-mode fracture of random checkerboard graphene nano-platelets reinforced composite media
» Mr. Hossein Kabir, Mr. Seyed Amir Hossein Hassanpour Matikolaei, Prof. Mohammad Mohammadi Aghdam

Energy Budget of Dynamic Shear Ruptures: Connecting Remote Observations with Local Physical Behavior
» Mr. Valere Lambert, Prof. Nadia Lapusta, Dr. Stephen Perry

Buckling and Vibration of Periodically Supported Non-Prismatic Columns under Tip Force using an Integral Equation Approach
» Mr. Jitish Miglani, Dr. Rakesh K. Kapania

Residual stresses in thin-walled, composite columns – influence of column shape on its buckling behaviour
» Mr. Pawel Czapski, Prof. Tomasz Kubiak

Experimental Investigation of Rupture Propagation in Cohesionless Backfill against a Rigid Retaining Wall Rotating about its Base
» Mrs. Smita Patel, Dr. Kousik Deb

Dynamic recrystallization in adiabatic shear banding: an entropic, effective-temperature model
» Dr. Charles Lieou, Dr. Hashem Mourad, Prof. Curt Bronkhorst

Stability and collapse of compressed channel section profiles with barely visible impact damages
» Mr. Adrian Gliszczynski

Continued from **Wednesday, 19 June**

Application of Plastic-Damage Model for Stress-Strain Modeling of FRP-Confined Repaired Concrete Columns
» Mr. Ibrahim Ajani TIJANI, Prof. Yu-Fei Wu, Prof. CW Lim

Application of Rubberized Concrete with Expanded Clay Aggregates in Sustainable Non-Auto Transportation Infrastructure
» Dr. Maryam Nazari, Dr. Fariborz Tehrani, Mr. Mojtaba Ansari, Mr. Bhavesh Jeevanlal, Mr. Faiaz Rahman, Ms. Roshanak Farshidpour

Evaluating Robustness for Design Optimization of Underground Structures in the Face of Uncertainty
» Prof. Lei Wang, Prof. Sara Khoshnevisan, Prof. C. Hsein Juang

Elastic crack propagation with minimal remeshing using the subregion generalized variational principle and finite element method
» Prof. Minmao Liao, Mr. Pan Zhang

Experimental investigation on the effect of the state of stress on the surface roughness of hydraulically-induced fractures using micro-CT analysis
» Ms. Gayani Gunarathna, Dr. Bruno Gonçalves da Silva

Tuning Crack-Inclusion Interaction Through T-Stress
» Mr. Bo Ni, Dr. Kai Guo, Prof. Huajian Gao

A novel lightweight gelatin-based composite engaging microbially induced calcite precipitation (MICP) for infrastructure applications
» Dr. Jishen Qiu, Dr. Juliana Artier, Ms. Sarah Williams, Prof. Chelsea Heveran, Prof. Sherri Cook, Prof. Jeffrey Cameron, Prof. Wil Srubar, Prof. Mija Hubler

DISCRETE ELEMENT ANALYSIS OF SLENDER REINFORCED CONCRETE COLUMNS
» Mr. Kresimir Nincevic, Mr. Ioannis Boumakis, Prof. Roman Wan-Wendner

Active poroelastic imaging of interfaces in multiphasic backgrounds
» Dr. Fatemeh Pourahmadian, Mr. Rezgar Shakeri

An Optical Measurement Method for Gravity Water Wave Profiles
» Dr. Kazuhide Dan

Stress relaxation due to phase change of gas hydrates in pores
» Dr. Shun Uchida

A coupled thermo–hydro–chemo-mechanical(THCM) model for methane hydrate bearing sediments using COMSOL Multiphysics*
» Dr. Xiang Sun, Prof. Kenichi Soga

Triaxial tests and constitutive model for gas hydrate-bearing clayey sand
» Dr. Jiazuo Zhou, Mr. Zhoujie Yang, Mr. Lixin Li, Prof. Changfu Wei

Permeability anisotropy in hydrate-bearing sediments
» Prof. Sheng Dai

Numerical Investigation of the Non-Synoptic Wind-Induced Effects on Full-Scale Long-Span Bridges
» Dr. Jianming Hao, Dr. Teng Wu

Effect of Roof Geometry of a Low-rise Building on Tornado-induced Loads
» Dr. Alireza Razavi, Prof. Partha P. Sarkar

A physics-based approach for quantifying structural uncertainties of turbulent scalar flux models
» Mr. Zengrong Hao, Prof. Catherine Gorle

A new computational model for turbulence modelling with wall function
» Prof. Andy Chan, Dr. Kian Chuan Ong

Continued from **Wednesday, 19 June**

Coupled CFD-DEM investigations of internal erosion considering the role of confining pressure
» Mr. Yajing Liu, Prof. Lizhong Wang, Prof. Yi Hong, Prof. Jidong Zhao

Unsteady flow of a cement slurry
» Dr. Chengcheng Tao

On the implementation and application of a critical state particle mechanics enhanced Drucker-Prager/Cap model for biomass flow
» Dr. Wencheng Jin, Dr. Hai Huang, Dr. Tyler Westover, Dr. Jordan Klinger

Influence of interparticle friction on yielding and stiffness degradation
» Mr. Hoang Nguyen

Modelling the anisotropic mechanical behavior of Lower Cromer Till by a modified bounding surface plasticity model
» Dr. Jianjun Ma, Prof. Linchong Huang, Dr. Yu Liang

On stress-state dependency of small-strain shear modulus (Gmax) in sands
» Mr. Debayan Bhattacharya, Prof. Amit Prashant

Phase field modeling of shale fracture properties from scratch test
» Mr. Atul Vaibhav, Dr. Sara Abedi, Dr. Arash Noshadravan

Planet Rover Wheels Loading Test Development
» Prof. Jiliang Li, Dr. Jinyuan Zhai

Understanding slipping of wheels in granular media locomotion and rate sensitive RFT
» Mr. Shashank Agarwal, Mr. Andras Karsai, Dr. Daniel Goldman, Prof. Ken Kamrin

Billion body granular dynamics simulation on commodity hardware
» Mr. Conlain Kelly, Mr. Nicholas Olsen, Prof. Dan Negrut

Reconstituting Granular Test Beds by Fluidization
» Ms. Zhefei Jin, Prof. Paul Umbanhowar, Prof. James Hambleton

Interfacial Thermodynamic Properties and Size Effects in Nanoparticle-Based Reinforced Polymers
» Dr. Fahmi Bedoui, Dr. Andres Jaramillo-botero, Prof. William A. Goddard III

Magnetically-tunable metamaterials for surface acoustic wave manipulation
» Dr. Antonio Palermo, Dr. Yifan Wang, Dr. Paolo Celli, Prof. Chiara Daraio

A MACHINE LEARNING BASED FRAMEWORK FOR ACCELERATED DESIGN IN ARCHITECTED MATERIALS
» Mr. Chunping Ma, Mr. Zhiwei Zhang, Mr. Benjamin Luce, Mr. Burak Gul, Dr. Mohammad Rafiei, Dr. Nan Hu

Negative Stiffness Inclusions as a Platform for Real-Time Tunable Phononic Metamaterials
» Dr. Ladan Salari Sharif, Dr. Babak Haghpanah, Ms. Anna Guell Izard, Dr. Mazdak Tootkaboni, Prof. Lorenzo Valdevit

Evaluation of Powder Rheology for SLS and SLM Technology
» Prof. Yuanqiang Tan, Mr. Xiang Li, Mr. Jiangtao Zhang

Viscoelastic Behavior of SBR Modified Calcium Silicate Hydrate (C-S-H)
» Mr. Jeremy Starr, Dr. Eslam Soliman, Dr. Mahmoud Reda Taha

Integration of Digital Data for Asphalt Mix Design
» Prof. Linbing Wang

Mitigating site effects amplification using seismic metamaterials
» Dr. Antonio Palermo, Prof. Chiara Daraio, Prof. Domniki Asimaki

Continued from **Wednesday, 19 June**

Failure probability estimates for low-rise steel buildings subject to hurricane hazard under changing climate conditions

» Mr. Mirsardar Esmaeili, Prof. Michele Barbato

A vector-valued wind intensity measure for the performance-based design of tall buildings

» Mr. Haifeng Wang, Dr. Teng Wu

Experimentally-defined hurricane loads and structural morphogenesis of green/grey structures

» Mr. Mohammad Ghiasian, Ms. Jane Carrick, Dr. Diego Lirman, Dr. Andrew Baker, Mr. Steven Nolan, Dr. Brian Haus, Mr. Joel Amendolara, Ms. Julie Ruiz-merchan, Mr. Marco Rossini, Dr. Antonio Nanni, Dr. Nizar Bel Hadj Ali, Dr. Landolf Rhode-Barbarigos

Improved Probabilistic Seismic Performance Assessment Framework for Ordinary Standard Bridges

» Mr. Angshuman Deb, Dr. Alex Zha, Dr. Zachary Caamaño-Withall, Prof. Joel Conte, Prof. Jose Restrepo

Improved Probabilistic Seismic Performance Assessment Framework for Ordinary Standard Bridges

» Mr. Angshuman Deb, Dr. Alex Zha, Dr. Zachary Caamaño-Withall, Prof. Joel Conte, Prof. Jose Restrepo

Horizontal Displacement Responses of Sloped Rolling-type Seismic Isolators

» Prof. Shiang-Jung Wang, Dr. Chung-Han Yu, Dr. Cho-yen Yang, Dr. Wang-chuen Lin, Prof. Jenn-shin Hwang

Shock response mitigation with an inerter-based control device

» Mr. Abdollah Javidialesaadi, Prof. Nick Wierschem

Dynamic Coupling of Nonlinear Equipment Isolation Systems and the Supporting Structure

» Mr. Mohammad Tehrani, Prof. P. Scott Harvey

Test Results of Cyclic Testing on Ductile Precast End-Diaphragms of Slab-on-Girder Concrete Bridges

» Esteban Villalobos-Vega

Fluid Mechanics and Transport of Contaminated Sediment during Hurricanes

» Dr. James Kaihatu, Dr. Mikyoung Jun, Ms. Krisa Camargo, Dr. Anthony Knap, Dr. Terry Wade

A Physically-Statistically-based Hybrid Simulation Scheme of Coupled Nonstationary Wind and Wave Fields in Hurricanes for Offshore Floating Structures

» Mr. Shaopeng Li, Dr. Teng Wu

Nature Matters: A Coupled Human-Nature System-based Framework for Assessing Coastal Storm Risk along U.S. Atlantic Coast

» Mr. Muhammad Sajjad, Prof. Ning Lin, Prof. Johnny C. L. Chan

The Role of Clay-Fluid Molecular Interactions on the Shear Strength of Swelling Clays

» Mr. Keshab Thapa, Prof. Dinesh Katti, Prof. Kalpana Katti

A 3D phase field dislocation dynamics model for body-centered cubic crystals

» Ms. Xiaoyao Peng, Dr. Nithin Mathew, Prof. Irene Beyerlein, Prof. Kaushik Dayal, Dr. Abigail Hunter

Duality of Consistent Couple Stress and Continuous Defect Theories

» Dr. Ali Hadjesfandiari, Prof. Gary Dargush

Heat transfer from spherical heat sources to an infinite bi-material toward geothermal energy applications

» Mr. Tengxiang Wang, Prof. Huiming Yin

Electro-chemo-thermo-mechanical coupled model for lithium-ion batteries

» Mr. Yitao Qiu, Dr. Xiaoxuan Zhang, Prof. Christian Linder

Continued from **Wednesday, 19 June**

A Computational Approach to Model Cone Penetration and Dynamic Pile Loading Tests for Improved Interpretation of Pile Capacity
» Mr. Binyam Bekele, Dr. Chung Song

Stabilization of calcareous sand in coastal area by applying the admixture of alkali-activated slag and biochar
» Mr. Xiaole Han, Dr. Ningjun Jiang

Investigation of Sulfate-driven Deterioration in Hardened Cement Paste Using Integrated Microstructural-Nanomechanical-Chemical Characterization
» Mr. Hani Alanazi, Prof. Yong-Rak Kim, Prof. Jiong Hu

A three-dimensional computational homogenization framework for reconstructed microstructures
» Dr. Alp Karakoc, Prof. Jouni Paltakari, Prof. Ertugrul Taciroglu, Dr. Arttu Miettinen

Multi-Site Structural Damage Identification using Constrained Independent Component Analysis and Pattern Recognition
» Mr. Zhiming Zhang, Dr. Chao Sun

A Time-Frequency Domain Approach for Identification of Non-Stationary Systems under Non-White Wind Excitations
» Mr. Yue Dong, Dr. Yanlin Guo

Breaking wave load identification from vibrations on offshore wind turbines
» Dr. Anela Bajric, Prof. Manolis Chatzis, Prof. Ross Mcadam, Prof. Thomas Adcock

KPCA-based Damage Identification of Nonlinear Civil Structures
» Ms. Khaoula Ghoulem, Dr. Tarek Kormi, Dr. Nizar Bel Hadj Ali

Application of Machine Learning Techniques to Probabilistic Seismic Collapse Assessment
» Mr. Jalal Kiani, Prof. Charles Camp, Prof. Shahram Pezeshk

Rapid Damage Assessment of Structures after Earthquakes Using Machine Learning – A Sensitivity Analysis
» Mr. Mohamadreza Sheibani, Prof. Ge Ou

Surrogate Modeling and Global Sensitivity Analysis towards Efficient Simulation of Nuclear Reactor Stochastic Dynamics
» Mr. Gregory Banyay, Dr. John Brigham

Physics-encoded Sparsity-promoted Deep Learning for Data-driven Discovery of Nonlinear Governing Laws
» Mr. Zhao Chen, Prof. Hao Sun

Bayesian operational modal analysis using data from mobile sensor networks
» Mr. Rajdip Nayek, Prof. Sriram Narasimhan

Identifying microstructural features that drive stress hot-spots using a data mining approach
» Mr. Ankit Shrivastava, Prof. Hae Young Noh, Prof. Kaushik Dayal

Random Field Representation of Anisotropic Material Properties for use in Simulating Fracture
» Prof. Katherine Acton, Mr. Connor Sherod, Dr. Reza Abedi

A Bibliometric Analysis of the Structural Health Monitoring Research Field
» Dr. Kaitlyn Kliewer, Prof. Edward Melcer, Prof. Branko Glisic

Formal Concept Analysis for Modularisation and Sustainability of Infrastructure Systems
» Mr. Tanmay Vora, Mr. Ojas Vora

Deep Learning-based Detection of Seismic-vulnerable Buildings for Improving City Resilience
» Dr. Zheng Yi Wu, Mr. Maadh Hmosze, Dr. Rony Kalfarisi

Continued from **Wednesday, 19 June**

A Novel Method for Bridge Monitoring using Smartphones and Blind Source Separation
» Mr. Qipei Mei, Dr. Farid Ghahari, Dr. Hamed Ebrahimian, Dr. Mustafa Gül, Prof. Ertugrul Taciroglu

Long-term degradation of plain and reinforced concrete due to alkali-silica reactivity damage
» Mr. Hadi Aryan, Dr. Bora Gencturk, Dr. Jianqiang Wei, Mr. Yahan Zuo

Stable force identification using Gaussian process model based Kalman filtering
» Mr. Rajdip Nayek, Prof. Sriram Narasimhan

A sequential decision process for broadly and efficiently comparing a large set of designs characterized by probabilistic decision criteria
» Prof. Gordon Warn, Dr. Jaskanwal Chhabra

A probabilistic quantification of hurricane-induced loss for building portfolio
» Mr. Asim Bashir Khajwal, Dr. Arash Noshadravan

Non-parametric stochastic subset optimization for reliability-based importance ranking of bridges in large-scale transportation networks
» Mr. Zhenqiang Wang, Prof. Gaofeng Jia

Efficient uncertainty-aware management of power distribution systems using polynomial models
» Dr. Negin Alemazkoor, Prof. Hadi Meidani

Deep Learning Based Damage Detection for Infrastructure Health Assessment
» Ms. Min Hwang, Dr. Badri Hiriyur, Dr. Mahesh Bailakanavar

Autonomous Post-disaster Reconnaissance ofReinforced Concrete Buildings through DeepLearning-based Multi-class Damage Detection
» Mr. Tarutal Ghosh Mondal, Dr. Mohammad Jahanshahi

Autonomous and Quantitative Damage Chronology
» Mr. Tarutal Ghosh Mondal, Dr. Mohammad Jahanshahi

Experimental Shaker Input Estimation for a Full-Scale Concrete Frame Structure
» Dr. Yang Wang

Knowledge-Enhanced Deep Learning for Simulation of Tropical Cyclone Boundary-Layer Winds
» Mr. Reda Snaiki, Dr. Teng Wu

Structural health monitoring using low cost measurement devices with Bayesian methodologies
» Mr. Alejandro Duarte, Dr. Albert Ortiz

Numerical Simulation of Wave Propagation in Concrete with ASR induced microcracks
» Mr. Hossein Ariannejad, Prof. Jinying Zhu

Acoustoelastic Effect for Evaluation of Prestress Losses in Concrete Using Self-referenced Ultrasonic Waves
» Bibo Zhong, Prof. Jinying Zhu, Prof. George Morcous

Test of Ship Impact Non-navigable Span of Cross-sea Bridges
» Prof. Jian Guo, Ms. Liqi Qiu, Prof. Zhongdong Duan, Prof. Feng Xu, Mr. Yangfei Zheng, Mr. Jiangxuan He, Dr. Haibin Zhang

Development of a Non-contact Activation Method for Shape Memory Alloy Concrete Structures using Magnetic Nanoparticles
» Prof. Moochul Shin, Prof. Chang Hoon Lee, Prof. Ijung Kim

Sample-based approach for effective seismic risk mitigation of large-scale transportation networks
» Mr. Zhenqiang Wang, Prof. Gaofeng Jia

Continued from **Wednesday, 19 June**

Structural Sensitivity Analysis of Transmission Tower's Finite Element Model for Power Outage Prediction
» Mrs. Jiayue Xue, Prof. Ge Ou, Ms. Yuanrui Sang, Prof. Mostafa Sahraei-ardakani

Simplified Parametric Modeling to Predict the Relative Benefit of Various On-Grade Slab Designs
» Mr. Steven Lank, Dr. Hal Amick, Dr. Nat Wongprasert

James Webb Space Telescope: microvibration predictions and recent test results
» Mr. Greg Walsh, Mr. Michael Akkerman, Dr. Carl Blaurock, Mr. David Guernsey, Dr. Parker Lin, Mr. Evan Ruderman, Mr. Tony Sanders

Evaluating Structural Behaviors of Connected Structures in an Integrated Academia-Industry Research Environment
» Mr. Andrew Meier, Ms. Jill Porretta, Dr. Zhaoshuo Jiang, Dr. Jenna Wong, Dr. Juan Caicedo, Mr. David Shook, Mr. Ricardo Henoch, Ms. Joanna Zhang

Engaging Undergraduate Students with Integrated Academia-Industry Research Experience in Topology Optimization
» Ms. Alex Donner, Ms. Kaitlyn Chin, Mr. Alec Maxwell, Dr. Zhaoshuo Jiang, Dr. Juan Caicedo, Ms. Haley Sims, Mr. Nick Sherrow-Groves

NSF REU with Integrated Academia-Industry Research Experience in Smart Structure Technology
» Dr. Zhaoshuo Jiang, Dr. Juan Caicedo, Dr. Robert Petrulis

Amplifying floor vibrations using a resonator
» Ms. Kaitlyn Faust, Mr. Justin Kim, Dr. Juan Caicedo, Dr. Zhaoshuo Jiang

Damage diagnosis for historic marine infrastructure: Documentation, numerical modeling, and structural health monitoring of Morris Island Lighthouse
» Ms. Anna Blyth, Ms. Rebecca Napolitano, Prof. Branko Glisic

Anisotropic Critical State Hypoplastic Constitutive Model for Granular Soils
» Mr. Dong Liao, Prof. Zhongxuan Yang

Exploring the time-dependence of source properties of asperity-type foreshock-like events in a rate-and-state fault model
» Prof. Natalie Schaal, Mr. Junheng (Carl) Li

10:30am **MS80 - Structural Identification and Damage Detection; Part 1**
Ramo (371)

10:30am **Nonlinear Finite Element Model Updating of Partially Identifiable Models using Bayesian Filtering**
» Mr. Mukesh Kumar Ramancha, Mr. Ramin Madarshahian, Dr. Rodrigo Astroza, Prof. Joel Conte

10:45am **Non-Convexity in Finite Element Model Updating Problems**
» Dr. Yang Wang

11am **Model Updating and Modeling Error Estimation of Nonlinear FE Models through a Sequential Bayesian Filtering Approach**
» Mr. Mingming Song, Dr. Hamed Ebrahimian, Dr. Babak Moaveni, Prof. Costas Papadimitriou

11:15am **Bayesian Operational Modal Analysis Based on Modal Component Sampling**
» Dr. Heung Fai Lam, Dr. Jia-Hua Yang, Prof. Jim Beck

11:30am **Robust Bayesian Optimal Experimental Design for Structural Identification and Response Predictions**
» Prof. Costas Papadimitriou, Ms. tulay ercan

11:45am **Bayesian information fusion for fatigue crack growth diagnosis using Lamb wave scattering**
» Dr. Pranav Karve, Prof. Sankaran Mahadevan

10:30am **MS90 - Machine Learning and Data Analytics for Infrastructure Integrity Assessment; Part 1**
Steele 102 (130)

Continued from **Wednesday, 19 June**

10:30am **A data-driven machine-learning framework for intelligent self-aware aerospace systems**
» Prof. Fotis Kopsaftopoulos

10:45am **A sampling method for structural reliability assessment based on deep reinforcement learning**
» Mr. Zhengliang Xiang, Prof. Yuequan Bao, Mr. Zhiyi Tang, Prof. Hui Li

11am **Semi-supervised Structural Damage Detection using Sparse Identification**
» Dr. Zhilu Lai, Prof. Satish Nagarajaiah, Prof. Eleni Chatzi

11:15am **Probabilistic fault diagnostics using ensemble time-varying decision trees learning**
» Dr. Imad Abdallah, Dr. Vasilis Dertimanis, Prof. Eleni Chatzi

11:30am **Deconvolution seismic interferometry-based monitoring of short masonry structures**
» Dr. Debarshi Sen, Prof. Hao Sun, Mr. James Long, Prof. Oral Buyukozturk

11:45am **Machine Learning on Large Guided Wave Structural Health Monitoring Data Sets**
» Prof. Joel Harley, Mr. Kang Yang, Dr. Sungwon Kim

10:30am **MS92 - Advances in computational methods for rapid uncertainty quantification and robust/performance-based design of civil structures/systems exposed to natural and man-made hazards; Part 1**
Kerckhoff 119 (174)

10:30am **QUANTIFYING UNCERTAINTY IN STRUCTURAL RELIABILITY ESTIMATES IN THE PRESENCE OF SPARSE DATA**
» Prof. Michael Shields, Dr. Dimitrios Giovanis

10:45am **Stochastic sensitivities across scales and physics**
» Mr. Zhiheng Wang, Prof. Roger Ghanem

11am **A Computational Framework for Regional Earthquake Loss Estimation**
» Dr. Wael Elhaddad, Dr. Frank McKenna, Dr. Michael Gardner, Dr. Adam Zsarnóczay, Dr. Matthew Schoettler, Dr. Chaofeng Wang, Prof. Sanjay Govindjee, Prof. Gregory Deierlein

11:15am **Surrogate based sensitivity analysis of models with high-dimensional outputs**
» Ms. Min Li, Prof. Gaofeng Jia

11:30am **Multi-fidelity Gaussian process model integrating low-fidelity data and high-fidelity data considering censoring**
» Ms. Min Li, Prof. Gaofeng Jia

11:45am **Adaptive design of experiments for Kriging metamodeling through cross-validation information**
» Mrs. Aikaterini Kyprioti, Dr. Alexandros Taflanidis

10:30am **MS59 - Innovations and Advances in Passive Structural Control; Part 1**
Firestone 384 (76)

10:30am **Application of the tuned inerter technology to wave energy converters**
» Ms. Momoka Inoue, Ms. Ruriko Haraguchi, Ms. Ryoko Sawada, Mr. Keita Sugiura, Prof. Takehiko Asai

10:45am **Earthquake Response Analysis of Structures Equipped with Inerters**
» Prof. Nikolaos Makris, Mr. Gholamreza Moghimi

11am **Damping enhancement equation and design strategy of inerter system**
» Dr. Ruifu Zhang, Dr. Chao Pan, Prof. Kohju Ikago, Mr. Zhipeng Zhao

11:15am **Passive control of nonlinear single-degree-of-freedom structures utilizing tuned mass damper-inerter**
» Mr. Abdollah Javidialesaadi, Prof. Nick Wierschem, Prof. Mark Denavit

Continued from **Wednesday, 19 June**

11:30am **Multi-criteria design of inerter-based vibration suppression devices**
» Dr. Alexandros Taflanidis, Dr. Agathoklis Giaralis, Mr. Dimitrios Patsialis

11:45am **Parametric optimization of universal accelerated oscillator damper in vibration control of bridge subjected to seismic excitation**
» Prof. Yonggang Tan, Mr. Xiaofeng Yan

10:30am **MS65 - Emerging Topics and New Developments in Structural Fire Engineering**
Gates-Thomas Hall Auditorium 135 (88)

10:30am **Experimental Investigation on Explicit Thermal Creep Behavior of Transverse Welded Lap Joints in Fire**
» Mr. Ahmad El Ghor, Dr. Elie Hantouche, Dr. Ali Morovat, Dr. Michael Engelhardt

10:45am **Implementation of a Hybrid Model for Steel Connections in Structural Fire Engineering Practice**
» Mr. Muhammad Ali, Dr. Elie Hantouche, Mr. Kevin LaMalva

11am **Simulation of Weld Fracture in Steel Connections at Elevated Temperatures**
» Dr. Wenyu Cai, Dr. Ali Morovat, Dr. Michael Engelhardt, Prof. Guo-qiang Li

11:15am **Full-scale burning on vertical greenery system**
» Prof. W.K. Chow, Dr. C.l. Chow

11:30am **Numerical analysis of a steel-frame building with composite floors to enable performance-based fire design**
» Prof. Thomas Gernay, Prof. Negar Elhami-Khorasani

11:45am **Experimental Investigation of the Post-Fire Mechanical Behavior of High-Strength Steel Suspension Bridge Wires**
» Mr. Jumari Robinson, Dr. Matthew Sloane, Prof. Raimondo Betti, Dr. Adrian Brügger

10:30am **MS13 - Computational Methods and Applications for Solid and Structural Mechanics; Part 1**

10:30am **Stochastic modeling of non-Gaussian material parameters on nonconvex geometries**
» Ms. Shanshan Chu, Prof. Johann Guilleminot

10:45am **Strong Form Meshfree Collocation Method for Signorini Frictional Contact Problems**
» Mr. Ashkan Almasi, Prof. Tae Yeon Kim, Dr. Jeong-Hoon Song

11am **Computational Modeling of Slip Patterns on Heterogeneous Frictional Interfaces**
» Ms. Kavya Sudhir, Prof. Nadia Lapusta

11:15am **Layered soil parameter estimation from a moving load**
» Dr. Hamidreza Mashayekh, Prof. Loukas Kallivokas

11:30am **Poroelastodynamic Finite Integration Technique for Analysis of Pavement Structures**
» Prof. Lev Khazanovich, Mr. Zhe Wan

11:45am **A Pore-Network Model to Simulate the Behavior of Tight Geological Formations**
» Mr. Haohao Guo, Prof. Liming HU, Prof. Jay Meegoda, Mr. Di Zhang

10:30am **MS19 - Multiscale and Computational Methods in Fracture and Damage Mechanics**

10:30am **A Stable Generalized/eXtended FEM with Discontinuous Interpolant for Fracture Mechanics**
» Mr. Alfredo Sanchez Rivadeneira, Prof. Carlos Duarte

Continued from **Wednesday, 19 June**

10:45am **An Efficient Hypercomplex Finite Element Method for Progressive Fracture**
» Mr. Daniel Ramirez Tamayo, Mr. Andres Mauricio Aguirre Mesa, Dr. Arturo Montoya, Dr. Harry Millwater

11am **A massively-parallel solver for large-scale simulation of fluid-driven fracture propagation**
» Bianca Giovanardi, Mr. Anwar Koshakji, Prof. Raul Radovitzky

11:15am **Thermo-Hydro-Mechanical Modeling of Microstructural Representation of Dissipative Particulate Porous Composite Materials**
» Mr. Aimane Najmeddine, Prof. Maryam Shakiba

11:30am **A Novel Hybrid Numerical Finite Element-Spectral Boundary Integral Scheme For Modeling Earthquake Cycles**
» Mr. Mohamed Abdelmeguid, Mr. Xiao Ma, Prof. Ahmed Elbanna

11:45am **Thermo-mechanical fracture modeling with the phase-field approach**
» Dr. Wen Jiang

10:30am MS22 - Stability and failure of structures and materials; Part 1

10:30am **Stability and Frequency Analysis for Beams via a New Static Beam Bending Approach**
» Mr. Zhenyu Chen, Prof. CW Lim, Prof. Yang Xiang

10:45am **Buckling Loads of Simply Supported Anisotropic Columns using First Order Shear Deformation Theory**
» Dr. Rund Almasri, Prof. Hayder Rasheed

11am **Comparative stability and failure study of top-hat-shaped GLARE columns**
» Mr. Dominik Banat, Prof. Radoslaw Mania

11:15am **Improved structural efficiency of a curved stiffened panel through modal nudging**
» Ms. Olivia Leao, Dr. Rainer Groh, Dr. Alberto Pirrera

11:30am **Stability of multiple-crossarm prestressed stayed columns with additional stay-groups**
» Mr. Luke Lapira, Prof. Ahmer Wadee, Prof. Leroy Gardner

11:45am **A novel analytical approach for delamination buckling in composite plates**
» Dr. Anton Köllner, Prof. Christina Völlmecke

10:30am MS23 - Robustness of infrastructures

10:30am **Nonlinear fastener-based modeling of cold-formed steel shear walls under earthquake events**
» Ms. Fani Derveni, Dr. Simos Gerasimidis, Dr. Kara Peterman

10:45am **OPTIMIZATION PROCEDURES FOR RISK MITIGATION STRATEGIES IN POWER GRID BY A GENETIC ALGORITHM**
» Mr. Mohamed Salama, Dr. Mohamed Ezzeldin, Prof. Wael El-Dakhakhni, Prof. Michael Tait

11am **Full-Scale Test of a Steel Moment-Resisting Frame with Steel-Concrete Composite Floor under a Column Removal Scenario**
» Mr. Junjie Wang, Prof. Wei Wang

11:15am **Robustness of Air Traffic Networks**
» Mr. Yassien Yassien, Dr. Moataz Mohamed, Dr. Mohamed Ezzeldin, Prof. Wael El-Dakhakhni

11:30am **Time-Variant Reliability and Redundancy of Corroded Prestressed Concrete Bridges considering Damage Mechanisms at Material, Component, and System Levels**
» Dr. Bing Tu, Prof. You Dong, Prof. Dan Frangopol, Prof. Kaizhong Xie

11:45am **Experimental Investigation of Planar 3-Storey-4-Bay Steel Moment Frame Under Static Column Removal Scenario**
» Dr. Zhiyang Xie, Prof. Yiyi Chen

Continued from **Wednesday, 19 June**

10:30am **KEYNOTE / MS32 - Computational and Experimental Methods for Assessing Wind Effects on the Built Environment; Part 1**

10:30am **Isogeometric Methods for Solids, Structures, and Fluid-Structure Interaction: From Early Results to Recent Developments**
» Prof. Yuri Bazilevs

10:30am **MS73 - Generalized Continua, Gradients, and Nonlocal Mechanics**

10:30am **Three-Dimensional Large Deformation Micromorphic Elastostatics with Microstructural Linkage and Comparison to Micropolar Elastostatics**
» Prof. Richard Regueiro, Dr. Farhad Shahabi, Dr. Volkan Isbuga

10:45am **An Extended Gradient Nonlocal Flexibility-based Beam-Column Element Formulation Framework**
» Mr. Mohammad Taghi Nikoukalam Mofakham, Dr. Petros Sideris

11am **A micromorphic filter for determining macro-scale stresses from poly-crystalline elasto-plastic DNS**
» Mr. Nathan Miller, Prof. Richard Regueiro, Dr. Farhad Shahabi, Dr. Joseph Bishop

11:15am **Phonon-based pseudocontinuum representations for the finite monatomic chain with harmonic nearest-neighbor interactions**
» Dr. Miguel Charlotte

11:30am **Fractional-Order Elastodynamic Models for Nonlocal Media**
» Mr. Sansit Patnaik, Dr. Fabio Semperlotti

11:45am **Ritz Spline Method for Consistent Couple Stress Elastic Analysis**
» Prof. Gary Dargush, Dr. Georgios Apostolakis, Dr. Ali Hadjesfandiari

10:30am **MS74 - 4th Mini-Symposium on 4M (Modeling of Multiphysics-Multiscale-Multifunctional) Engineering Materials and Structures; Part 1**

10:30am **Laminated piezoelectric-piezomagnetic composites with imperfect interfaces**
» Prof. Hsin-Yi Kuo, Mr. Tien-jung Wu, Prof. Ernian Pan

10:45am **Characterization and modeling of carbon nanotube dispersed in asphalt binder by the foaming process toward self-heated pavements**
» Mr. Mehdi Zadshir, Dr. Liangliang Zhang, Dr. Xiaokong Yu, Prof. Huiming Yin

11am **MD-XFEM Model of HMWM Epoxy-Concrete Interface**
» Mr. Koochul Ji, Dr. Chloe Arson

11:15am **Design Smart Materials via Additive Manufacturing**
» Prof. Qiming Wang

11:30am **CURE DEPENDENT LOADING RATE EFFECT ON STRENGTH OF THERMOSET POLYMERS**
» Ms. Gilda Daissè, Dr. Marco Marcon, Mr. Michele Zecchini, Prof. Roman Wan-Wendner

11:45am **Formation Process and Time Evolution of Creases in Elastomers and Gels**
» Mr. Berkin Dortdivanlioglu, Prof. Christian Linder

10:30am **MS102 - Recent Advances on the dynamics of Unanchored Objects: Applications to Rocking and Sliding Systems; Part 1**

10:30am **How refined should seismic response analysis models be? A rocking structures example**
» Dr. Jonas A Bachmann, Mr. Mathias Strand, Prof. Michalis Vassiliou, Dr. Marco Broccardo, Prof. Bozidar Stojadinovic

10:45am **The influence of low frequencies on the seismic performance of unanchored blocks**
» Mr. Danilo D'Angela, Prof. Gennaro Magliulo, Prof. Edoardo Cosenza

Continued from **Wednesday, 19 June**

11am **Modelling of the Planar Dynamics of Rocking-Sloshing Systems**
» Mr. Hujing Liu, Prof. Manolis Chatzis, Prof. Christopher Macminn

11:15am **The Effect of Different Types of Modelling on Rocking Response**
» Mr. Nikhil Agrawal, Prof. Suparno Mukhopadhyay

11:30am **Lack of Repeatability on the Response of Free-Standing Cylindrical Casks under Different Ground Motion Characteristics**
» Prof. Luis Ibarra, Dr. Sharad Dangol, Dr. Chris Pantelides

10:30am **MS1 - 18th Symposium on Biological and Biologically Inspired Materials and Structures; Part 1**

10:30am **Mechanical properties of multi-layer graphene and bio-inspired nanocomposites**
» Dr. Zhaoxu Meng, Prof. Sinan Keten

10:45am **A simple mechanical model for synthetic catch bonds**
» Prof. Sinan Keten, Mr. Kerim Dansuk

11am **Bioinspired design of anisotropic porous structural components based on adaptive centroidal Voronoi tessellation**
» Mr. Babak Salarieh, Dr. Hongyu(Nick) Zhou

11:15am **Circadian cycle-driven protein modifications define fabrication boundaries to improve biomechanical properties.**
» Dr. Malcolm Snead

11:30am **Fracture Assessment of Cortical Bone at Microscopic Length-scale**
» Dr. Ange Therese Akono

11:45am **Modeling of Mechancial Behavior of Bio-inspired Nacre-like Materials Using Discrete Element Simulations**
» Ms. Kaoutar Radi, Prof. David Jauffres, Prof. Christophe L Martin, Mr. Hassan Saad, Prof. Sylvain Deville

10:30am **KEYNOTE / MS41 - Coupled processes in porous materials: characterization and modeling; Part 1**

10:30am **Analysis of Penetration Problems in Geomechanics with the Particle Finite Element Method**
» Prof. Antonio Gens, Mr. Lluis Monforte, Dr. Marcos Arroyo, Dr. Josep Maria Carbonell

10:30am **KEYNOTE / MS39 - Machine Learning Enabled Geomechanics and Geotechnical Engineering; Part 1**

10:30am **Analysis of Penetration Problems in Geomechanics with the Particle Finite Element Method**
» Prof. Antonio Gens, Mr. Lluis Monforte, Dr. Marcos Arroyo, Dr. Josep Maria Carbonell

10:30am **MS44 - Architected Materials: Advances in Modeling, Design, Fabrication, Characterization, and Applications; Part 1**

10:30am **Pattern Transformations via Instabilities in Soft Heterogeneous Materials with Applications for the Design of Functional Metamaterials**
» Mr. Jian Li, Dr. Tarkes Dora P, Dr. Viacheslav Slesarenko, Prof. Stephan Rudykh

10:45am **Mechanical Response of Heterogeneous Materials using the Recursive Projection Method**
» Ms. Xiaoyao Peng, Dr. Dhriti Nepal, Prof. Kaushik Dayal

11am **Strength of additively manufactured brittle cellular materials**
» Ms. Sirui Bi, Mr. Enze Chen, Prof. Stavros Gaitanaros

11:15am **Architected Granular Materials With Adaptive Energy Absorption**
» Dr. Yifan Wang, Dr. Brian Ramirez, Mr. Kalind Carpenter, Dr. Christina Naify, Dr. Douglas Hofmann, Prof. Chiara Daraio

Continued from **Wednesday, 19 June**

11:30am **IMPERFECTIONS BY DESIGN: TUNABLE INTERACTIVE BUCKLING AND POSTBUCKLING IN ARCHITECTED ACTUATING UNITS**
» Mr. Yinghao Zhao, Mr. Amal Jerald Joseph Maria Joseph, Mr. Chunping Ma, Mr. Zhiwei Zhang, Mr. Burak Gul, Dr. Nan Hu

11:45am **Topological dynamics of structural Maxwell lattices**
» Dr. Jihong Ma, Dr. Di Zhou, Prof. Kai Sun, Prof. Xiaoming Mao, Prof. Stefano Gonella

11am **MS32 - Computational and Experimental Methods for Assessing Wind Effects on the Built Environment; Part 2**

11am **Inflow and model-form uncertainty quantification in CFD-enabled aerodynamic shape optimization**
» Ms. Fei Ding, Prof. Ahsan Kareem

11:15am **Uncertainty quantification in LES of wind loading**
» Mr. Giacomo Lamberti, Prof. Catherine Gorle

11:30am **Inflow boundary conditions for urban flow predictions using data assimilation**
» Dr. Jorge Sousa, Prof. Catherine Gorle

11:45am **Empirical approach for assessment of tornado-induced loads on transmission towers by using their aerodynamic coefficients**
» Mr. Saransh Dikshit, Dr. Alice Alipour, Prof. Partha P. Sarkar, Dr. Alireza Razavi, Mr. Mohammad Jafari

11am **MS39 - Machine Learning Enabled Geomechanics and Geotechnical Engineering; Part 2**

11am **Deep Convolutional Neural Networks for Heterogeneous Material Homogenization**
» Mr. Yanhui Jiang, Mr. Chengping Rao, Dr. Ruiyang Zhang, Prof. Yang (Emily) Liu

11:15am **A machine learning-based paradigm to model granular materials**
» Dr. Utkarsh Mital, Prof. José Andrade

11:30am **Machine Learning Based Multiscale Modeling of Backward Erosion Piping**
» Dr. Alessandro Fascetti

11:45am **Bootstrapping critical state plasticity models for predicting cyclic undrained responses of granular materials with a hierarchical knowledge polytree**
» Mr. Nick Vlassis, Prof. Wai Ching Sun

12pm **Lunch**
Beckman Mall

12pm **Structural Health Monitoring and Control- Student Competition**
Ramo (371)
Chaired by: Prof. Hae Young Noh

12pm **Probabilistic Methods- Student Competition**
Steele 102 (130)
Chaired by: Prof. Michael Shields

12pm **Dynamics- Student Competition**
Firestone 384 (76)
Chaired by: Michelle Barbato

12pm **Objective Resilience - Student Competition**
Chaired by: Mohammad Ettouney

12pm **Modeling Inelasticity & Multiscale Behavior - Student Competition**
Chaired by: Prof. Chung Song

1pm **Plenary 2**
Beckman Auditorium (1,136)

Continued from **Wednesday, 19 June**

Large deformation modeling of soil-fluid mixture - macro and micro scales
» Prof. Kenichi Soga

2pm **MS80: Structural Identification and Damage Detection; Part 2**
Ramo (371)

2pm **Damage Identification in Steel Buildings using Nonlinear Structural Models and Seismic Networks**
» Mr. Filippos Filippitzis, Dr. MONICA KOHLER, Prof. Thomas Heaton

2:15pm **Cepstral Coefficients, a new feature for Structural Damage Assessment**
» Dr. Marcello Morgantini, Prof. Raimondo Betti

2:30pm **Streamlined Long-Term Structural Monitoring with Dense Instrumentation via Model Reduction**
» Dr. Rodrigo Sarlo, Dr. Serkan Gugercin

2:45pm **Investigations into Inverse-Based Local Damage Identification on Large Scale Truss Structure Using Sparse Vector Recovery**
» Mr. Chandler Smith, Prof. Eric Hernandez

3pm **Application of a Sub-Structuring Approach for Enhanced Change Detection, Localization, and Quantification in a 52-Story Building Model**
» Dr. Mohamed Abdelbarr, Dr. Anthony Massari, Dr. MONICA KOHLER, Prof. Sami Masri

3:15pm **Probability of Detection using Dense Sensor Networks**
» Ms. Jin Yan, Dr. Simon Laflamme, Mr. Jonathan Hong, Dr. Jacob Dodson, Dr. An Chen

2pm **MS90 - Machine Learning and Data Analytics for Infrastructure Integrity Assessment; Part 2**
Steele 102 (130)

2pm **Deep actor-critic reinforcement learning for life-cycle control of large-scale structural environments**
» Mr. Charalampos Andriotis, Dr. Kostas G. Papakonstantinou

2:15pm **Deep Learning Enabled Nonlinear Structural Response Modeling and Fragility Analysis**
» Dr. Ruiyang Zhang, Mr. Zhao Chen, Prof. Oral Buyukozturk, Prof. Hao Sun

2:30pm **Vision-based bridge component recognition and position estimation toward rapid automated inspection**
» Mr. Yasutaka Narazaki, Mr. Vedhus Hoskere, Mr. Tu Hoang, Prof. Billie F. Spencer

2:45pm **Identification of brittle and ductile fracture in metals using supervised machine learning**
» Dr. Dayakar Lavadiya, Dr. Ravi Yellavajjala

3pm **Nonlinear Seismic Response Reconstruction and Performance Assessment of Instrumented Wood-frame Buildings - Validation using NEESWood Capstone Full-Scale Tests**
» Mr. Milad Roohi, Prof. Eric Hernandez, Prof. David Rosowsky

3:15pm **New Advance in Full-field Imaging and High-fidelity Characterization of Structural Dynamics**
» Dr. Yongchao Yang, Mr. Charles Dorn

2pm **MS92 - Advances in computational methods for rapid uncertainty quantification and robust/performance-based design of civil structures/systems exposed to natural and man-made hazards; Part 2**
Kerckhoff 119 (174)

2pm **Efficient approach to performance-based design optimization of dynamic and uncertain structural systems under system-level constraints on wind-induced losses**
» Ms. Arthriya Suksuwan, Dr. Seymour Spence

Continued from **Wednesday, 19 June**

2:15pm **A stochastic simulation framework for the efficient performance assessment of the building envelope of engineered systems**
» Mr. Zhicheng Ouyang, Dr. Seymour Spence

2:30pm **Uncertainty quantification for power and telecommunications infrastructure exposed to hurricane hazards**
» Dr. Shuoqi Wang, Prof. Dorothy Reed

2:45pm **Efficient reliability analysis by probability-adaptive Kriging in n-ball (PAK-Bn)**
» Mr. Jungho Kim, Prof. Junho Song

3pm **Probabilistic Prediction of Nonlinear Hysteretic Responses under Stochastic Excitations by Deep Neural Network**
» Mr. Taeyong Kim, Prof. Junho Song, Prof. Oh-sung Kwon

3:15pm **A Bayesian Nonparametric Approach for the Stochastic Dynamic Analysis**
» Mr. Armin Tabandeh, Prof. Paolo Gardoni

2pm **MS59 - Innovations and Advances in Passive Structural Control; Part 2**
Firestone 384 (76)

2pm **Innovative Modelling for capturing sloshing in TLCD**
» Dr. Antonina Pirrotta

2:15pm **Numerical Analysis and Design Optimization of a Novel Eddy Current Damper**
» Dr. Manuel Miranda

2:30pm **Evaluation of energy and power flow in a nonlinear energy sink attached to a linear primary dynamic system**
» Mr. Christian Silva, Prof. Shirley Dyke, Dr. Amin Maghareh, Dr. James Gibert

2:45pm **Preliminary Investigation of Seismic Isolation Systems with Geometric Nonlinearity for Important Equipment**
» Dr. Chia-Ming Chang, Mr. Ting-Wei Hsu

3pm **Modeling, characterizing, and testing a simple negative-stiffness device to achieve apparent weakening**
» Mr. Thomas Cain, Prof. P. Scott Harvey, Prof. Kenneth Walsh

3:15pm **Seismic retrofit of buildings using inter-story drift-dependent stiffening and supplemental damping**
» Mr. Christopher Zaverdas, Dr. Michael Symans

2pm **MS65+57 - Emerging Topics and New Developments in Structural Fire Engineering, Recent Advances in Performance-Based Engineering for Single and Multiple Hazards**
Gates-Thomas Hall Auditorium 135 (88)

2pm **Fire Engineering & intelligent Smoke and Heat Evacuation**
» Prof. Jean-Baptiste Schleich

2:15pm **Microstructure of Post-fire Structural Steels**
» Mr. Hizb Ullah Sajid, Dr. Ravi Yellavajjala

2:30pm **Comparison of Simple and Advanced Methods of Analysis in AISC 360 for Fire Resistant Design**
» Dr. Rachel Chicchi

2:45pm **Eurocode 1 and NFPA 557: Is there a conflict between using standards and the goal of Performance Based Fire Engineering?**
» Dr. Luciana Balsamo, Dr. Reyhaneh Abbasi, Dr. Pierre Ghisbain, Dr. Reza Imani, Dr. Jenny Sideri, Dr. Ali Ashrafi

3pm **Accelerating simulation of wind field with time-varying correlation based on two-dimensional singular value decomposition**
» Mr. Haifeng Wang, Dr. Teng Wu

Continued from **Wednesday, 19 June**

3:15pm **Tensile strength of Grade 10.9 steel bolts at elevated temperatures**
» Dr. Abbas Rezaeian, Dr. Mostafa Eskandari, Dr. Mohammadreza Eslami, Prof. Khalid M. Mosalam, Dr. Mahdi Shafiei

2pm **MS13 - Computational Methods and Applications for Solid and Structural Mechanics; Part 2**

2pm **Simulation of Reinforced Concrete Structures via Lattice Discrete Particle Model (LDPM) Coarse Graining**
» Dr. Erol Lale, Dr. Roozbeh Rezakhani, Prof. Mohammed Alnaggar, Prof. Gianluca Cusatis

2:15pm **3D Discrete Element Contact Model for the Simulation of the Rheological Behavior of Concrete at Fresh state**
» Mrs. Elham Ramyar, Dr. Xinwei Zhou, Prof. Gianluca Cusatis

2:30pm **Modeling Early-Age Cracking in Concrete Using Phase-Field Model of Fracture**
» Mr. Vivek Kumar, Prof. Branko Glisic

2:45pm **Multi-scale Homogenization Modeling of Ultra High Performance Concrete**
» Mr. TATHAGATA BHADURI, Dr. Roozbeh Rezakhani, Prof. Mohammed Alnaggar

3pm **Comparison of Mechanical Performance between Numerical Simulations and Analytically Idealized Spring Systems for Concrete made with Recycled Aggregates**
» Mr. Anuruddha Jayasuriya, Dr. Matthew P. Adams, Dr. Matthew J. Bandelt

3:15pm **Effect of strain induced crystallization on fracture of rubber-like materials**
» Mr. Prajwal Arunachala, Mr. Reza Rastak, Prof. Christian Linder

2pm **MS17 - Meshfree, Peridynamics, and Particle Methods: Contemporary Methods and Applications; Part 1**

2pm **Addressing Near Incompressibility and Other Recent Developments in Meshfree and Coupled IGA-Meshfree Methods**
» Prof. Yuri Bazilevs, Dr. Georgios Moutsanidis, Mr. Jacob Koester, Dr. Michael Tupek, Prof. J. S. Chen

2:15pm **Numerical convergence of state based peridynamic models for fracture**
» Prof. Robert Lipton, Dr. Prashant Jha

2:30pm **Strong form meshfree collocation method for nonlinear problems in solid mechanics**
» Dr. Jeong-Hoon Song, Mr. Ashkan Almasi, Mr. Andrew Beel, Mr. Peter Schaefferkoetter

2:45pm **Implementation of Peridynamics utilizing HPX -- the C++ standard library for parallelism and concurrency**
» Dr. Patrick Diehl

3pm **Local-Peridynamic Coupling with the Splice Method**
» Dr. Stewart Silling

3:15pm **Enhanced meshfree approximation and extrapolation with application to particle methods**
» Prof. Francis Narcowich

2pm **MS22 - Stability and failure of structures and materials; Part 2**

2pm **Experimental investigation of shear characteristics and failure in sandwich beams with cores comprising steel hollow sphere assemblies.**
» Dr. Stylianos Yiatros, Dr. Orestes Marangos, Prof. Feargal Brennan

2:15pm **The Synergetic Thermo-Acoustic and Magneto-Acoustic Emitting from Free-standing Nano-Thin Film**
» Mr. Yida MAO, Prof. CW Lim, Prof. Tianyun Li

2:30pm **Nonlinear behaviors of shallow lattice domes**
» Ms. Yue Guan, Prof. Lawrie Virgin, Mr. Daniel Helm

Continued from **Wednesday, 19 June**

2:45pm **The influence of distortional buckling mode on the buckling and postbuckling behaviour of CFS lip channel section beam under pure bending**
» Ms. Monika Kamocka, Prof. Zbigniew Kolakowski, Mr. Filip Kazmierczyk, Prof. Tomasz Kubiak

3pm **Effect of Thickness on the Equilibrium Path of Axially Loaded Cylindrical Shells**
» Mr. Ruben Adorno, Dr. Anthony Palazotto

3:15pm **Recent developments in experimental path-following**
» Dr. Rainer Groh, Dr. Robin Neville, Dr. Jiajia Shen, Dr. Alberto Pirrera, Dr. Mark Schenk

2pm MS28 - Novel Methods in imaging and multiscale characterization of damage in complex materials

2pm **High-resolution remote acoustic sensing of damage in vibrating plates**
» Mr. Tyler Flynn, Dr. David Dowling

2:15pm **Elastic Waveform Tomography of Spent Nuclear Fuel Casks**
» Mr. Othman Oudghiri-Idrissi, Prof. Bojan B. Guzina

2:30pm **Monitoring of cracks using transmission eigenvalues with artificial backgrounds**
» Mr. Kevish Napal, Prof. Houssem Haddar, Dr. Laurenzo Audibert, Dr. Lucas Chesnel

2:45pm **Evaluation of Damage in Rocks through Ultrasonic Imaging and Digital Image Correlation**
» Dr. Reza Hedayat, Dr. Gabriel Walton, Mr. Deepanshu Shirole

3pm **Differential imaging of evolution in elastic backgrounds with unknown microstructure**
» Dr. Fatemeh Pourahmadian, Mr. Hao Yue

3:15pm **Application of Variable-Order Fractional Operators to the simulation of Nonlinear Oscillators**
» Mr. Sansit Patnaik, Dr. Fabio Semperlotti

2pm MS32 - Computational and Experimental Methods for Assessing Wind Effects on the Built Environment; Part 3

2pm **Vibration response, rivulet dynamics and flow structures of rain-wind induced vibrations of a flexible stay cable**
» Prof. Wen-Li Chen, Mr. Donglai Gao, Prof. Hui Li

2:15pm **Experimental and Numerical Simulation of Yopographic Effects over Idealized Three-Dimensional Hills Induced by Downburst Wind Flows**
» Dr. Bowen Yan, Ms. Chenyan Ma, Mr. Kangkang Liu, Prof. Qingshan Yang, Prof. Xuhong Zhou

2:30pm **Performance of tall-wood buildings under wind loads**
» Mr. Matiyas Bezabeh, Prof. Girma Bitsuamlak, Prof. Solomon Tesfamariam

2:45pm **Optimal design of tall buildings using cyber-physical aeroelastic wind tunnel experiments**
» Mr. Michael Whiteman, Dr. Pedro Fernandez-Caban, Prof. Brian Phillips, Prof. Forrest Masters, Prof. Jennifer Bridge, Dr. Justin Davis

3pm **Downburst Simulations at The NHERI Wall of Wind Experimental Facility**
» Prof. Amal Elawady, Mr. Alvaro Mejia, Prof. Peter Irwin, Prof. Arindam Chowdhury

3:15pm **3D Post-flutter Analysis of A Long-span Bridge using Deep LSTM Networks**
» Mr. Tao Li, Dr. Teng Wu

2pm MS33 - Modeling particle-fluid systems

2pm **The role of size on the collapse of granular columns in fluid**
» Dr. Krishna Kumar, Prof. Kenichi Soga, Prof. Jean-yves Delenne

Continued from **Wednesday, 19 June**

2:15pm **CFD-DEM modelling of evolution of elastic strain energy during stick-slip dynamics in fluid saturated granular faults**
» Dr. Omid Dorostkar, Prof. Jan Carmeliet

2:30pm **DEM-SPH coupling algorithm with Dilated polyhedral elements**
» Prof. Shunying Ji, Dr. Lu Liu

2:45pm **Dense-phase Fluid-particle Interaction in Varying Fracture Geometries and Particle Concentration Distributions**
» Mr. Brian Yamashiro, Dr. Ingrid Tomac

3pm **Coupled Three-Dimensional Discrete Element-Lattice Boltzmann Methods for Fluid-Solid Interaction with Polyhedral Particles**
» Dr. Michael Gardner, Prof. Nicholas Sitar

3:15pm **Microscopic analysis of capillary processes in unsaturated granular media with X-ray CT**
» Dr. Marius Milatz, Prof. Jürgen Grabe

2pm **MS74 - 4th Mini-Symposium on 4M (Modeling of Multiphysics-Multiscale-Multifunctional) Engineering Materials and Structures; Part 2**

2pm **Clever mechanisms and strategies found in the architecture of some naturally occurring materials**
» Prof. Pablo Zavattieri

2:15pm **Thermal strain and cracking analysis of layered composites towards the design of solar blinds**
» Mr. Yanchu Zhang, Prof. Huiming Yin

2:30pm **Numerical simulation of drained Piezocone penetration tests for saturated clayey soils to obtain strength of soils at residual-wet-drained condition**
» Prof. Chung Song, Mr. Binyam Bekele

2:45pm **Molecular Dynamics Modeling and Simulation of Bituminous Binder Chemical Aging Due to Variation of Oxidation Level and Molecular Group Fraction**
» Mr. Farshad Fallah, Dr. Fardin Khabaz, Prof. Yong-Rak Kim

3pm **SIZE EFFECTS IN METALS FROM MD SIMULATION TO STRAIN GRADIENT PLASTICITY**
» Dr. George Voyiadjis, Dr. Yooseob Song, Dr. Mohammadreza Yaghoobi

3:15pm **Virtual Experiments of Phase Change Material Filled Concrete for Energy Efficient Buildings**
» Mr. Chunlin Wu, Dr. Zhenhua Wei

2pm **MS102 - Recent Advances on the Dynamics of Unanchored Objects: Applications to Rocking and Sliding Systems; Part 2**

2pm **Dynamics of Unanchored Objects Considering Impact with Nearby Boundaries**
» Prof. Dimitrios Konstantinidis, Dr. Yu Bao

2:15pm **A robust implementation of Rigid contact models for Slide-Rocking Bodies with Arbitrary Geometry**
» Mr. M. David Burton, Prof. Manolis Chatzis

2:30pm **Computational Modeling of Hybrid Sliding-Rocking Bridge Columns Subjected to Multiaxial Loading**
» Mr. Mohammad Salehi Najafabadi, Dr. Petros Sideris, Dr. Abbie Liel

2:45pm **The Role of Supplemental Damping on the Rocking Response of Free-Standing Columns**
» Prof. Nikolaos Makris, Dr. Mehrdad Aghagholizadeh

2pm **MS100 - Risk and Resilience Assessment of Civil Infrastructure Systems; Part 1**

2pm **GPU-accelerated earthquake simulations for large scale urban cities**
» Mr. Mert Uysal, Prof. Zeynep Tuna Deger, Prof. Gian Paolo Cimellaro

Continued from **Wednesday, 19 June**

2:15pm **Resilience-based building safety target determination framework**
» Mr. Vamshi Gudipati, Prof. Eun Jeong Cha

2:30pm **Quantifying the Resilience of Multi-modal Transit Networks in Canada**
» Ms. Rasha Hassan, Dr. Mohamed Ezzeldin, Dr. Moataz Mohamed, Prof. Wael El-Dakhakhni

2:45pm **Finite Element Analysis of Resilience: A New Paradigm**
» Prof. Hussam Mahmoud, Mr. Akshat Chulahwat

3pm **Bayesian network based probabilistic decision-support framework for community resilience enhancement**
» Dr. Sabarethinam Kameshwar, Prof. Daniel Cox, Dr. Andre Barbosa, Dr. Karim Farokhnia, Dr. Hyoungsu Park, Mr. Mohammad Alam, Prof. John Van De Lindt

3:15pm **Integrating decomposition algorithm and sampling techniques for reliability analysis of multi-state infrastructures**
» Ms. Ji-Eun Byun, Prof. Junho Song

2pm MS1 - 18th Symposium on Biological and Biologically Inspired Materials and Structures; Part 2

2pm **Deciphering the mechanical function of the bristles from Platynereis Dumerilii larvae: a kinematic approach.**
» Mr. Luis Zelaya-Lainez, Dr. Giuseppe Balduzzi, Dr. Kyojiro Ikeda, Prof. Florian Raible, Prof. Christian Hellmich

2:15pm **Hierarchical Elastoplasticity of Bone**
» Mrs. Valentina Wittner, Dr. Claire Morin, Prof. Christian Hellmich

2:30pm **Mechanics as a New Marker for Cancer Metastasis to Bone**
» Prof. Kalpana Katti, Dr. Md. Shahjahan Molla, Mr. Sumanta Kar, Prof. Dinesh Katti

2:45pm **Bio-inspired cementitious material: Effect of biomolecules on calcium-silicate-hydrate**
» Prof. Ali Ghahremaninezhad, Dr. Mahsa Kamali

3pm **Computational modeling of valve interstitial cells in a three-dimensional environment**
» Dr. Emma Lejeune, Mr. Alex Khang, Dr. Michael Sacks

3:15pm **Human Stromal Cells to Form New Bone in a Bone-on-Chip**
» Ms. Nabila Gaci, Ms. Samantha Sanders, Dr. Bertrand Cinquin, Dr. Patrick Tauc, Dr. Morad Bensidhoum, Prof. Hugues Portier, Prof. Elisa Budyn

2pm MS41 - Coupled processes in porous materials: characterization and modeling; Part 2

2pm **Poromechanics of Unsaturated Materials with Capillarity and Adsorption and Generalization of BET Sorption Isotherm**
» Prof. Zdenek Bazant, Mr. Hoang Nguyen, Mr. Saeed Rahimi-Aghdam

2:15pm **Modelling chemo-mechanics of reactive granular materials**
» Mr. Parol Viswanath, Dr. Arghya Das

2:30pm **Poroelastic Solutions for the Nonlinear Productivity Index of Deformable Reservoir Rocks**
» Mr. Wei Zhang, Dr. Amin Mehrabian

2:45pm **Fracture propagation in reactive porous media**
» Dr. Igor Shovkun, Prof. Nicolas Espinoza

3pm **Experimental Study and Modeling of Biogas Formation in Homogeneous Porous Media**
» Mr. Daehyun Kim, Dr. Nariman Mahabadi, Prof. Jaewon Jang, Dr. Leon van Paassen

3:15pm **CFD-DEM Modeling of Fluid-Driven Fracture Initiation**
» Mr. Zhuang Sun, Prof. Nicolas Espinoza, Prof. Matthew Balhoff

Continued from **Wednesday, 19 June**

2pm **MS39 - Machine Learning Enabled Geomechanics and Geotechnical Engineering; Part 3**

2pm **Prediction of Freezing and Thawing Depths using Deep Learning Long Short-Term Memory**
» Ms. Aynaz Biniyaz, Dr. Zhen Liu

2:15pm **Scattering of In-Plane Shear Waves by Wedge-Shaped Irregularities: Integration of Elastodynamics and Machine Learning**
» Dr. Kami Mohammadi, Mr. Peyman Ayoubi, Dr. Utkarsh Mital, Prof. Domniki Asimaki

2:30pm **Reconstructing granular particles from X-ray computed tomography using the TWS machine learning tool and the level set method**
» Dr. Zhengshou Lai, Prof. Qiushi Chen, Prof. Linchong Huang

2:45pm **Support vector machine-based statistical evaluation of slope stability with random field soil properties**
» Prof. Linchong Huang, Mr. Shuai Huang, Dr. Zhengshou Lai

3pm **A deep-learning framework for inference in geomechanics**
» Dr. Ehsan Haghighat, Prof. Ruben Juanes

3:15pm **Stability Analysis of Slopes with Deep Learning**
» Mr. Behnam Azmoon, Dr. Zhen Liu

2pm **MS44 - Architected Materials: Advances in Modeling, Design, Fabrication, Characterization, and Applications; Part 2**

2pm **Analytical solutions for rotations of material line and plane in triple-slip, with coupled inverse solutions for bcc crystals applied to a finite-deformation experiment on iron**
» Dr. Kerry Havner

2:15pm **Ultra High Thermal Expansion Metamaterials**
» Dr. Semih Taniker, Dr. Paolo Celli, Prof. Chiara Daraio

2:30pm **Topology Optimization of Lattices Considering Topology-Dependent Bonding**
» Mr. Hak Yong Lee, Prof. James Guest

2:45pm **Omnidirectional flexural invisibility of multiple interacting voids**
» Dr. Diego Misseroni, Prof. Davide Bigoni, Prof. Alexander Movchan

3pm **Topology optimization of light stiff lattice architectures with length scale and complexity control**
» Mr. Seyed Ardalan Nejat, Dr. Mazdak Tootkaboni, Dr. Alireza Asadpoure

3:15pm **Periodic Cellular Materials with Temperature- and Stress-induced Phase Transformations**
» Ms. Yunlan Zhang, Prof. Mirian Velay-Lizancos, Mrs. Kristiaan Hector, Prof. David Restrepo, Dr. Nilesh Mankame, Prof. Pablo Zavattieri

3:30pm **Coffee break/Poster session**

4pm **MS87+92 - Advanced deep learning based SHM with/without UAVs, Advances in computational methods for rapid uncertainty quantification and robust/performance-based design of civil structures/systems exposed to natural and man-made hazards**
Ramo (371)

4pm **InstaDam: A semi-automated tool for rapid pixel-wise annotation of structural cracks and damage**
» Mr. Vedhus Hoskere, Prof. Billie F. Spencer

4:15pm **Multiple Concrete Damage Detection using Mask R-CNN**
» Mr. Byunghyun Kim, Prof. Soojin Cho

4:30pm **Using Deep Convolutional Neural Networks for Autonomous Detection of Bridge Deck Defects**
» Dr. Sattar Dorafshan, Ms. Sara Mohamadi, Dr. Hoda Azari, Dr. David Lattanzi

Continued from **Wednesday, 19 June**

4:45pm **Real-time damage segmentation using advanced deep learning**
» Prof. Youngjin Cha, Mr. Wooram Choi

5pm **Autonomous UAV for SHM with obstacle avoidance**
» Mr. Dong Ho Kang, Prof. Youngjin Cha

5:15pm **Markov Chain Based Multiple Importance Sampling for Rare Failure Event Estimation**
» Dr. Jiaxin Zhang, Prof. Antwan Clark

4pm **MS84 - Stochastic Methods and Data-Driven Approaches in Computational Mechanics**
Steele 102 (130)

4pm **Uncertainty Quantification in Molecular Dynamics Simulations Using a Stochastic Reduced Order Basis**
» Dr. Haoran Wang, Prof. Johann Guilleminot, Prof. Christian Soize

4:15pm **Performance Evaluation of Stochastic Finite Elements in Linear and Nonlinear Solid Mechanics**
» Mr. Nan Feng, Mr. Guodong Zhang, Prof. Kapil Khandelwal

4:30pm **Uncovering exploitable insight from microstructures using machine learning algorithms.**
» Dr. Audrey Olivier, Prof. Michael Shields, Prof. Lori Graham-Brady

4:45pm **Computational Generation and Stochastic Upscaling of Concrete Microstructure**
» Mr. Vasav Dubey, Ms. Christa E. Torrence, Prof. Yang Lu, Dr. Edward Garboczi, Dr. Zachary Grasley, Dr. Arash Noshadravan

5pm **Predicting the residual velocities for continuum plain-weave composite plate model under projectile impact**
» Mr. Anindya Bhaduri, Prof. Lori Graham-Brady, Prof. Michael Shields, Mr. Christopher Meyer, Dr. Bazle Haque, Prof. John Gillespie

5:15pm **Multi-model Bayesian material model calibration for probabilistic thermo-viscoplastic structural analysis**
» Mr. Aakash Bangalore Satish, Prof. Michael Shields

4pm **MS95 - Nondestructive Evaluation and Sensing Technologies for Characterization of Concrete Materials**
Kerckhoff 119 (174)

4pm **Impedance-Based Spatial Damage Sensing in Concrete Materials and Structural Members**
» Dr. Mo Li

4:15pm **Thermal modulation of nonlinear coda wave using ambient temperature change for concrete damage evaluation**
» Mr. Hongbin Sun, Prof. Jinying Zhu

4:30pm **NDT of 3D Printed Concrete Interlayer Bonds**
» Ms. Michelle Helsel, Dr. John Popovics, Dr. Peter Stynoski, Mr. Eric Kreiger

4:45pm **Determining Dynamic Elastic Modulus and Poisson's Ratio of Rectangular Timoshenko Beams**
» Prof. Roger Chen, Mr. Guadalupe Leon

5pm **Dynamics-based testing to localize macro cracking due to Alkali-Silica Reaction in Concrete**
» Ms. Sarah Miele, Dr. Pranav Karve, Prof. Sankaran Mahadevan, Dr. Vivek Agarwal, Dr. Eric Giannini, Prof. Jinying Zhu

5:15pm **Rapid global damage assessment of concrete samples by air-coupled non-linear signal impact resonance acoustic spectroscopy**
» Dr. Shukui Liu, Prof. Hongwen Jing, Prof. Jinying Zhu, Dr. Qi-ang Wang

4pm **MS62 - Complex Dynamics and Vibration Control of Structures under Single/Multiple Hazards**
Firestone 384 (76)

Continued from **Wednesday, 19 June**

4pm **Semi-active control of spar floating offshore wind turbines subjected to wind-wave and current loading**
» Mr. Vahid Jahangiri, Dr. Chao Sun

4:15pm **Comparative Real-time Hybrid Simulation Study of Controllable Damping Strategies for a Base-isolated Benchmark Structure**
» Ms. Qian Fang, Prof. Erik Johnson, Prof. Richard Christenson, Prof. Hideo Fujitani, Prof. Yoichi Mukai, Prof. Mai Ito

4:30pm **Regularized Model-Free Adaptive Control of Base Isolated Buildings**
» Mr. Alvaro Javier Flórez Martínez, Prof. Luis Felipe Giraldo, Prof. Mariantonieta Gutierrez Soto

4:45pm **Nonlinear dynamics of short-space electrical conductors under uniaxial periodic excitation**
» Ms. Yushan Fu, Prof. Mettupalayam Sivaselvan

5pm **Performance-Based Assessment of 20-Story SAC Building under Wind Hazards through Collapse**
» Ms. Azin Ghaffary, Dr. Mohamed Moustafa

5:15pm **Modeling human bouncing on a flexible structure using control models**
» Mr. Ahmed Alzubaidi, Dr. Juan Caicedo

4pm **MS57 - Recent Advances in Performance-Based Engineering for Single and Multiple Hazards**
Gates-Thomas Hall Auditorium 135 (88)

4pm **Bayesian Approach to Develop Business Recovery Models after Disaster Events: Application Study for the Community of Lumberton, NC following Hurricane Matthew**
» Mr. Mohammad Aghababaei, Dr. Maria Koliou, Ms. Maria Watson, Dr. Yu Xiao

4:15pm **An efficient reliability assessment framework for the performance-based wind design of inelastic structural systems**
» Ms. Wei-chu Chuang, Dr. Seymour Spence

4:30pm **Pounding Tuned Mass Damper for Vibration Control of Off-Shore Wind Turbine Subject to Combined Wind and Wave Excitation**
» Dr. Fan Kong, Dr. Chao Sun, Mr. xia hongbing

4:45pm **Performance assessment of friction pendulum systems under near-fault and long-period ground motions**
» Dr. Nicholas Oliveto

5pm **Performance-based loss estimation for tall buildings under ordinary and hurricane winds**
» Prof. Michele Barbato, Dr. Francesco Petrini

4pm **MS13 - Computational Methods and Applications for Solid and Structural Mechanics; Part 3**

4pm **A sequential non-iterative approach for modeling multi-ionic species reactive transport during localized corrosion**
» Mr. Xiangming Sun, Dr. Ravindra Duddu

4:15pm **A return-free integration for viscoelastoplastic models**
» Prof. Li-Wei Liu

4:30pm **Modelling the tension – torsion asymmetric yield behavior of Nitronic 40 steel**
» Dr. Jinyuan Zhai, Prof. Xiaosheng Gao, Prof. Jiliang Li, Prof. Stephen M. Graham

4:45pm **NONLINEAR BEAM ELEMENT WITH A 3D RESPONSE**
» Prof. Mauro Schulz

5pm **Modeling, Design, and Control of Tensegrity Structures Incorporating Active Materials**
» Mr. Gavin Butler, Prof. Edwin Peraza Hernandez

Continued from **Wednesday, 19 June**

5:15pm **Material Point Method for Beam Structures with Frictional Contact**
» Dr. Jingu Kang, Dr. Michael Homel, Dr. Eric Herbold

4pm **MS17 - Meshfree, Peridynamics, and Particle Methods: Contemporary Methods and Applications; Part 2**

4pm **A Harmonic-Enriched Reproducing Kernel Approximation for Highly Oscillatory Differential Equations**
» Prof. Sheng-Wei Chi, Dr. Ashkan Mahdavi

4:15pm **Anisotropy in Two-Dimensional and Planar Elasticity Bond-Based Peridynamics**
» Dr. Pablo Seleson, Dr. Jeremy Trageser

4:30pm **Data Transfer and Coupling of Native Fields with the Compadre Toolkit**
» Dr. Paul Kuberry, Dr. Mauro Perego, Dr. Nathaniel Trask, Dr. Pavel Bochev

4:45pm **An Immersed Volumetric Nitsche's Approach for Meshfree Analysis of Composites**
» Prof. Mike Hillman, Dr. Guohua Zhou

5pm **Granular flows vs. fluid flows: a look of at the similarities and differences**
» Mr. Milad Rakhsha, Mr. Conlain Kelly, Mr. Nicholas Olsen, Dr. Radu Serban, Prof. Dan Negrut

5:15pm **A Peridynamic Strain Tensor**
» Dr. Hailong Chen

4pm **MS24 - Advances in Experimental, Theoretical and Computational Fracture Mechanics**

4pm **A gradient damage theory for fracture of quasi-brittle materials**
» Prof. Lallit Anand, Mr. Sooraj Narayan

4:15pm **A phase field method for modeling fracture of bones**
» Mr. Rilin Shen, Prof. Haim Waisman, Prof. Zohar Yosibash, Ms. Gal Dahan

4:30pm **Size Effect Law for Microscopic Scratch Testing**
» Dr. Ange Therese Akono

4:45pm **Sub-Rayleigh and supershear rupture characteristics inferred from dynamic digital image correlation measurements.**
» Dr. Vito Rubino, Prof. Ares Rosakis, Prof. Nadia Lapusta

5pm **Fracture Mechanics Analysis of Cracked Structures with Residual Stress Fields using the Hypercomplex-Variable Finite Element Method**
» Dr. Arturo Montoya, Mr. Daniel Ramirez, Mr. Ernest Ytuarte, Dr. Harry Millwater

5:15pm **Statistical analysis of relation between texture and fracture properties in porous materials**
» Ms. Xuejing Wang, Dr. Mazdak Tootkaboni, Dr. Arghavan Louhghalam

4pm **MS32 - Computational and Experimental Methods for Assessing Wind Effects on the Built Environment; Part 4**

4pm **On the use of tuned mass dampers and self-centering systems to control hurricane-induced cumulative damage demands of tall buildings**
» Mr. Matiyas Bezabeh, Prof. Girma Bitsuamlak, Prof. Solomon Tesfamariam

4:15pm **Identification of aerodynamic load parameters to predict dry/ice galloping and buffeting response of power transmission lines**
» Mr. Mohammad Jafari, Prof. Partha P. Sarkar

4:30pm **Large eddy simulation of atmospheric flow around a simple rectangular building using thermal perturbation and synthetic eddy turbulence generators**
» Dr. Goncalo Pedro, Prof. Amir Aliabadi

Continued from **Wednesday, 19 June**

4:45pm **Data-driven modeling of linear and nonlinear systems using LSTM networks**
» Dr. Ruilin Chen, Dr. Xiaowei Jin, Prof. Shujin Laima, Prof. Hui Li

5pm **A Modified Hybrid Model for Dynamic Response of a Spar-type Floating Wind Turbine under a Hurricane Event**
» Mr. Shaopeng Li, Dr. Teng Wu

5:15pm **CFD-based design of experiments for validation of natural ventilation models in Stanford's Y2E2 building**
» Ms. Chen Chen, Prof. Catherine Gorle

4pm MS31 - Gas hydrate-bearing sediments behavior: phase change and multiphase flow

4pm **X-Ray Micro-CT Observation of Methane Hydrate Growth and Dissociation in Sandy Sediments**
» Prof. Nicolas Espinoza, Dr. Xiongyu Chen, Mr. Jeffery Luo, Prof. Nicola Tisato, Prof. Peter Flemings

4:15pm **Numerical Modeling of Gas Hydrate-Bearing Sediments Behavior Under Isotropic Consolidation with Gas Hydrate Dissociation**
» Dr. Xuerui Gai, Dr. Shun Uchida, Dr. Evgeniy Myshakin, Dr. Jeenshang Lin, Dr. Liang Lei, Dr. Yongkoo Seol

4:30pm **Numerical study of CO2-CH4 hydrate exchange within gas hydrate-bearing sediments**
» Ms. Shuman Yu, Dr. Shun Uchida

4:45pm **Crustal fingering facilitates free gas migration through the hydrate stability zone**
» Dr. Xiaojing Fu, Prof. Joaquin Jimenez-Martinez, Dr. William Carey, Dr. Hari Viswanathan, Prof. Luis Cueto-Felgueroso, Prof. Ruben Juanes

5pm **A Virtual Database of Relative Water and Gas Permeability for Hydrate-Bearing Sediments**
» Dr. Nariman Mahabadi

5:15pm **Geomechanical Characteristics of Hydrate-bearing Sands**
» Prof. Jeffrey Priest, Mr. Mohammad Abbas, Prof. Jocelyn Hayley

4pm MS78 - Multiphysics Analysis of Geo-energy Problems involving Non-isothermal Processes

4pm **Multiscale modeling of soil thermal collapse**
» Prof. Alessandro F. Rotta Loria, Dr. Jibril B. Coulibaly

4:15pm **Coupled THM Modeling of a Large Scale Barrier Experiment Mimicking High-Level Radioactive Waste Disposal Conditions**
» Prof. Marcelo Sánchez, Dr. Beatrice Pomaro, Prof. Antonio Gens

4:30pm **Effect of Heat Transfer Mechanisms on Thermal Response of Horizontal Heat Exchangers**
» Mr. Matthew Hayes, Dr. Tugce Baser, Dr. Ayse Ozdogan Dolcek

4:45pm **Coupled thermo-hydro-mechanical analysis of unsaturated subgrade soils under freeze-thaw cycles**
» Mr. Zhuang Zhuo, Dr. Ayman Ali, Dr. Yusuf Mehta, Dr. Cheng Zhu

4pm MS74 - 4th Mini-Symposium on 4M (Modeling of Multiphysics-Multiscale-Multifunctional) Engineering Materials and Structures; Part 3

4pm **Microstructural-Nanomechanical-Chemical Mapping to Examine Material-Specific Characteristics of Cementitious Interphase Regions**
» Ms. Mahdieh Khedmati, Prof. Yong-Rak Kim, Prof. Joseph Turner

4:15pm **PRISMS-Plasticity Crystal Plasticity Finite Element Software**
» Dr. Mohammadreza Yaghoobi, Dr. Sriram Ganesan, Mr. Srihari Sundar, Mr. Aaditya Lakshmanan, Prof. John Allison, Prof. Veera Sundararaghavan

Continued from **Wednesday, 19 June**

4:30pm **A fully coupled peripоromechanics model for modelings multiphysics behaviour of unsaturated porous media with chemical effect**
» Prof. Xiaoyu Song, Mr. Shashank Menon

4:45pm **Design and Simulation of a Novel Wave Energy Converter for High Energy Harvesting Efficiency**
» Mr. Tengxiang Wang, Dr. Junhui Lou

5pm **Additive Manufacturing of Self-Healing Elastomers**
» Mr. KUN-HAO YU, Prof. Qiming Wang

5:15pm **Multiscale Modeling of Cracking in Heterogeneous Materials Using an Adaptive Element Elimination Method**
» Mr. Keyvan Zare-rami, Prof. Yong-Rak Kim

4pm **MS100 - Risk and Resilience Assessment of Civil Infrastructure Systems; Part 2**

4pm **Quantification of Resourcefulness for community Resilience framework**
» Mr. Alessandro Zona, Mr. Omar Kammouh, Prof. Gian Paolo Cimellaro

4:15pm **Probabilistic Resilience Distance Measures and Application for Rural Power Distribution Systems**
» Mrs. Prativa Sharma, Dr. Zhiqiang Chen

4:30pm **RELIABILITY ASSESSMENT MODELLING OF DETERIORATING CAST IRON WATER MAINS SUBJECTED TO MOISTURE INDUCED SOIL EXPANSION**
» Mr. Piyius Raj Singh, Prof. Amit Kanvinde, Prof. Sriram Narasimhan

4:45pm **MULTISCALE RESILIENCE ASSESSMENT OF INTERDEPENDENT LIFELINE SYSTEMS SUBJECTED TO A SERIES OF EARTHQUAKES**
» Szu-Yun Lin, Prof. Sherif El-Tawil

5pm **Optimal Adaptive Monitoring of Redundant Systems of Binary Components**
» Mr. Chaochao Lin, Prof. Matteo Pozzi

5:15pm **Periodic barriers for seismic hazard mitigation of civil infrastructures**
» Ms. Hsuan Wen Huang, Dr. Kalyana B.Nakshatrala, Ms. Claryssa Merino, Ms. Kimberly Ruiz, Prof. Y. L. Mo

4pm **MS1 - 18th Symposium on Biological and Biologically Inspired Materials and Structures; Part 3**

4pm **Multiscale material modeling for improved phenotyping of oat stalk strength**
» Mr. Tarun Gangwar, Dr. Jo Heuschele, Prof. Kevin Smith, Prof. Alex Fok, Prof. Dominik Schillinger

4:15pm **Experimental and Numerical Investigation of the Mechanical and Fracture Properties of Rat Bone Based on a 3D-Multiscale Modeling Framework**
» Mr. Santosh Reddy Kommidi, Prof. Yong-Rak Kim, Prof. Do-gyoon Kim

4:30pm **Mechanical Modelling of Bio-Cemented Soils**
» Dr. Xuerui Gai, Prof. Marcelo Sánchez

4:45pm **Heterogenous Material Mapping Method Affects the Accuracy of Patient-specific Finite Element Models for Pelvic Reconstruction**
» Dr. Ata Babazadeh-Naseri, Dr. Nicholas Dunbar, Mr. Andrew Baines, Dr. John Akin, Dr. C. Fred Higgs Iii, Dr. Benjamin Fregly

5pm **Naturally motivated concrete healing**
» Ms. Jessica Rosewitz, Prof. Suzanne Scarlata, Prof. Nima Rahbar

5:15pm **Multi-functional Biomimetic Bioactive Biomaterials: Modular Rational Design with Tunable Properties**
» Prof. Candan Tamerler

4pm **MS41 - Coupled processes in porous materials: characterization and modeling; Part 3**

Continued from **Wednesday, 19 June**

4pm **Numerical simulations of viscoplastic Cosserat continua with thermo-chemical couplings**
» Dr. Hadrien Rattez, Prof. Manolis Veveakis

4:15pm **Identification of deformation instabilities caused by fluid injection in unsaturated porous media**
» Ms. Yanni Chen, Prof. Giuseppe Buscarnera

4:30pm **Geochemical alternation of the mechanical properties in sandstone formations**
» Dr. Marta Miletic, Dr. Lauren Beckingham

4:45pm **Prediction of tertiary creep in soils with varying degree of water saturation**
» Prof. Giuseppe Buscarnera, Ms. Yanni Chen, Dr. Ferdinando Marinelli

5pm **Contact Phase-Field Modeling for Materials with Spatial Irregularities**
» Mr. Alexandre Guevel, Prof. Manolis Veveakis, Dr. Hadrien Rattez

5:15pm **An implicit gradient model for the numerical modeling of strain localization in geomaterials**
» Mr. Dawei Xue, Prof. Xilin Lu, Dr. Keng-wit Lim

4pm MS38 - Advances in Analytical/Numerical Modeling of Petroleum Geomechanics Problems

4pm **Semi-analytical Method for Tracking the Evolution of Borehole Breakouts**
» Mr. N. Beni Setiawan, Prof. Robert Zimmerman

4:15pm **Kerogen Cracking as a Chemomechanical Approach to Hydraulic Fracturing in Organic-Rich Shales**
» Dr. Katherine Hull, Prof. Younane Abousleiman, Mr. David Jacobi

4:30pm **Generalized Solution to the Anisotropic Mandel's Problem**
» Dr. Chao Liu, Prof. Younane Abousleiman

4:45pm **Poroelastic Solution to the Generalized Brazilian Test**
» Dr. Amin Mehrabian, Prof. Younane Abousleiman

5pm **Coupled CFD-DEM-LAG Framework to Investigate Leakage of CO2 after Nanoparticle Injection in Geological Carbon Storage**
» Mr. Bang He, Prof. Pania Newell

5:15pm **Hydromechanical coupled hydraulic fracture simulation by using discretized virtual internal bonds**
» Prof. Zhennan Zhang, Mr. Yujie Wang

4pm MS46 - Origami/Kirigami Inspired Structures and Metamaterials

4pm **Origami Based Prestressed Compliant Mechanisms**
» Dr. Yang Li, Prof. Sergio Pellegrino

4:15pm **The Effect of Kirigami on Rigid-foldability**
» Mr. Zeyuan He, Prof. Simon Guest

4:30pm **Inspired by Nature – Fluidic Origami Metastructures**
» Prof. Kon-Well Wang

4:45pm **Local Actuation of Self-Stressed Origami Structures**
» Mr. Steven Grey, Prof. Fabrizio Scarpa, Dr. Mark Schenk

5pm **Origami wrapping patterns that are non-planar when unfolded**
» Dr. Manan Arya

5:15pm **Active Reconfigurable Origami Reflector Antenna (ARORA) for Shaping Radiation Contours**
» Mr. Gregory Wilson, Dr. Sameer Jape, Mr. Milton Garza, Mr. Collin Invie, Prof. Edwin Peraza Hernandez, Dr. Dimitris Lagoudas, Dr. Darren Hartl

Continued from **Wednesday, 19 June**

5pm **Journal of Engineering Mechanics (JAE) Editorial Board**
Gates-Thomas Room 235

Thursday, 20 June

8:30am **Plenary 3**
Beckman Auditorium (1,136)

3D experimental micromechanics at the grain scale: what for?
» Prof. Cino Viggiani

9:30am **Coffee break/Poster session**
Beckman Mall

10:30am **MS82 - Computer vision/Machine Learning for Structural Dynamics & SHM; Part 1**
Ramo (371)

10:30am **A universal attribute-based zero-shot knowledge graph learning framework for structural damage identification**
» Mr. Yang XU, Prof. Yuequan Bao, Prof. Hui Li

10:45am **Neural Compressive Sensing for Structural Health Monitoring**
» Prof. Yuequan Bao, Mr. Zhiyi Tang, Prof. Hui Li

11am **A Sparse Bayesian Learning Approach for Guided Wave Propagation Distance Inference**
» Ms. Meijie Zhao, Prof. Wensong Zhou, Prof. Yong Huang, Prof. Hui Li

11:15am **Vision-based SHM Case Study on Highway Bridge Test**
» Dr. Zheng Yi Wu, Mr. Maadh Hmosze, Prof. Harry W Shenton III

11:30am **Early-Stage Vision-Based Displacement Sensing Studies on Long-Span Suspension Bridges**
» Dr. Ekin Ozer, Dr. Rupa Purasinghe, Dr. Dongming Feng

11:45am **Physics-informed Structural Identification using Video Data**
» Dr. Zhilu Lai, Prof. Eleni Chatzi, Mr. Ignacio Alzugaray, Prof. Margarita Chli

10:30am **MS85+86+84 - Human-Machine Interfaces and Cyber Physical Systems for Visual Inspection, Non-Destructive Examination, and Structural Health Monitoring, Advanced vision-based SHM, Stochastic Methods and Data-Driven Approaches in Computational Mechanics**
Steele 102 (130)

10:30am **Novel Workability Test Method for Fresh Concrete using 3D Depth Sensor and 4D Slump Processing Algorithm**
» Prof. Jung-Hoon Kim, Mr. Minbeom Park

10:45am **Combining image-based documentation and augmented reality to create a cyber physical system for the built environment**
» Ms. Rebecca Napolitano, Mr. Ameen Moshirfar, Mr. Zachary Liu, Prof. Branko Glisic

11am **Use of Augmented Reality for time critical decision making in hazardous built environment**
» Mr. Dilendra Maharjan, Ms. Maria del Pilar Rodriguez, Mr. Marlon Aguero, Mr. David Mascarenas, Dr. Fernando Moreu

11:15am **Damage Assessment of Structure Using Vision-Based Floor Stiffness Evaluation Method**
» Mr. Insub Choi, Prof. Junhee Kim

11:30am **Fatigue crack monitoring of metallic structures through vision-based surface motion tracking using unmanned aerial vehicles**
» Prof. Jian Li, Mr. Sdiq Taher

11:45am **Accuracy of UAV Photogrammetry**
» Mr. Shanglian Zhou, Prof. Wei Song

Continued from **Thursday, 20 June**

10:30am **MS93 - Advances in Vision-based Structural Health Monitoring; Part 1**
Kerckhoff 119 (174)

10:30am **Deep Convolutional Neural Networks for Corrosion Detection and Semantic Segmentation**
» Dr. Zheng Yi Wu, Mr. Atiqur Rahman, Dr. Rony Kalfarisi

10:45am **Real-time Video Crack Detection Based on Fully Convolutional Network and Naïve Bayes Score Map Fusion**
» Mr. Fu-Chen Chen, Dr. Mohammad Jahanshahi

11am **Concrete crack identification using RGB-D camera**
» Mr. Hyunjun Kim, Prof. Sung-Han Sim

11:15am **A semantic segmentation and motion identification method based on convolutional neural network**
» Mr. Jin Zhao, Prof. Hui Li

11:30am **Multi-Class Classification for Pavement Surface Images Using Multi-Scale Convolutional Neural Networks**
» Ms. Elham Eslami, Prof. Hae-Bum Yun

11:45am **Pruning Deep Convolutional Neural Networks for Efficient Edge Computing in Structural Health Monitoring**
» Mr. Rih-Teng Wu, Mr. Ankush Singla, Dr. Mohammad Jahanshahi, Dr. Elisa Bertino

10:30am **MS60 - Earthquake Resilience and Cascading Effects; Part 1**
Firestone 384 (76)

10:30am **Effects of Simulated Magnitude 9 Earthquake Motions on RC Wall Structures in the Pacific Northwest**
» Prof. Jeffrey Berman, Dr. Nasser Marafi, Prof. Marc Eberhard

10:45am **Probabilistic seismic and tsunami damage analysis (PSTDA) for community resilience assessment**
» Dr. Hyoungsu Park, Prof. Daniel Cox, Mr. Mohammad Alam, Dr. Andre Barbosa, Prof. John Van De Lindt

11am **Characterizing Performance of Tessellated Structural-Architectural Systems**
» Mr. Mohammad Moeini, Prof. Negar Elhami-Khorasani, Dr. Pinar Okumus, Dr. Brandon Ross, Dr. Michael Carlos Barrios Kleiss

11:15am **A case study on generating building level fragility for functionality of a non-structural component**
» Dr. Negar Moharrami Gargari, Mr. Amir Sarreshtehdari, Prof. Negar Elhami-Khorasani

11:30am **A Stochastic Inventory Model with Disruptions across the Supply-Chain**
» Mr. Fabrizio Nocera, Prof. Paolo Gardoni

11:45am **Development of Underwater Shaking Table Array Testing Framework Considering FSI and SSI Coupling Effects: Identification and Verification**
» Prof. Ning Li, Mr. Jun Chen, Mr. Chen Zhou, Prof. Zhong-xian Li

10:30am **MS67 - Soil Dynamics and Soil-Structure Interaction**
Gates-Thomas Hall Auditorium 135 (88)

10:30am **DEM Simulations of the Seismic Response of Flexible Retaining Walls**
» Mr. Saman Farzi Sizkow, Dr. Usama El Shamy

10:45am **Model order reduction for holistic SSI modelling in earthquake and railway engineering applications**
» Dr. NIKOLAOS LESGIDIS, Prof. Anastasios Sextos, Dr. Lukas Moschen

11am **Passive-Seismic Material Inversion in a Truncated Halfspace**
» Dr. Chanseok Jeong

Continued from **Thursday, 20 June**

11:15am **Numerical modeling of single piles in improved soils under seismic loading**
» Ms. Sumangali Sivakumaran, Prof. Muralee Muraleetharan

11:30am **Measurement and numerical prediction of railway induced vibration in a three-storey building**
» Prof. Geert Degrande, Dr. Manthos Papadopoulos, Dr. Matthias Germonpre, Dr. Kirsty Kuo, Prof. Geert Lombaert

11:45am **Effects of Soil-Structure Interface Modeling on the Predicted Seismic Responses of a Tunnel**
» Dr. Omer Erbay, Dr. shugang tian, Dr. Qingjun Chen, Prof. Ertugrul Taciroglu

10:30am MS13 - Computational Methods and Applications for Solid and Structural Mechanics

10:30am **Automated Prediction of the Failure Response of Composite Materials: New Algorithms and High-Performance Computing**
» Prof. Soheil Soghrati, Mr. Anand Nagarajan, Mr. Ming Yang, Dr. Bowen Liang, Dr. Hossein Ahmadian

10:45am **Multiscale Virtual Element methods for heterogeneous media**
» Mr. Abhilash Sreekumar, Prof. Savvas Triantafyllou, Dr. François-Xavier Bécot, Mr. Fabien Chevillotte, Dr. Luc Jaoeun

11am **Thermal instabilities in frontally polymerized polymers and composites**
» Mr. Elyas Goli, Ms. Suzanne Peterson, Mr. Nil Parikh, Dr. Philippe Geubelle

11:15am **A Variational Multiscale Discontinuous Galerkin Method for Periodic Boundary Condition Modeling of RVE**
» Mr. Sunday Aduloju, Dr. Timothy Truster

11:30am **Transient Stress Analysis of Skew Sandwich Plate with FGM core subjected to Thermal Shock**
» Dr. Shashank Pandey, Dr. Pradyumna Sathyasimha

11:45am **Multiscale Dynamic Reduction for Spent Nuclear Fuel Systems**
» Mr. Xiaoshu Zeng, Dr. Olivier Ezvan, Dr. Bora Gencturk, Prof. Roger Ghanem

10:30am MS12 - Topology Optimization: From Algorithmic Development to Applications; Part 1

10:30am **Design of Auxetic Metamaterials under Finite Strain via Topology Optimization and Nonlinear Homogenization**
» Mr. Guodong Zhang, Prof. Kapil Khandelwal

10:45am **Accelerating Topology Optimization by means of the Scaled Boundary Finite Element Method and Hierarchical Meshes**
» Mr. Adrian Egger, Dr. Albert Saputra, Prof. Savvas Triantafyllou, Prof. Eleni Chatzi

11am **Topology Optimization of Rocking Braced Frames for Nonlinear Earthquake Response**
» Mr. Amory Martin, Prof. Gregory Deierlein

11:15am **Stochastic Methods for Topology Optimization with Many Load Cases**
» Prof. Xiaojia Shelly Zhang, Prof. Eric De Sturler, Prof. Alexander Shapiro, Prof. Glaucio Paulino

11:30am **Topology Optimization considering AM Support Structures**
» Mr. Mikhail Osanov, Mr. Justin Unger, Prof. James Guest

11:45am **A stress-based topology optimization of frame structures under loading uncertainty based on the second deviatoric stress invariant**
» Mr. Navid Changizi, Dr. Gordon P. Warn

10:30am MS21 - Modeling and Characterization of Brittle and Quasibrittle Fracture; Part 1

Continued from **Thursday, 20 June**

10:30am **An appropriate crack driving force function for the phase field approach to model mixed-mode brittle fracture**
» Mr. Vignesh Kumar Devendiran, Dr. Ravindra Duddu

10:45am **X-ray Tomography and Diffraction Measurements to Study Elasticity and Fracture in Concrete**
» Dr. Ryan Hurley, Dr. Darren Pagan

11am **Strength and Cohesive Behavior of Thermoset Polymers at the Microscale: A Size Effect Study**
» Mr. Yao Qiao, Mr. Shiva Goutham Pattapu, Prof. Marco Salviato

11:15am **Size Dependent Strength Distribution of Polycrystalline Silicon MEMS Structures**
» Prof. Jia-Liang Le, Mr. Zhifeng Xu, Prof. Roberto Ballarini

11:30am **Fracturing behaviors in discontinous fiber composite structures with different thicknesses**
» Mr. Seunghyun Ko, Mr. James Davey, Mr. Sam Douglass, Mr. Shiva Goutham Pattapu, Mr. Joshua Huang, Dr. Jinkyu Yang, Dr. Mark Tuttle, Prof. Marco Salviato

11:45am **Spectral Stiffness Microplane Model for Unidirectional Composites**
» Mr. Sean Phenisee, Prof. Marco Salviato

10:30am MS34 - Experimental and Computational Methods for Particulate Materials; Part 1

10:30am **NeXT-Grenoble: The Neutron and X-ray Tomograph in Grenoble**
» Dr. Alessandro Tengattini, Dr. Nicolas Lenoir, Dr. Edward Ando, Prof. Cino Viggiani

10:45am **In-Situ Studies of Grain Kinematics and Micromechanics Using X-Ray Techniques**
» Dr. Chongpu Zhai, Dr. Ryan Hurley, Dr. Stephen Hall, Dr. Eric Herbold

11am **Introducing X-ray Rheography to uncover velocities in arbitrarily deforming granular media**
» Dr. James Baker, Dr. François Guillard, Dr. Benjy Marks, Prof. Itai Einav

11:15am **Packings in granular ensembles – insight from micro-computed tomography and contact dynamics.**
» Mr. Abhijit Hegde, Mr. Saurabh Singh, Dr. Tejas Murthy

11:30am **Dense Slow Sheared Angular Sand and Spherical Glass Beads in a Powder Rheometer**
» Mr. Han-Hsin Lin, Prof. Melany Hunt

11:45am **Experiments probing sub-yield granular creep in the (near) absence of disturbances**
» Mr. Nakul Deshpande, Dr. Behrooz Ferdowsi, Prof. Douglas Jerolmack

10:30am MS72 - Mechanics and Physics of Granular Materials; Part 1

10:30am **A New Interpretation of Three-Dimensional Particle Geometry: M-A-V-L**
» Prof. Seung Jae Lee, Ms. Sumana Bhattacharya, Prof. Chang Hoon Lee, Prof. Moochul Shin

10:45am **Critical fabric-based constitutive modeling of granular soils**
» Dr. Yida Zhang

11am **Simulating poroelastic effects in the undrained loading of granular materials**
» Dr. Matthew Kuhn, Dr. Ali Daouadji

11:15am **Characterization of cement-based materials for 3D printing**
» Dr. Claudiane Ouellet-Plamondon

11:30am **Nonlinear acoustic wave-induced softening in dense granular matter through flow heterogeneities**
» Dr. Charles Lieou, Dr. Laurent Jerome, Dr. Paul Johnson, Prof. Xiaoping Jia

Continued from **Thursday, 20 June**

11:45am **Transport phenomena and swelling behavior in compacted granular systems: A multiscale, multi-physics modeling approach**
» Mr. Pedro Martins, Prof. Marcial Gonzalez

10:30am **MS77 - Hierarchical and Multiscale Methods for Simulation Based Design of Materials; Part 1**

10:30am **Two-Way Multi-scaling for Predicting Fatigue Crack Nucleation in Titanium Alloys Using Parametrically Homogenized Constitutive Models**
» Prof. Somnath Ghosh, Mr. Deniz Ozturk, Mr. Shravan Kotha

10:45am **Shear Bands and Mechanical Behaviors of Metals using Taylor Impact Testing**
» Dr. George Voyiadjis, Dr. Yooseob Song, Dr. Alexis Rusinek, Ms. Reem Abo Znemah, Mr. Juyoung Jeong

11am **Spectral Variational Multiscale Approach for Transient Dynamics of Phononic Crystals and Acoustic Metamaterials**
» Mr. Ruize Hu, Prof. Caglar Oskay

11:15am **Using High Performance Computing to Enable Data-informed Multiscale Modeling with Application to Additive Materials**
» Dr. Tim Wildey

11:30am **Microstructural Scale Modeling and Homogenization of Damage Evolution in Thermal Barrier Coatings**
» Prof. Jason Mayeur

11:45am **Adaptive Multi-Material Design Optimization with Material and Geometric Nonlinearities**
» Prof. Xiaojia Shelly Zhang, Dr. Heng Chi, Prof. Glaucio Paulino

10:30am **MS99 - Advanced Engineering Concepts, Designs, and Technologies for Aerospace and Extraterrestrial Applications; Part 1**

10:30am **Design Framework for Resilient Extraterrestrial Habitats**
» Dr. Amin Maghareh, Mr. Ali Lenjani, Prof. Shirley Dyke, Prof. Karen Marais, Prof. Antonio Bobet, Prof. Julio Ramirez, Dr. Dawn Whitaker, Dr. Anahita Modiriasari, Mr. Audai Theinat

10:45am **An Analysis of Externally-Induced Temperature Gradient Fluctuations through Shielding Layers of a Lunar Habitat**
» Mr. Jeffrey Steiner, Prof. Ramesh Malla, Ph.D., F. ASCE

11am **Design, Dynamics and Control of a Tensegrity Lunar Lander**
» Mr. Raman Goyal, Dr. Dipanjan Saha, Prof. Robert Skelton

11:15am **Thermally activated envelope for habitats under extreme environment**
» Dr. Hongyu(Nick) Zhou, Mr. Babak Salarieh, Ms. Yawen He

11:30am **Technology Advancements for Lunar Exploration**
» Ms. Rebecca Thoss, Dr. Melissa Sampson

11:45am **Lunar and Martian Vertical Takeoff & Vertical Landing (VTVL) Pad Concepts**
» Mr. Robert Mueller, Mr. Nathan Gelino

10:30am **MS6+8+9 - Mechanics of bio-inspired multi-functional systems, Biomimetics for engineering design: understanding the structure vs. function of bio-structures, Self-Healing Materials Principles and Technology; Part 1**

10:30am **Mechanics of vessel pressurization in soil under biaxial stress: a 3D analysis using CT scanning**
» Mr. Fernando Patino-Ramirez, Dr. Chloe Arson

10:45am **Leaf Inspired Drainage Networks: A Hybrid Numerical-Experimental Study**
» Dr. Nariman Mahabadi, Mr. Fernando Patino-Ramirez, Dr. Leon van Paassen, Dr. Chloe Arson

11am **3D observation and kinetic analysis of root growth in sand**
» Mrs. Floriana Anselmucci, Dr. Edward Ando, Dr. Luc Sibille, Dr. Robert Peyroux, Dr. Nicolas Lenoir, Prof. Gioacchino Viggiani, Dr. Chloe Arson

Continued from **Thursday, 20 June**

11:15am **Mechanics of a three-dimensional spider web**
» Ms. Isabelle Su, Dr. Zhao Qin, Mr. Tomás Saraceno, Dr. Roland Mühlethaler, Dr. Ally Bisshop, Prof. Evan Ziporyn, Prof. Markus Buehler

11:30am **Investigating the Successive Regeneration of Hydrogel-based Microbial Mortars**
» Ms. Sarah Williams, Dr. Jishen Qiu, Dr. Juliana Artier, Prof. Chelsea Heveran, Prof. Sherri Cook, Prof. Jeffrey Cameron, Prof. Mija Hubler, Prof. Wil Srubar

11:45am **Repeatable self-healing by combination of biochar immobilized bacteria and superabsorbent polymer in fiber reinforced concrete**
» Mr. Souradeep Gupta, Ms. Anastasia Aday, Prof. Wil Srubar, Dr. Harn Wei Kua

10:30am MS35 - Computational Geomechanics; Part 1

10:30am **A cooperative game for automated learning of elasto-plasticity knowledge graphs and models with AI-guided experimentation**
» Mr. Kun Wang, Prof. Wai Ching Sun, Prof. Qiang Du

10:45am **An adaptive ensemble phase field predictions for localized failures in geological materials**
» Mr. Kun Wang, Prof. Wai Ching Sun

11am **A micromorphic-regularized anisotropic Cam-clay-type model for capturing size-dependent anisotropy**
» Mr. Eric Bryant, Prof. Wai Ching Sun

11:15am **COUPLED ANALYSIS OF WAVE-SLOPING SEABED INTERACTION: GLOBAL SHEAR FAILURE**
» Mr. Amin Rafiei, Prof. Shamim Rahman, Prof. Mo Gabr, Prof. Alejandra Ortiz

11:30am **Shift domain material point method: an image-to-simulation workflow for solids of complex geometries undergoing large deformation**
» Dr. Chuanqi Liu, Prof. Wai Ching Sun

11:45am **Modeling High Strain Rate Impact Experiment Using the Finite-Discrete Element Method**
» Dr. Viet Chau, Dr. Esteban Rougier, Dr. Zhou Lei, Dr. Earl Knight, Dr. Ke Gao, Dr. Abigail Hunter, Dr. Gowri Srinivasan, Dr. Hari Viswanathan

10:30am MS42 - Advances in Terramechanics: Soil-Machine Interaction, Mobility, Terrestrial Robotics, and Beyond; Part 1

10:30am **Robophysical Analysis and Gait Development for the NASA Resource Prospector Rover**
» Mr. Siddharth Shrivastava, Mr. Andras Karsai, Dr. Yasemin Ozkan Aydin, Mr. William J Bluethmann, Mr. Robert O Ambrose, Dr. Daniel Goldman

10:45am **Stability of a Crab-Like Amphibious Robot in on Sandy Surfaces**
» Ms. Nicole Graf, Mr. Alexander Behr, Prof. Kathryn Daltorio

11am **Continuum modeling of legged locomotion interaction with granular substrate**
» Dr. Guanjin Wang, Dr. Amir Riaz, Dr. Balakumar Balachandran

11:15am **Assessing beach trafficability from remote sensing**
» Dr. Nina Stark, Ms. Julie Paprocki, Mr. Matthew Florence, Mr. Christopher Mcbride, Dr. Hans Graber

11:30am **Large-scale DEM analysis of plate drag in dry granular materials**
» Dr. Murino Kobayakawa, Mr. Shinichiro Miyai, Prof. Takuya Tsuji, Prof. Toshitsugu Tanaka

11:45am **A Position-Based Discrete Element Method for Wheel-Soil Modelling**
» Mr. Eric Karpman, Mr. Daniel Holz, Dr. Jozsef Kövecses

Continued from **Thursday, 20 June**

10:30am **MS46 - Origami/Kirigami Inspired Structures and Metamaterials; Part 1**

10:30am **Discrete Computational Model for Thin Foldable Composite Origami Structures**
» Mr. Antonio Alessandro Deleo, Prof. Marco Salviato

10:45am **Elastic energy behaviours of curved-crease origami: a summary of recent progress**
» Mr. Ting-Uei Lee, Dr. Joseph Gattas

11am **Bistability of Generic Creased Vertices**
» Dr. Martin Walker

11:15am **Crushing of origami tubes for tunable energy absorption**
» Dr. Evgueni Filipov, Mr. Zhongyuan Wo

11:30am **Active Origami, a new biomaterial for architecture**
» Ms. Emily Birch, Dr. Martyn Dade-Robertson, Dr. Beate Christgen, Dr. Meng Zhang

11:45am **Designing Systems of Compliant Joints for Deployable Origami-Based Structures**
» Mr. Nathan Pehrson, Dr. Larry Howell, Dr. Spencer Magleby

12pm **Lunch**
Beckman Mall

1pm **Plenary 4**
Beckman Auditorium (1,136)

Structures as Sensors: Using Structures to Indirectly Monitor Humans and Surroundings
» Prof. Hae Young Noh

2pm **MS82 - Computer vision/Machine Learning for Structural Dynamics & SHM; Part 2**
Ramo (371)

2pm **Design of One-Dimensional Acoustic Metamaterials Using Machine Learning and Cell Concatenation**
» Mr. Rih-Teng Wu, Mr. Ting-Wei Liu, Dr. Mohammad Jahanshahi, Dr. Fabio Semperlotti

2:15pm **Vision-based system identification from multiple surveillance cameras**
» Mr. Ali Zare Hosseinzadeh, Prof. P. Scott Harvey

2:30pm **Physics-Reinforced Deep Learning for Modeling and Identification of Structures via Heterogeneous Data Fusion**
» Mr. Zhao Chen, Dr. Ruiyang Zhang, Dr. Yongchao Yang, Prof. Hao Sun

2:45pm **Structural Health Monitoring of Concrete Structures Affected by Alkali-Silica Reaction using Acoustic Emission**
» Mr. vafa soltangharaei, Mr. Taeyong Shin, Mr. Rafal Anay, Mr. David Bianco, Prof. Paul Ziehl, Dr. Ying Zhang

3pm **Digital image correlation for deflection measurement of bridges: a technical review**
» Prof. Xinxing Shao, Prof. Xiaoyuan He, Prof. Zhenning Chen

3:15pm **Noncontact stress measurement from bare UHPC surface using Raman piezospectroscopy**
» Prof. Hae-Bum Yun, Ms. Elham Eslami, Mr. Kevin Conway

2pm **MS91 - Safety Assessment of Aging Infrastructure: From Data to Decision; Part 1**
Steele 102 (130)

2pm **Real-time detection of fatigue fracture in metal bridge components by the assessment of Acoustic Emission Entropy**
» Mr. Danilo D'Angela, Dr. Marianna Ercolino

Continued from **Thursday, 20 June**

2:15pm **An early attempt in quantifying the value of OMA based fatigue stress estimation with uncertainties**
» Dr. Henning Brüske, Mrs. Bruna Nabuco, Prof. Rune Brincker, Prof. Michael Faber

2:30pm **Towards Automated Creation of As-is High-fidelity Structural Models of Deteriorated Bridges with UAV-assisted Visual Sensors**
» Mr. Yujie Yan, Prof. Jerome Hajjar

2:45pm **Using Neutron Diffraction to Understand the Multiscale Internal Mechanics of Suspension Bridge Cables**
» Dr. Adrian Brügger, Mr. Jumari Robinson, Prof. Raimondo Betti, Prof. Ismail Cevdet Noyan

3pm **Vehicle-Based Bridge Condition Monitoring**
» Mr. Jase Sitton, Prof. Dinesh Rajan, Prof. Brett Story

3:15pm **Identifying Time-Varying Modes of a Train-Bridge System Using Train Induced Vibration Data**
» Mr. Ashish Pal, Prof. Suparno Mukhopadhyay

2pm MS93 - Advances in Vision-based Structural Health Monitoring; Part 2

Kerckhoff 119 (174)

2pm **Physics-based Graphics Models for Development of Computer Vision-based Inspection and Monitoring**
» Mr. Vedhus Hoskere, Mr. Yasutaka Narazaki, Prof. Billie F. Spencer

2:15pm **Human pose estimation-aided safety helmet wearing detection in construction site based on computer vision**
» Mr. Di Wu, Mr. Zhiyi Tang, Prof. Yuequan Bao

2:30pm **Augmented Reality – assisted structural inspections**
» Mr. Apostolos Athanasiou, Dr. Salvatore Salamone

2:45pm **Topology-aware 3D reconstruction for cable-stayed bridges**
» Dr. Fangqiao Hu, Prof. Hui Li

3pm **Automated Image Localization and 3D Reconstruction for Post-Event Building Reconnaissance**
» Mr. Xiaoyu Liu, Prof. Chulmin Yeum, Prof. Shirley Dyke, Mr. Ali Lenjani, Mr. Jongseong Choi

3:15pm **Automated Decision Support for Flood Risk Mitigation Using Google Street View Images**
» Mr. Fu-Chen Chen, Dr. Mohammad Jahanshahi, Dr. David Johnson, Prof. Edward Delp

2pm MS60 - Earthquake Resilience and Cascading Effects; Part 2

Firestone 384 (76)

2pm **Modeling of Kinetic Umbrellas for Coastal Hazard Mitigation**
» Mr. Shengzhe Wang, Prof. Maria Garlock, Prof. Branko Glisic

2:15pm **Robustness analysis for fire following earthquake scenarios considering power-water dependencies**
» Mr. Maxwell Coar, Prof. Maria Garlock, Mr. Amir Sarreshtehdari, Prof. Negar Elhami-Khorasani

2:30pm **Emergency Response Time During Post-Earthquake Fires**
» Mr. Amir Sarreshtehdari, Prof. Negar Elhami-Khorasani

2:45pm **Multi-hazard Risk Assessment of a Bridge-Roadway-Levee System considering Downtime Losses**
» Mr. Alexandros Nikellis, Prof. Kallol Sett

3pm **DYNAMIC SEISMIC RISK ASSESSMENT TOWARD MORE RESILIENT NUCLEAR POWER PLANTS**
» Mr. Mohamed Elsefy, Dr. Mohamed Ezzeldin, Prof. Wael El-Dakhakhni, Dr. Lydell Wiebe

3:15pm **Performance-Based Engineering of Steel Frames under Cascading Events of Earthquake and Fire**
» Prof. Hussam Mahmoud

Continued from **Thursday, 20 June**

2pm **MS67/57 - Soil Dynamics and Soil-Structure Interaction, Recent Advances in Performance-Based Engineering for Single and Multiple Hazards**
Gates-Thomas Hall Auditorium 135 (88)

2pm **Parallel Iwan Models for 3-D Cyclic Loading**
» Dr. Ethan Dawson, Dr. Wolfgang Roth

2:15pm **From Performance-Based to Resilience-Based Pre- and Post-Earthquake Management of Highway Networks**
» Prof. Anastasios Sextos, Dr. Ioannis Kilanitis

2:30pm **Study on the hit probability of dropped cylindrical objects on the pipeline**
» Dr. Xiaochuan Yu

2:45pm **Transient Response of Structures Interacting with Soil Profiles Through a Modified Modal Analysis Methodology**
» Ms. Tamara Lousada, Prof. Euclides Mesquita, Prof. Josue Labaki, Mr. Luis Filipe do Vale Lima

3pm **Effects of Ground Improvement Zone Dimensions on the Modal Characteristics of Pile Founded Structures**
» Dr. Hoda Soltani, Prof. Muralee Muraleetharan, Prof. Joseph Havlicek

3:15pm **Soil-structure interaction of buried pipelines subjected to transient Rayleigh waves**
» Mr. Kien Nguyen, Dr. Kami Mohammadi, Prof. Domniki Asimaki

2pm **MS107 - Advances in Computational Mechanics**

2pm **Determining Dynamic Elastic Modulus and Poisson's Ratio of Rectangular Timoshenko Beams**
» Prof. Roger Chen, Mr. Guadalupe Leon

2:15pm **Stabilization of Linear Isotropic Thermoelasticity in Meshfree Methods**
» Prof. Mike Hillman, Mr. Kuan-Chung Lin

2:30pm **An adaptive quasi-continuum approach for modeling fracture in polymer networks**
» Mr. Ahmed Ghareeb, Prof. Ahmed Elbanna

2:45pm **The Reduced Condensation Domain Decomposition (RCDD) Method for simulations of heterogeneous structures**
» Mr. Minh Vuong Le, Prof. Julien Yvonnet, Dr. Nicolas Feld, Dr. Fabrice Detrez

3pm **Optimizing electronic circuits for stretchability**
» Mr. Reza Rastak, Prof. Christian Linder

2pm **MS12 - Topology Optimization: From Algorithmic Developments to Applications; Part 2**

2pm **Optimizing fiber orientations across composite laminate structures**
» Mr. CHUAN LUO, Prof. James Guest

2:15pm **Topology optimization of buildings subjected to stochastic ground motions**
» Mr. Fernando Gomez, Prof. Billie F. Spencer

2:30pm **Robust topology optimization using image-based deep learning**
» Mr. Mohammad Amin Nabian, Dr. Vahid Keshavarzzadeh, Prof. Hadi Meidani

2:45pm **Topology optimization under topologically evolving materials uncertainties**
» Dr. Alireza Asadpoure, Prof. Johann Guilleminot, Dr. Mazdak Tootkaboni

3pm **Efficient topology optimization of trusses under geometric uncertainties using reduced basis method**
» Mr. Mohammod Minhajur Rahman, Dr. Alireza Asadpoure, Dr. Yanlai Chen, Dr. Mazdak Tootkaboni

Continued from **Thursday, 20 June**

3:15pm **Nonlinear Topology Optimization with Microstructural Effects - A Micromorphic Approach**
» Dr. Ryan Alberdi, Dr. Remi Dingreville, Dr. Joshua Robbins, Dr. Timothy Walsh

2pm MS21 - Modeling and Characterization of Brittle and Quasibrittle Fracture; Part 2

2pm **A Statistical Volume Element Averaging Scheme for Fracture Analysis of Microcracked Rock**
» Dr. Reza Abedi, Mr. Justin Garrard

2:15pm **Predicting initial fragment sizes for granular flow under dynamic fragmentation of ceramics**
» Mr. Amartya Bhattacharjee, Prof. Lori Graham-Brady

2:30pm **A Stochastic Damage Model and Its Applications to Reinforced Concrete Structures**
» Prof. Xiaodan Ren, Prof. Jie Li

2:45pm **Modeling Earthquake Ruptures With High Resolution Fault Zone Physics**
» Prof. Ahmed Elbanna, Mr. Xiao Ma

3pm **Nacre-Inspired Fishnet Statistics for Quasbrittle Materials with Alternating Series and Parallel Links: Design for Failure Probability <10-6**
» Mr. Wen Luo, Prof. Zdenek Bazant

3:15pm **Strength size effect and post-peak softening in woven composites analyzed by cohesive zone and crack band models**
» Ms. Jing Xue, Prof. Kedar Kirane

2pm MS34 - Experimental and Computational Methods for Particulate Materials; Part 2

2pm **Kinetic Theory for Dense, Inhomogeneous, Granular Shearing Flows**
» Prof. James Jenkins, Dr. Diego Berzi

2:15pm **Simulating Shear Localization Using a Hybrid Discrete-Continuum Approach**
» Mr. Peter Yichen Chen, Mr. Maytee Chantharayukhonthorn, Dr. Yonghao Yue, Prof. Ken Kamrin, Dr. Eitan Grinspun

2:30pm **Heterarchical multiscale modelling of granular flows**
» Dr. Benjy Marks, Prof. Itai Einav

2:45pm **DEM modeling of coupled multiphase flow and granular mechanics: wettability control on fracture patterns**
» Ms. Yue Meng, Mr. Bauyrzhan Primkulov, Prof. Zhibing Yang, Dr. Fiona Kwok, Prof. Ruben Juanes

3pm **Source Ground Vibration in Sheared Granular Fault**
» Dr. Ke Gao, Dr. Esteban Rougier, Dr. Robert Guyer, Dr. Paul Johnson

2pm MS72 - Mechanics and Physics of Granular Materials; Part 2

2pm **Discrete element modeling of chopped switchgrass: particle size and shape effects on bulk mechanical properties**
» Dr. Yuan Guo, Prof. Qiushi Chen, Dr. Yidong Xia, Dr. Mohammad Roni, Prof. Sandra Eksioglu

2:15pm **Evaluation of Frictional Processes in Granular Materials Using Ultrasonic Transmission**
» Dr. Reza Hedayat, Mr. Amin Gheibi

2:30pm **Particle-Scale Contact Response of 3D Printed Particle Analogs**
» Mr. Sheikh Sharif Ahmed, Mr. Mandeep Singh Basson, Dr. Alejandro Martinez

2:45pm **Recent Advances in Modeling, Analysis and Simulation of the Dynamics of Granular and Related Flow Fields**
» Prof. Anthony Rosato, Prof. Denis Blackmore

Continued from **Thursday, 20 June**

3pm **Mobility in Granular Materials upon Dynamic Loading**
» Mr. MD Tanvir Hossain, Dr. Pierre Rognon

3:15pm **Multiscale modeling of biomass feeding and handling: An investigation of discrete and continuum constitutive laws for milled corn stover**
» Mr. Nathan Gasteyer, Mr. Abhishek Paul, Prof. Carl Wassgren, Prof. Marcial Gonzalez

2pm **MS77 - Hierarchical and Multiscale Methods for Simulation Based Design of Materials; Part 2**

2pm **Chemo-mechanical Coupling and Curing in Multi-constituent Materials**
» Prof. Arif Masud

2:15pm **Identification of the Physics Underlying Pattern-Formation in Materials**
» Mr. Zhenlin Wang, Dr. Xun Huan, Dr. Krishna Garikipati

2:30pm **Computational Homogenization for Multiscale Nonlinear and Transient Effects in Locally Resonant Acoustic Metamaterials**
» Dr. Ryan Alberdi, Prof. Kapil Khandelwal

2:45pm **The multiscale finite element method for nonlinear continuum localization problems at full fine-scale fidelity**
» Prof. Dominik Schillinger, Dr. Lam H. Nguyen

3pm **Multiscale Stochastic Modeling for Additive Manufacturing Part Qualification**
» Dr. Kyle Johnson, Dr. John Emery, Dr. Mircea Grigoriu, Dr. Jay Carroll, Dr. Joseph Bishop

3:15pm **Hierarchical Material Mechanics, Design and Analysis**
» Dr. Georgios Apostolakis, Prof. Gary Dargush

2pm **MS99 - Advanced Engineering Concepts, Designs, and Technologies for Aerospace and Extraterrestrial Applications; Part 2**

2pm **High Energy Impact Test and Analysis Methods Development for Composite Materials at NASA Glenn Research Center**
» Dr. Robert Goldberg

2:15pm **The World Is Not Enough (WINE) - space mining robot with steam propulsion**
» Dr. kris zacny, Mr. Phillip Morrison, Dr. Philip Metzger, Mr. Zak Fitzgerald, Mr. Vincent Vendiola, Mr. Sherman Lam, Mr. Nick Traeden, Mr. Zachary Mank, Mr. James Mantovani, Mr. Robert Mueller

2:30pm **Study of a Gearless Mechanical Transmission (GMT) for use in Aerospace Applications**
» Mr. Arun Malla, Dr. Kazem Kazerounian, Dr. Horea Ilies

2:45pm **Origami Structure Actuation using Shape Memory Alloy for Space Related Applications**
» Mr. Hunter Cocks, Prof. Anthony Santamaria, Prof. Moochul Shin

3pm **Sensor placement and damage analysis of tensegrity structures**
» Mr. Omar Aloui, Dr. Nizar Bel Hadj Ali, Dr. Landolf Rhode-Barbarigos

3:15pm **Low Cost Wireless Smart Strain Sensors for Structural Health Monitoring of Launching Operations on Aerospace Vehicles**
» Mr. Eric Robbins, Mr. Marlon Aguero, Mr. Dilendra Maharjan, Mr. Emmanuel Ayorinde, Dr. Fernando Moreu

2pm **MS6+8+9 - Mechanics of bio-inspired multi-functional systems, Biomimetics for engineering design: understanding the structure vs. function of bio-structures, Self-Healing Materials Principles and Technology; Part 2**

2pm **Dynamics of Sequential Failure of Tree Root Foundations**
» Mr. Matthew Burrall, Mr. Lin Huang, Dr. Jason DeJong, Dr. Daniel Wilson, Dr. Alejandro Martinez

Continued from **Thursday, 20 June**

2:15pm **Enhanced geothermal heat exchange through loop optimization and phase change: A bio-inspired strategy**
» Mr. Yimin Lu, Prof. Douglas Cortes, Prof. Xiong Yu, Prof. Sheng Dai

2:30pm **Self-organization in leaf vascular network development**
» Prof. Eleni Katifori, Dr. Henrik Ronellenfitsch

2:45pm **Damage mitigation of a near-full-scale deployable tensegrity structure through behavior biomimetics**
» Dr. Ann Sychterz, Prof. Ian F.c. Smith

3pm **Multiphysical model for describing self-healing mortar containing biochar-immobilized bacteria**
» Dr. Harn Wei Kua

3:15pm **Self-healing reactive powder concrete with nanofillers**
» Dr. Zhen Li, Dr. Jialiang Wang, Prof. Baoguo Han

2pm MS35 - Computational Geomechanics; Part 2

2pm **Faults and Fractures in Deep Geological Carbon Storage**
» Prof. Pania Newell, Dr. Mario Martinez

2:15pm **Evolution of volumetric response in cyclic shearing using a memory-enhanced SANISAND model**
» Mr. Ming Yang, Mr. Andres R. Barrero, Prof. Mahdi Taiebat, Prof. Yannis Dafalias

2:30pm **Seismic effects on bearing capacity of footing strip using isogeometric analysis**
» Mr. Hoang Nguyen

2:45pm **Numerical Simulation of Lateral Load Capacity of a Dynamically Installed Pile in Cohesive Soils**
» Mr. Junho Lee, Prof. Charles Aubeny

3pm **3-D X-Ray Computed Tomography Study of the Depositional Fabric of Sand from the San Francisco Bay**
» Prof. Nicholas Sitar, Dr. Estefan Garcia

3:15pm **Multiscale Modeling and Experimental Characterization for Poromechanical and Damage Behavior of Shales**
» Mr. Vasav Dubey, Dr. Sara Abedi, Dr. Arash Noshadravan

2pm MS42 - Advances in Terramechanics: Soil-Machine Interaction, Mobility, Terrestrial Robotics, and Beyond; Part 2

2pm **GPU-Accelerated Simulation of Low-Speed Mobility over Fine Granular Terrain**
» Mr. Nicholas Olsen, Mr. Conlain Kelly, Prof. Dan Negrut

2:15pm **Inertial Phenomena and Resistive Force Theory in Wheeled Locomotion in Granular Media**
» Mr. Andras Karsai, Mr. Shashank Agarwal, Prof. Ken Kamrin, Dr. Daniel Goldman

2:30pm **High-efficiency Models for Soil-Machine Interaction**
» Prof. James Hambleton

2:45pm **Modeling Mars Rover Mobility**
» Dr. Rudranarayan Mukherjee

3pm **Dependence of the Pull Generated by the Interlock Drive System on Soil Conditions**
» Dr. Volker Nannen, Mr. Damia Bover, Prof. Dieter Zöbel

3:15pm **Impact of Magnetorheological Damper Semi-active Suspension on Tyre Soil Interaction**
» Mr. Brandon Lee James Ballard, Dr. Olivier Haas, Prof. Mike Blundell, Dr. Arash Moradinegade Dizqah, Dr. Stratis Kanarachos

2pm MS46 - Origami/Kirigami Inspired Structures and Metamaterials; Part 2

Continued from **Thursday, 20 June**

2pm **Geometric mechanics of origami patterns exhibiting Poisson's ratio switch by breaking Mountain/Valley assignment**
» Prof. Glaucio Paulino, Dr. Phanisri Pratapa, Mr. Ke Liu

2:15pm **Degree-n Vertices and Dihedral Angle Propagation in Origami**
» Mr. Luca Zimmermann, Prof. Kristina Shea, Dr. Tino Stankovic

2:30pm **Exploration of plastically annealed lamina emergent origami structures**
» Dr. Yves Klett, Prof. Peter Middendorf

2:45pm **Development and Evaluation of a Prototype Shape Memory Polymer Shape-Changing Building Surface Tile**
» Mr. Robert Zupan, Dr. Dale Clifford, Dr. Richard Beblo, Dr. John Brigham

3pm **Continuum Elasticity of Miura Tessellations**
» Dr. Hussein Nassar, Dr. Arthur Lebée, Dr. Laurent Monasse

3:15pm **Functional anisotropy: exploiting the mechanics of curved-creased origami systems**
» Mr. Steven Woodruff, Dr. Evgueni Filipov

3:30pm **Coffee break/Poster session**

4pm **MS83 - Computational Methods for Stochastic Engineering Dynamics**
Ramo (371)

4pm **Stochastic dynamical response of a non-smooth dynamical system under filtered noise excitation**
» Prof. Arvid Naess, Mr. Saeed Gheisari Hasnijeh

4:15pm **Functional series expansions and quadratic approximations for enhancing the accuracy of the Wiener path integral technique**
» Mr. Apostolos Psaros, Prof. Ioannis Kougioumtzoglou

4:30pm **Computationally efficient stochastic response determination of high-dimensional dynamical systems via a Wiener path integral variational formulation with free boundaries**
» Mr. Ioannis Petromichelakis, Prof. Ioannis Kougioumtzoglou

4:45pm **Approximate closed-form solutions for a class of nonlinear stochastic differential equations with applications in engineering dynamics**
» Mr. Antonios Meimaris, Prof. Ioannis Kougioumtzoglou, Prof. Athanasios Pantelous, Dr. Antonina Pirrotta

5pm **Analytic solutions in implicit form for the nonlinear Euler-Bernoulli beam equation with fractional derivative terms**
» Dr. Konstantinos Liaskos, Prof. Athanasios Pantelous, Prof. Ioannis Kougioumtzoglou, Mr. Antonios Meimaris

5:15pm **The Dynamic Response of Multi-Span Euler-Bernoulli Beams, Fitted with Tuned Mass Dampers, to Poissonian Loading**
» Mr. Iain Dunn, Dr. Alberto Di Matteo, Prof. Giuseppe Failla, Dr. Antonina Pirrotta

4pm **MS91 - Safety Assessment of Aging Infrastructure: From Data to Decision; Part 2**
Steele 102 (130)

4pm **Effect of Alkali-Silica Reactivity Damage on the Shear Strength of Reinforced Concrete Beams**
» Mr. Hadi Aryan, Dr. Bora Gencturk, Dr. Mohammad Hanifehzadeh, Ms. Clotilde Chambreuil

4:15pm **Seismic Performance Assessment of RC Structures accounting for Aging Effects**
» Mr. Codi McKee, Dr. Petros Sideris, Prof. Mija Hubler

4:30pm **Performance Enhancement of Unreinforced Masonry Structure using RC Seismic Bands**
» Ms. Lakshmi L, Prof. Suparno Mukhopadhyay, Dr. Prishati Raychowdhury, Prof. Samit Ray Chaudhuri

4:45pm **A Decision Analytical Framework for Systems Modeling**
» Mr. Sebastian Glavind, Prof. Michael Faber

Continued from **Thursday, 20 June**

5pm **A computationally efficient unscented Kalman filter variant for nonlinear system identification**
» Ms. Mariyam Amir, Dr. Kostas G. Papakonstantinou, Dr. Gordon P. Warn

5:15pm **Multi-sensor data fusion for structural health management of New Jubilee Railway Bridge**
» Mr. Adarsh S, Prof. Samit Ray Chaudhuri

4pm **MS94 - Integration of Physics-based Models with Data for Model Identification, Updating, and Uncertainty Quantification**
Kerckhoff 119 (174)

4pm **Experimental verification of servo-hydraulic actuator modeling for RTHS of a multi-degree-of-freedom system**
» Ms. Herta Montoya, Dr. Amin Maghareh, Mr. Johnny Condori, Prof. Shirley Dyke

4:15pm **Physics-Based Flood Risk Modeling to Quantify the Effect of Policy Change on Losses at the Community Level**
» Mr. Omar Nofal, Prof. John Van De Lindt

4:30pm **Prediction of storm surge evolution with time-dependent feedback**
» Dr. Alessandro Contento, Prof. Paolo Gardoni

4:45pm **Integrating physics-based and probabilistic models for forecasting induced seismicity**
» Ms. Mina Karimi, Prof. Kaushik Dayal, Prof. Matteo Pozzi

5pm **Integration of Physics-based Models with Data, An Overview for Civil Structure applications**
» Dr. Babak Moaveni, Mr. Mingming Song

5:15pm **Time-Dependent Deflection Monitoring of the I-35W St. Anthony Falls Bridge**
» Mr. Riley Brown, Prof. Brock Hedegaard, Prof. Carol Shield, Dr. Lauren Linderman

4pm **MS64 - Fluid Dynamics of Natural Hazards**
Firestone 384 (76)

4pm **The impacts analysis of plant spatial distribution on the turbulent flow**
» Dr. Guojian He, Prof. Hongwei Fang, Dr. Lei Huang

4:15pm **Molecular dynamics simulations of water molecules clustering**
» Prof. Hongwei Fang, Dr. Ke Ni

4:30pm **Boulder Transport by Tsunami**
» Mr. Samuel Harry, Ms. Margaret Exton, Prof. Bruce Kutter, Prof. H. Benjamin Mason, Prof. Harry Yeh

4:45pm **Momentum Balance in Waves and Surge over Vegetated Wetlands during Extreme Events**
» Dr. Ling Zhu, Prof. Qin Chen

5pm **Interaction of Residual and Momentary Liquefaction During Earthquake-Tsunami Multi-Hazards**
» Ms. Yingqing Qiu, Prof. H. Benjamin Mason

5:15pm **Evolution of Wind and Wave Driven Currents During Hurricane Joaquin**
» Dr. Jay Veeramony, Dr. Allison Penko, Ms. Kacey Edwards, Dr. Meg Palmsten

4pm **MS68 - Hurricane Hazards, Risk, and Adaptation in a Changing Environment**
Gates-Thomas Hall Auditorium 135 (88)

4pm **Wind Induced Effects on Roof-to-Wall Connections of Residential Buildings**
» Prof. Amal Elawady, Prof. Arindam Chowdhury, Dr. Ehssan Amir Sayyafi, Prof. Peter Irwin

4:15pm **An environment-dependent probabilistic tropical cyclone model**
» Ms. Renzhi Jing, Prof. Ning Lin

Continued from **Thursday, 20 June**

4:30pm **Risk Assessment of Tropical Cyclones under Changing Climate: Wind and Rain Hazards**
» Mr. Reda Snaiki, Dr. Teng Wu

4:45pm **A Knowledge-Enhanced Deep Learning for Simulation of Idealized Storm Surge**
» Mr. Reda Snaiki, Dr. Teng Wu

5pm **The co-evolution of natural-engineered coastal systems under the threat of long-term climatic changes and short-term extremes events**
» Dr. Donatella Pasqualini

5:15pm **Prioritizing Mitigation and Repair Resources to Enhance Resilience of Interdependent Traffic-Electric Power System**
» Mr. Qiling Zou, Prof. Suren Chen

4pm MS14 - Advanced Analysis for Earthquake Engineering

4pm **Finite Element Analysis of the Seismic Response of RC Columns with Conventional and Modified Bond Properties**
» Mr. Ghassan Fawaz, Dr. Juan Murcia-Delso

4:15pm **Reduced order modeling of hysteretic structural response for computationally efficient seismic loss assessment**
» Mr. Dimitrios Patsialis, Dr. Alexandros Taflanidis

4:30pm **Advancing the Seismic Collapse Assessment of Reinforced Concrete Structures Using Nonlocal Frame Models**
» Dr. Maha Kenawy, Prof. Sashi Kunnath, Prof. Amit Kanvinde

4:45pm **Deep Adversarial Learning for Ground Motion Simulation**
» Dr. Ruiyang Zhang, Prof. Hao Sun

5pm **Challenges and opportunities in interfacing earthquake science, engineering, and technology**
» Prof. Ting Lin

5:15pm **Resilience and Response of the Dual System Braced Frame with Frictional Damper**
» Mr. Logan Couch, Dr. Fariborz Tehrani

4pm MS19 - Multiscale and Computational Methods in Fracture and Damage Mechanics

4pm **Application of Wavelet-Enriched Hierarchical Finite Element Formulation in Simulating Crack Propagation in Polycrystalline Microstructure with the Coupled Crystal Plasticity-Phase Field Model**
» Ms. Xiaohui Tu, Dr. Jiahao Cheng, Dr. Ahmad Shahba, Prof. Somnath Ghosh

4:15pm **Hyperbolic phase field modeling of brittle fracture for air-blast-structure interaction**
» Dr. Georgios Moutsanidis, Dr. David Kamensky, Prof. Yuri Bazilevs

4:30pm **Computational modeling of crack propagation in a heterogeneous medium under drying conditions**
» Mr. Darith Hun, Prof. Johann Guilleminot, Prof. Julien Yvonnet, Mr. Abdelali Dadda, Prof. Anh Minh Tang, Prof. Michel Bornert

4:45pm **Multiscale Discrete Damage Theory for Fatigue Failure Prediction of Heterogeneous Materials**
» Mr. Zimu Su, Prof. Caglar Oskay

5pm **Data-driven modeling and sampling of crack paths in random media using a machine learning approach**
» Prof. Johann Guilleminot, Prof. John Dolbow

5:15pm **Graph Theory Analysis of Rich Fiber-Scale Data Yields Very Fast Simulations of Damage Evolution in Composites**
» Dr. Brian Cox, Dr. Jerry Quek

4pm MS25 - Modeling time-dependent behavior and deterioration of concrete

Continued from **Thursday, 20 June**

4pm **Numerical and Experimental Modeling of Time-Dependent Material Behavior of Sprayed Concrete Shells**
» Dr. Matthias Neuner, Dr. Magdalena Schreter, Prof. Günter Hofstetter

4:15pm **Spatial variability of rebar corrosion and structural performance evaluation of corroded RC structures under uncertainty**
» Prof. Mitsuyoshi Akiyama, Prof. Dan Frangopol

4:30pm **Investigation on the effects of rebar corrosion on the progressive collapse performance of RC frame structures**
» Dr. Xiao-Hui Yu, Prof. Dagang Lu

4:45pm **Use Reinforcement Learning to Determine the Spatial Variation of Critical Chloride Concentration in Reinforced Concrete**
» Mr. Jie Wu, Prof. Michael Lepech

5pm **Unified Prediction of Selfdesiccation, Autogenous Shrinkage, Drying Shrinkage, Swelling and Creep of Concrete**
» Mr. Mohammad Rasoolinejad, Mr. Saeed Rahimi-Aghdam, Prof. Zdenek Bazant

5:15pm **Mathematical Modeling of Time Varying Corrosion in Reinforced Concrete Structures**
» Mr. Amit Jain, Dr. Bora Gencturk

4pm MS34 - Experimental and Computational Methods for Particulate Materials; Part 3

4pm **Exploring the micromechanics of non-active clays via virtual DEM experiments**
» Dr. Arianna Gea Pagano, Dr. Vanessa Magnanimo, Prof. Alessandro Tarantino

4:15pm **Thermal Percolation in Conductive-Insulating Granular Mixtures**
» Mr. Matthew Evans, Dr. Ali Khoubani

4:30pm **Discrete element modeling of granular flow of flexible woody biomass particles**
» Dr. Yidong Xia, Dr. Zhengshou Lai, Prof. Qiushi Chen, Dr. Tyler Westover, Dr. Jordan Klinger, Dr. Hai Huang

4:45pm **The solid-liquid transition in geophysical flows**
» Prof. Douglas Jerolmack, Dr. Behrooz Ferdowsi, Mr. Nakul Deshpande

5pm **Geometric Partitioning of 3-D Granular Systems and Their Resulting Structural Characteristics**
» Dr. Reid Kawamoto, Prof. Takashi Matsushima

5:15pm **Development of HPC Framework for Numerical Simulation of Saturated Granular Soils**
» Mr. Ataollah Nateghi, Dr. Usama El Shamy

4pm MS72 - Mechanics and Physics of Granular Materials; Part 3

4pm **Discrete Element Method simulations of sound propagation in granular waveguides**
» Dr. Joe Calantoni, Mr. Quinlin Riggs, Mr. Sam Bateman, Dr. Julian Simeonov

4:15pm **Particle orientations properties and dilatancy behavior in Clays**
» Dr. Qian-Feng GAO, Dr. Mohamad Jrad, Prof. Mahdia Hattab

4:30pm **Feasibility of using 3D printed analogue soils for laboratory testing and validation of 3D DEM models**
» Dr. Michelle Lee Barry, Mr. Matthew Watters, Dr. Anjana Kittu

4:45pm **Effect of grain size on wave propagation in granular material: a micromechanical approach**
» Mr. Xiao Tang, Dr. Jun Yang

Continued from **Thursday, 20 June**

5pm **Atomic level stress calculation at finite temperature**
» Dr. Ranganathan Parthasarathy, Dr. Anil Misra, Dr. Lizhi Ouyang

5:15pm **2D wet soil mechanics on-a-chip**
» Dr. Morgane Houssais, Prof. Charles Maldarelli, Prof. Jeffrey Morris

4pm MS79 - Flow and Molecular Phenomena in Porous Media

4pm **Non-Newtonian Fluid Injection Test to Estimate Fracture Network Dimensions**
» Mr. Hamza Jaffal, Dr. Chadi El Mohtar

4:15pm **Numerical Assessment of Thermal Pressurization in Porous Media with Different Permeability**
» Mr. Mohammadreza Mir Tamizdoust, Dr. Omid Ghasemi-Fare

4:30pm **Is pore water pressure always tensile in unsaturated soil?**
» Prof. Chao Zhang, Prof. Ning Lu

4:45pm **Molecular dynamics simulations of major mineral constituents with kerogen in Green River oil shale**
» Mr. H M Nasrullah Faisal, Mr. Keshab Thapa, Prof. Kalpana Katti, Prof. Dinesh Katti

5pm **Estimation of the Shale Gas Permeability Using A Pore Network Model**
» Mr. Di Zhang, Prof. Jay Meegoda, Mr. Haohao Guo, Prof. Liming HU

5:15pm **Conceptualizing a series of connected, parallel plate fractures as a single, equivalent parallel-plate fracture**
» Mr. Ahmed Yosri, Dr. Sarah Dickson-Anderson, Prof. Wael El-Dakhakhni

4pm MS99 - Advanced Engineering Concepts, Designs, and Technologies for Aerospace and Extraterrestrial Applications; Part 3

4pm **Drilling mechanisms using piezoelectric actuators**
» Dr. Yoseph Bar-Cohen, Dr. Stewart Sherrit, Dr. Mircea Badescu, Dr. Hyeong Jae Lee, Dr. Xiaoqi Bao, Dr. Zensheu Chang

4:15pm **The Regolith and Ice Drill for Exploration of New Terrain (TRIDENT) - A One-Meter Class Drill for Acquisition of Volatile-Rich Subsurface Samples**
» Mr. Gale Paulsen, Dr. kris zacny, Mr. Zachary Mank, Mr. Jameil Bailey, Mr. Philip Beard, Mr. Paul Chow, Mr. Alex Wang, Mr. Leo Stolov, Mr. Daniel Hastings, Mr. Thomas Thomas, Dr. Dean Bergman, Mr. Luke Sanasarian, Mr. Albert Ridilla, Mr. Nick Traeden, Mr. Zachary Fitzgerald, Mr. Jared Atkinson, Mr. Bolek Mellerowicz, Mr. Philip Chu, Mr. Phillip Morrison, Mr. Ariel Gotti, Dr. Jacqueline Quinn, Mr. James Smith, Dr. Julie Kleinhenz

4:30pm **Mortar Testing Methods for Regolith as a Building Material**
» Ms. Sarah Seitz, Dr. Brian Glass

4:45pm **Densification Behavior and Mechanical Characteristics of FJS-1 Lunar Soil Simulant Using Spark Plasma Sintering (SPS) Method**
» Mr. Xiang Zhang, Ms. Mahdieh Khedmati, Prof. Bai Cui, Prof. Yong-Rak Kim, Dr. Hyu Shin, Dr. Janggeun Lee, Dr. Young-Jae Kim

5pm **Percentage of Water Retained In Icy Lunar Regolith Simulant During Transfer into a Sample Container**
» Mr. Aaron Paz

5:15pm **UTILIZING OF MAGNESIUM OXY-SULPHATE BINDERS FOR ADDITIVE CONSTRUCTION APPLICATIONS**
» Dr. Hunain Alkhateb, Dr. Hatem Almaseid, Dr. Jennifer Edmunson, Mr. Michael Fiske

4pm MS7+10+11 - Bio-inspired geoprobes and geosensors, Biomaterials and bio-inspired engineering, Bio-Inspired ground improvement and non-destructive monitoring techniques

4pm **Earthworm-inspired cone penetration**
» Ms. Saeedeh Naziri, Ms. Luisa Bannister, Mr. Russell Buehling, Prof. Douglas Cortes

Continued from **Thursday, 20 June**

4:15pm **Measuring shear strength properties of sandy soils with grass roots**
» Mr. Ryan Cardoza, Dr. Lalita Oka

4:30pm **Geomechanical Characterization of Bio-Cemented Sands Using Continuum-Based Simulation**
» Ms. Ronak Mehrabi, Dr. Kamelia Atefi-Monfared

4:45pm **Enriching Indigenous Ureolytic Bacteria Using Bio-stimulation in Hawaiian Beach Coral Sand**
» Mr. Yijie Wang, Dr. Ningjun Jiang

5pm **Modeling of localized deformation in biopolymer treated pressure sensitive materials**
» Mr. Antonio Soldo, Dr. Marta Miletic

5:15pm **Durability against wetting–drying cycles of sustainable xanthan gum reinforced soil**
» Mr. Antonio Soldo, Dr. Marta Miletic

4pm MS35 - Computational Geomechanics; Part 3

4pm **A geometry-based algorithm for cloning real grains 2.0**
» Mr. David Medina, Prof. Alex Jerves

4:15pm **Modeling Breakage using LS-DEM**
» Mr. John Harmon, Prof. José Andrade

4:30pm **Enriched Galerkin methods for locally mass conservative simulation of large-deformation poromechanics**
» Prof. Jinhyun Choo, Prof. Sanghyun Lee

4:45pm **An Elasto-plastic Homogenization Framework for Layered Materials with Plane of Weakness**
» Dr. Shabnam Semnani, Dr. Joshua A. White

5pm **Incremental elastoplastic response of a real granular material via virtual stress probing**
» Mr. Konstantinos Karapiperis, Mr. John Harmon, Prof. José Andrade

5:15pm **Molecular simulation framework for soil behavior**
» Prof. Chao Zhang

4pm MS50 - Multi-scale control and characterization of cementitious materials undergoing phase change

4pm **Effects of the atomic-structure and microstructure on micromechanical properties of glass powder-metakaolin based alkali-activated binder**
» Dr. Qingli Dai, Mr. Ruizhe Si

4:15pm **In situ Submicron Raman Tracking of the Ordinary Portland Cement Hydration Process**
» Mr. Hyun-Chae Loh, Prof. Admir Masic

4:30pm **Characterization of rheological properties of cement paste based on the adsorption of superplasticizer**
» Dr. Jin Young Yoon, Prof. Jae Hong Kim, Mr. Byungil Choi

4:45pm **Heterogeneous growth of Calcium-Silicate-Hydrate gels**
» Prof. Emanuela Del Gado, Mr. Abhay Goyal, Mr. Christopher Tiede, Prof. Pierre Levitz, Dr. Katerina Ioannidou, Dr. Roland Pellenq

5pm **Structural build-up of fresh cement pastes incorporating viscosity modifying agents**
» Dr. Siwei Ma, Prof. Shiho Kawashima

5:15pm **Cement-based 3D printed bioinspired architectured materials**
» Mr. Reza Moini, Prof. Jan Olek, Prof. Jeff Youngblood, Prof. Pablo Zavattieri

4pm MS47 - Applications of material-level architecture in earthquake engineering

Continued from **Thursday, 20 June**

4pm **An innovative technique to design gusset plates using heat treatment**
» Mr. Hossein Mohammadi, Tracy Becker, Prof. Hatem Zurob

4:15pm **Novel Heat-treated Braces for enhanced Seismic Performance and Structural Efficiency of Concentrically Braced Frames**
» Dr. Machel Morrison

4:30pm **Seismic Retrofit of Reinforced Concrete Wall Piers Using Various Carbon Fiber Geometric Forms**
» Ms. Vanessa McEntee, Mr. Bhaskar Kunwar, Dr. Chris Pantelides

4:45pm **Plastic hinge relocation in RC beams through rebar heat treatment**
» Mr. Heramb Mahajan, Dr. Machel Morrison, Prof. Tasnim Hassan

5pm **Behavior of Foam-Filled HSS under Cyclic Loading**
» Mr. Malcolm Ammons, Mr. Christian Flores Carreras, Prof. Jason McCormick

5:15pm **A novel technique involving heat treatment for plastic hinge relocation in steel building beam-column connections**
» Dr. Machel Morrison, Mr. Doug Schweizer, Dr. Shahriar Quayyum, Prof. Tasnim Hassan

6:30pm **Banquet Refreshments**
Beckman Mall

7pm **EMI Awards Banquet**
Beckman Mall

Friday, 21 June

8:30am **Plenary 5**
Beckman Auditorium (1,136)

Some New Directions in Modeling Granular Flows
» Prof. Ken Kamrin

9:30am **Coffee break/Poster session**
Beckman Mall

10:30am **MS83 - Computational Methods for Stochastic Engineering Dynamics & SHM**
Ramo (371)

10:30am **Simulation of Two Spatial Dimensions Wind Velocity Time Histories as Non-Gaussian Stochastic Waves**
» Prof. Michael Haijun Zhou, Mr. Qi Wen, Prof. George Deodatis, Prof. Michael Shields

10:45am **Simulation of non-Gaussian processes for non-linear stochastic systems**
» Mr. Lohit Vandanapu, Prof. Michael Shields

11am **Neural agent for structural analysis: a novel approach**
» Mr. Xihaier Luo, Prof. Ahsan Kareem

11:15am **Uncertainty propagation through high-fidelity non-linear dynamic systems driven by stochastic excitation**
» Mr. Bowei Li, Dr. Seymour Spence

11:30am **High performance computing strategies for efficient Wiener path integral based stochastic response analysis of diverse dynamical systems**
» Mr. Ketson Roberto Maximiano dos Santos, Mr. Apostolos Psaros, Mr. Ioannis Petromichelakis, Prof. Ioannis Kougioumtzoglou

Continued from **Friday, 21 June**

11:45am **Wiener path integral based response determination of structural systems subject to stochastic excitations modeled via fractional order filters**
» Ms. Maria Katsidoniotaki, Mr. Apostolos Psaros, Dr. Alberto Di Matteo, Prof. Ioannis Kougioumtzoglou, Dr. Antonina Pirrotta

10:30am **MS89 - Bayesian Inference in System Identification: Efficient Algorithms and Applications**
Steele 102 (130)

10:30am **Efficient bridge lifetime assessment by traffic load model updating and Subset Simulation**
» Dr. Stephen Wu, Dr. HeQing Mu, Mr. Han-Teng Liu

10:45am **Bayesian system identification based on an adaptive sequential Markov chain Monte Carlo method**
» Dr. Jia-Hua Yang, Dr. Heung Fai Lam

11am **EVALUATING THE NON-LINEARITY OF RAILWAY BALLAST USING BAYESIAN FRAMEWORK**
» Mr. Mujib Olamide Adeagbo, Dr. Heung Fai Lam

11:15am **A Bayesian method for sequential compressive sensing**
» Prof. Yong Huang, Prof. Jim Beck, Prof. Hui Li

11:30am **Particle Filtering Strain-Based Crack Localization**
» Mr. Charilaos Mylonas, Prof. Eleni Chatzi

11:45am **Operation modal identification of a two-coupled wall structure following a Bayesian approach**
» Dr. Jun Hu, Dr. Heung Fai Lam, Mr. Yimin Lin

10:30am **MS94 - Integration of Physics-based Models with Data for Model Identification, Updating, and Uncertainty Quantification**
Kerckhoff 119 (174)

10:30am **Obstruction-Invariant Indoor Occupant Localization Using Footstep-Induced Structural Vibration**
» Mr. Mostafa Mirshekari, Mr. Jonathon Fagert, Dr. Shijia Pan, Prof. Pei Zhang, Prof. Hae Young Noh

10:45am **Vibration source characterization for human gait health monitoring using footstep-induced floor vibrations**
» Mr. Jonathon Fagert, Mr. Mostafa Mirshekari, Dr. Shijia Pan, Prof. Pei Zhang, Prof. Hae Young Noh

11am **Model Updating for Performance Assessment of a Building in Mexico City Using Post-Earthquake Ambient Vibration Measurements**
» Dr. Pei Liu, Mr. Mario Ortega, Dr. Babak Moaveni, Dr. Andreas Stavridis, Dr. Richard Wood

11:15am **Quantifying and Managing Uncertainties in Subsurface Infrastructure Mapping and Assessment**
» Dr. Dylan Burns, Mr. Dan Orfeo, Mr. Yan Zhang, Mr. Mauricio Pereira, Prof. Tian Xia, Prof. Dryver Huston

11:30am **A Hierarchical Bayes Inversion Method for Characterization of Soil Properties Using Surface Wave Measurements**
» Mehdi M. Akhlaghi, Dr. Babak Moaveni, Dr. Laurie G. Baise

11:45am **Sparse Bayesian Learning and Model Reduction for Robust Structural Damage Identification**
» Prof. Jian Li, Dr. Parisa Asadollahi, Prof. Yong Huang

10:30am **MS61 - Multihazards considerations for Objective Infrastructure Resilience; Part 1**
Firestone 384 (76)

10:30am **Increasing Resiliency and Durability of Bridge Columns with UHPC**
» Mr. Dovlet Akyniyazov, Dr. Bora Gencturk, Mr. Hadi Aryan

10:45am **Resilience Assessment: Methods and Implementation**
» Prof. Elsayed Elsayed

Continued from **Friday, 21 June**

11am **Temporal Network Model for Resilience-based Management of Mega-Infrastructure Construction Projects**
» Mr. Ahmed Gondia, Prof. Wael El-Dakhakhni

11:15am **Quantifying Resilience of Power Infrastructure Systems, One "R" at a Time**
» Mr. Eric Goforth, Dr. Mohamed Ezzeldin, Prof. Wael El-Dakhakhni, Dr. Lydell Wiebe

11:30am **Data Analytics Applications for Power Infrastructure Resilience under Meteorological Hazards**
» Ms. May Haggag, Dr. Ahmad Siam, Prof. Wael El-Dakhakhni, Prof. Hassini Elkafi

11:45am **Challenges Facing Additive Construction to Fabricate Rapid Resilient Structures**
» Dr. Hunain Alkhateb, Dr. Hatem Almaseid, Mr. Hashem Almashaqbeh, Prof. Ahmed Al-ostaz, Dr. Jennifer Edmunson, Mr. Michael Fiske

10:30am MS68 - Hurricane Hazards, Risk, and Adaptation in a Changing Environment

Gates-Thomas Hall Auditorium 135 (88)

10:30am **21st-Century Hurricane-Induced Flood Hazards and Mitigation for Jamaica Bay, New York**
» Prof. Reza Marsooli, Prof. Ning Lin, Ms. Rennie Jones, Prof. Guy Nordenson

10:45am **Risk-based Robust Decision Making for Climate Adaptation of Deteriorating Coastal Bridges**
» Dr. David Yang, Prof. Dan Frangopol

11am **Quantification of Community Resilience against Hurricanes through a Distributed Simulation Platform**
» Mr. Ahmed Abdelhady, Dr. Seymour Spence, Prof. Jason McCormick

11:15am **Fragility assessment of power distribution system for resilience hardening**
» Mr. Jintao Zhang, Mr. William Hughes, Dr. Wei Zhang, Dr. Amvrossios Bagtzoglou

11:30am **Risk assessment of port structures**
» Mr. Marco Maniglio, Dr. Georgios Balomenos, Prof. Jamie Padgett, Prof. Gian Paolo Cimellaro

11:45am **Extreme Storm Surge Return Period Prediction Using Tidal Gauge Data and Estimation of Damage to Structures from Storm-Induced Wind Speed in South Korea**
» Mr. Sang Guk Yum, Prof. George Deodatis

10:30am MS107 - Advances in Computational Mechanics

10:30am **Adaptive Polynomial Dimensional Decomposition Based on f-index for Stochastic Topology Optimization**
» Prof. Xuchun Ren

10:45am **Sensitivity analysis and parameter optimization for acoustic cloaking in coupled fluid – structure systems**
» Mr. Harisankar Ramaswamy, Mr. Saikat Dey, Prof. Assad Oberai

11am **Implicit SPH for incompressible fluid simulations in LS-DYNA**
» Dr. Edouard Yreux

11:15am **Limitations of Nonlinear Analytical Models for Computational Substructures for Real-Time Hybrid Simulation**
» Ms. Elif Ecem Bas, Dr. Mohamed Moustafa

11:30am **Multiscale Computational Modeling of Bio-Inspired Impact-Resistant Composites**
» Mr. Chengping Rao, Prof. Yang (Emily) Liu

11:45am **Simulating Three-dimensional Hydraulic Fracturing within a GFEM Framework**
» Mr. Nathan Shauer, Prof. Carlos Duarte

Continued from **Friday, 21 June**

10:30am **MS15 - Advances in Simulation for Extreme Dynamic Loading of Structures; Part 1**

10:30am **Application of the Work Potential Theory to the Material Characterization of Concrete**
» Dr. Kenneth Walls, Dr. Kevin Schrum

10:45am **Numerical Approaches for Calculating the Shape and Velocity of an Explosively Formed Projectile (EFP)**
» Mr. John Puryear, Mr. Darrell Barker

11am **Channeling and shielding effects on wave loading of structures**
» Prof. Michael Motley, Mr. Andrew Winter, Prof. Marc Eberhard

11:15am **A Comparison of NMAP, EPIC and CTH for Modeling Fragment Simulating Projectile Impact on Steel Plates**
» Dr. Paul Sparks, Mr. Daniel Rios-Estremera, Mr. David Roman-Castro, Dr. Jesse Sherburn, Dr. William Heard

11:30am **A stable, efficient, locking free hexahedral element for problems in non-linear dynamics**
» Dr. Brian Giffin

11:45am **ON THE OPTIMAL DESIGN OF STRESS WAVE ATTENUATORS FOR MITIGATING TRANSIENT IMPULSIVE LOADINGS**
» Dr. Reza Rafiee-dehkharghani, Prof. Amjad Aref, Prof. Gary Dargush

10:30am **MS20 - Multiscale Behavior of Damage and Failure Mechanics; Part 1**

10:30am **Experimental study and XFEM fracture analysis on reinforced concrete wedge splitting specimens**
» Mr. Aiqing Xu, Ms. Xiaoyan Man, Prof. Woody Ju, Prof. Shaowei Hu

10:45am **Microstructural Damage Characterization and Its Effect on Structural Degradation of Concrete under Freeze-Thaw Action**
» Dr. Yijia Dong, Prof. Chao Su, Prof. Pizhong Qiao, Prof. Lizhi Sun

11am **Localizing gradient damage model with micro inertia for dynamic fracture**
» Dr. Leong Hien Poh

11:15am **Characterization of Composite Material Interfacial Properties Through Multiscale Modelling**
» Dr. Vincent Iacobellis, Prof. Kamran Behdinan

11:30am **A micromechanical aspect on damage of an innovative asphalt pavement material featuring high-toughness, low-viscosity nanomolecular resin and its numerical simulations**
» Mr. Hao Zhang, Prof. Woody Ju

11:45am **Mechanics and Mechanisms of Slow Crack Propagation in Brittle Hydrogels**
» Ms. Kimberley Mac Donald, Prof. Guruswami Ravichandran

10:30am **MS29 - Advances in Experimental, Analytical and Computational Wind Engineering**

10:30am **The Dynamic Failure and Safety Protection of Long-Span Spatial Structures Subjected to Blast Loads**
» Dr. Jialu Ma, Prof. Guibo Nie, Prof. Xudong Zhi, Prof. Lingxin Zhang, Prof. Feng Fan

10:45am **Design of an active fin system to mitigate tall building responses using cyber-physical testing in the wind tunnel**
» Mr. Michael Whiteman, Dr. Pedro Fernandez-Caban, Prof. Brian Phillips, Prof. Forrest Masters, Prof. Jennifer Bridge, Dr. Justin Davis

11am **Computational Modeling in Dynamic Analysis of Multi-Rotor Wind Turbines (MRWTs)**
» Dr. Reyhaneh Navabzadehesmaeili, Prof. John Niedzwecki, Prof. Luciana Barroso

Continued from **Friday, 21 June**

11:15am **Construction Crane under Extreme Wind Hazards – Experimental Evaluation**
» Ms. Nafiseh Kiani, Prof. Youngjib Ham, Prof. Seung Jae Lee

11:30am **Modeling ventilation in a slum house in Dhaka, Bangladesh**
» Mr. Yunjae Hwang, Dr. Laura Kwong, Mrs. Jenna Forsyth, Mr. Mahamudul Hasan, Mr. Sajjadur Rahman, Mr. Fosiul Nizame, Prof. Stephen Luby, Prof. Catherine Gorle

11:45am **Challenges and Opportunities in Multi-Hazard Engineering**
» Prof. Amal Elawady, Prof. Arindam Chowdhury, Prof. Ioannis Zisis, Prof. Peter Irwin

10:30am MS75 - Cementitious Materials: Experiments and Modeling Across the Scales

10:30am **Image Based Probabilistic Analysis of the Microstructure of Pervious Concrete**
» Prof. Sarah Baxter, Prof. Katherine Acton, Prof. Rita Lederle

10:45am **Computed Permeability from Pore Measurement of Cement Paste Subject to Freeze-thaw Cycles at Early Ages**
» Dr. Ya Wei

11am **Modeling the effect of microstructure on ultrasonic wave propagation**
» Mr. Raj Gopal Nannapaneni, Dr. Kalyana B.Nakshatrala, Prof. Konrad J.Krakowiak

11:15am **Chemical and mechanical interactions between soft hydrogels as a water reservoir with a cementitious matrix**
» Prof. Ali Ghahremaninezhad, Dr. Khashayar Farzanian

11:30am **Reversible water uptake/release by hydrates governs the thermal expansion of cement paste — A multiscale poromechanical analysis**
» Dr. Hui Wang, Prof. Christian Hellmich, Prof. Yong Yuan, Prof. Herbert Mang, Prof. Bernhard Pichler

11:45am **Cement cohesion from structuring of ions and restructuring of water**
» Mr. Abhay Goyal, Dr. Katerina Ioannidou, Dr. Roland Pellenq, Prof. Emanuela Del Gado

10:30am MS104 - Analysis of Heritage Structures: Tools and Methods for Assessing Historic Monuments and Structures; Part 1

10:30am **Structural Building Monitoring**
» Mr. Nathan Hicks

10:45am **Multimodal Data Fusion and Analysis for Heritage Structures**
» Dr. Dominique Rissolo, Mr. Vid Petrovic, Dr. Michael Hess, Mr. Eric Lo, Mr. Dominique Meyer, Mr. Christopher Mcfarland, Dr. Falko Kuester

11am **Lapped scarf joint with inclined faces and wooden dowels intended for tensile loads: analysis and design**
» Ms. Suzy Bishara

11:15am **Hazard Mitigation and Rehabilitation using a Deterministic Approach**
» Mr. Melvyn Green

11:30am **Ultrasonic tomography: non-destructive evaluation of the weathering state on a marble obelisk, considering the effects of structural properties**
» Prof. Siegfried Siegesmund, Mrs. Johanna Menningen, Dr. Daryl Tweeton, Mr. Markus Träupmann

11:45am **Simplified expression for determination of horizontal reactions in segmental, parabolic, and catenary arches**
» Prof. Branko Glisic

10:30am MS105 - Extraterrestrial soil mechanics: 50 years after Apollo 11

10:30am **What would it take to build on Mars?**
» Prof. José Andrade

Continued from **Friday, 21 June**

10:45am **The Stinger: A Geotechnical Sensing Package for Robotic Scouting on a Small Planetary Rover**
» Mr. Zachary Mank, Dr. kris zacny, Mr. Joseph Palmowski, Mr. Daniel Hastings, Mr. Nick Traeden, Mr. Alex Wang, Mr. Philip Beard, Mr. Jameil Bailey, Mr. Thomas Thomas, Mr. Michael Yu, Mr. Paul Chow, Mr. Leo Stolov, Mr. Jared Atkinson, Mr. Arno Rogg, Mrs. Maria Bualat, Dr. Terry Fong

11am **Discrete element modelling of low gravity sample collection and transfer operations for Enceladus surface acquisition**
» Mr. Dario Riccobono, Dr. Scott Moreland, Dr. Paul Backes, Prof. Giancarlo Genta

11:15am **RESPONSE TO STATIC AND IMPULSIVE LOADS OF DNA-1A LUNAR REGOLITH SIMULANT**
» Ms. Valentina Marzulli, Dr. Francesco Cafaro, Prof. Thorsten Poeschel

11:30am **Planet Rover Wheels Loading Test Applied to Its Regolith Strength/Property Estimation**
» Prof. Jiliang Li, Dr. Jinyuan Zhai

10:30am MS2+3 - Bio-Inspired interfaces, Bio-Inspired Burrowing, Drilling and Excavation

10:30am **Anisotropic Shear Behavior at Snakeskin Inspired Surfaces**
» Mr. Kyle O'Hara, Dr. Alejandro Martinez

10:45am **Bioinspired glass fiber reinforced polymer composites to improve machinability**
» Dr. Claudiane Ouellet-Plamondon

11am **A DEM study of the interaction between multiple anchors of a bio-inspired probe**
» Ms. Yuyan Chen, Dr. Alejandro Martinez, Dr. Jason DeJong

11:15am **Effect of Rotation on Seed's Self-Burial Process: Insights from DEM Simulations**
» Mr. Yong Tang, Prof. Junliang "Julian" Tao

11:30am **Impact of shell-opening of a model razor clam on the evolution of force chains in granular media**
» Dr. Nariman Mahabadi, Mr. Sichuan Huang, Prof. Junliang "Julian" Tao

11:45am **The self-propulsion of a helical swimmer in granular matter**
» Mr. Jose Valdes, Dr. Roberto Zenit, Dr. Elsa de la Calleja, Ms. Veronica Angeles

10:30am MS35 - Computational Geomechanics; Part 1

10:30am **Fourier series-based discrete element method for irregular-shaped particles**
» Prof. Qiushi Chen, Dr. Zhengshou Lai

10:45am **Large Deformation Poroplasticity Modeling for Landslide and Soil Penetration Problems**
» Prof. Craig Foster, Mr. Seyed Milad Parvaneh, Prof. Sheng-Wei Chi

11am **Multiscale poromechanics: double porosity, transverse isotropy, and non-Darcy flow**
» Dr. Qi Zhang, Prof. Jinhyun Choo, Prof. Ronaldo Borja

11:15am **On the strength of transversely isotropic rocks**
» Mr. Yang Zhao, Dr. Shabnam Semnani, Mr. Qing Yin, Prof. Ronaldo Borja

11:30am **Determination of slide direction for three-dimensional slope stability**
» Dr. Murray Fredlund, Mr. Haihua Lu, Mr. Yukuai Wan, Prof. Gilson Gitirana

11:45am **The coupled DEM-FVM method for complex fracturing of tight rocks under thermal and hydraulic stimulation**
» Dr. Jiaoyan Li, Dr. Yidong Xia, Dr. Hai Huang

Continued from **Friday, 21 June**

10:30am **MS51 - Multiscale Characterization and Modeling of Infrastructure Materials; Part 1**

10:30am **Assessment of Applicability of Micromechanics-based Homogenization Schemes in Cement-based Materials via Digital Image Correlation**
» Dr. Siming Liang, Dr. Ya Wei

10:45am **Dynamic Strain Aging of C45 steel over a wide range of temperatures and strain rates**
» Dr. Yooseob Song, Dr. George Voyiadjis, Dr. Alexis Rusinek

11am **Modelling and characterizing the adhesion of grooved interface between shotcrete and geopolymer by FEM and Wedge Split method**
» Mr. Zhaopeng Yang, Prof. Linbing Wang

11:15am **Integrated Modeling and Experimental Process Observations to Improve Asphalt Mix Design**
» Prof. Linbing Wang

11:30am **Analytical analysis of ground settlement induced by construction of a curved shield tunnel**
» Dr. Pengfei Li

11:45am **Mesoscale Coupled Chemo-Mechanical Modelling of Concrete Damage Subject to Combined SA and F-T Degradation**
» Prof. Yang Lu, Mr. Md Aminul Islam

10:30am **MS45 - The Link Between Composition, Structure, and Physical Properties of Materials; Part 1**

10:30am **Atomic Picture of Calcium Carbonate Precipitation by Molecular Dynamics Simulations**
» Ms. Qi Zhou, Prof. Mathieu Bauchy, Mr. Tao Du

10:45am **Machine Learning-Aided Development of Empirical Force-Fields**
» Mr. Han Liu, Mr. Zipeng Fu, Ms. Yipeng Li, Ms. Nazreen Sabri, Prof. Mathieu Bauchy

11am **New insights into the response to indentation of glasses from peridynamic simulations**
» Mr. Yuzhe Cao, Prof. Mathieu Bauchy

11:15am **Modeling of the effects of surface tension in nano-composites with spherical and circular material surfaces**
» Prof. Sofia Mogilevskaya, Dr. Volodymyr Kushch, Prof. Anna Zemlyanova

11:30am **Nanolayered Attributes of Calcium-Silicate-Hydrate Gels**
» Dr. Mohammad Javad Abdolhosseini Qomi

11:45am **Understanding thermo-mechanical properties of cross-linked C-S-H**
» Mr. Ali Morshedifard, Dr. Mohammad Javad Abdolhosseini Qomi

12pm **Lunch**
Beckman Mall

1pm **Plenary 6**
Beckman Auditorium (1,136)

Nonconservative loads of the follower type and related Hopf bifurcations in elastic structures
» Prof. Davide Bigoni

2pm **MS80 - Structural Identification and Damage Detection**
Ramo (371)

2pm **An efficient algorithm to test the observability of rational nonlinear systems with partially measured inputs**
» Mr. Xiaodong Shi, Prof. Manolis Chatzis, Dr. Kristof Maes, Prof. Martin Williams

Continued from **Friday, 21 June**

2:15pm **Global Sensitivity Analysis for the Design of Nonlinear Identification Experiments**
» Mrs. Alana Lund, Prof. Shirley Dyke, Prof. Wei Song, Prof. Ilias Bilionis

2:30pm **Vibration-based monitoring of systems featuring operational and environmental variability**
» Mr. Konstantinos Tatsis, Dr. Vasilis Dertimanis, Prof. Eleni Chatzi

2:45pm **Influence of Local Nonlinearities on Global System Dynamics and Nonlinear System Identification**
» Dr. Keegan Moore, Dr. Lawrence Bergman, Dr. Alexander Vakakis

3pm **Value of information assessment of structural health monitoring through optimal stochastic control**
» Mr. Charalampos Andriotis, Dr. Kostas G. Papakonstantinou, Prof. Eleni Chatzi

3:15pm **An intelligent wireless monitoring system for near-real-time condition assessment of civil infrastructures under sudden events**
» Mr. Yuguang Fu, Mr. Tu Hoang, Dr. Kirill Mechitov, Prof. Billie F. Spencer

2pm MS88 - Modeling deterioration of structures and infrastructure

Steele 102 (130)

2pm **Performance-based Durability Assessment of RC Structures under Marine Atmospheric Environment**
» Mr. Hongyuan Guo, Prof. You Dong

2:15pm **Sample-based life-cycle analysis and optimization of deterioration engineering systems**
» Mr. Zhenqiang Wang, Prof. Gaofeng Jia, Prof. Paolo Gardoni

2:30pm **Deterioration modeling of glass fiber reinforced polymer composite structures/systems**
» Dr. Zhiye Li, Prof. Michael Lepech

2:45pm **Computational Modeling the Effect of ASR Damage on the Shear Strength of Reinforced Concrete Beams**
» Mr. Hadi Aryan, Dr. Bora Gencturk, Ms. Clotilde Chambreuil

3pm **Improved bridge deterioration prediction using Bayesian updating considering incomplete data**
» Ms. Min Li, Prof. Gaofeng Jia

3:15pm **Deterioration models including real-time damage accumulation within shock occurrences**
» Mr. Leandro Iannacone, Prof. Paolo Gardoni, Prof. Gaofeng Jia

2pm MS94+23 - Integration of Physics-based Models with Data for Model Identification, Updating, and Uncertainty Quantification, Robustness of infrastructures

Kerckhoff 119 (174)

2pm **Efficient Evidence Estimation for Bayesian Model Selection**
» Dr. Subhayan De, Prof. Erik Johnson, Prof. Steve Wojtkiewicz

2:15pm **Digital Twins for Operational Monitoring and Rapid Post Earthquake Assessment of Civil Infrastructures**
» Dr. Hamed Ebrahimian, Dr. Farid Ghahari, Prof. Ertugrul Taciroglu

2:30pm **Surrogate Modeling with Physics-guided Neural Networks**
» Dr. Jinwoo Jang, Dr. Daniel Bartilson, Dr. Andrew Smyth

2:45pm **Nonlinear Finite Element Model Updating of a Dynamically Tested Two-Story RC Building**
» Dr. Seyedsina Yousefianmoghadam, Dr. Andreas Stavridis, Dr. Babak Moaveni

3pm **The Components-Modeling-Method Based Numerical Analysis on the Structural Response of Planar Multi-Storey Steel Frame under Disproportional Collapse Scenario**
» Prof. Yiyi Chen, Dr. Zhiyang Xie

Continued from **Friday, 21 June**

3:15pm **Global Stability Analysis of Moment Resisting Frame Building in Post-Earthquake Fire Scenarios**
» Mr. Prabodh Dahal, Dr. Chris Mullen

2pm **MS61 - Multihazards considerations for Objective Infrastructure Resilience; Part 2**
Firestone 384 (76)

2pm **A Conceptual Framework for City Resilience Index Classification for Climate Change**
» Mr. Mostafa Naiem, Prof. Wael El-Dakhakhni, Dr. Ahmad Siam, Prof. Paulin Coulibaly

2:15pm **Development of analytical framework for objective resilience of corroded steel bridges**
» Mr. George Tzortzinis, Mr. Brendan Knickle, Dr. Simos Gerasimidis, Mr. Alexander Bardow, Dr. Sergio Breña

2:30pm **Consideration of Post-Earthquake Fire scenarios for the Objective Infrastructure Resilience**
» Dr. Chris Mullen, Mr. Prabodh Dahal

2:45pm **RAIL NEUTRAL TEMPERATURE MONITORING USING NON-CONTACT PHOTOLUMINESCENCE PIEZOSPECTROSCOPY: A FIELD STUDY AT HIGH-SPEED RAIL TRACK**
» Prof. Hae-Bum Yun, Dr. Kyoung-Chan Lee, Dr. Sung Ho Hwang

3pm **Seismic Resilience of Fully Integrated Hospital Clusters Subjected to Mainshock-Aftershock Sequences**
» Prof. Hussam Mahmoud, Mr. Emad Hassan

3:15pm **Investigating the Social Resilience of Urban Regions in Response to Natural Hazards**
» Dr. Farrokh Namjooyan, Dr. Fariborz Tehrani

2pm **MS16 - Recent Advances in Real-time Hybrid Simulation**

2pm **Real-time hybrid simulation framework for multi-axial platforms**
» Mr. Amirali Najafi, Prof. Billie F. Spencer

2:15pm **Development of real-time hybrid simulation system for a bridge deck section model in a wind tunnel**
» Mr. Youchan Hwang, Prof. Oh-sung Kwon, Prof. Ho-Kyung Kim, Dr. Un Yong Jeong

2:30pm **Real-time Hybrid Simulation in Aerospace Applications**
» Dr. Xiuyu Gao, Dr. Shawn You, Mr. Arlin Nelson

2:45pm **Real-Time Hybrid Simulation for Damper Performance Evaluation under Wind Load**
» Prof. Wei Song, Dr. Teng Wu

3pm **Real-time Hybrid Simulation of Highly Nonlinear Devices Using the Particle Filter**
» Mr. Johnny Condori, Dr. Amin Maghareh, Prof. Shirley Dyke

3:15pm **Design of a Controller for Physical Substructures in Stochastic Real-Time Hybrid Simulations**
» Mr. Nikolaos Tsokanas, Prof. Bozidar Stojadinovic

2pm **MS15 - Advances in Simulation for Extreme Dynamic Loading of Structures; Part 2**

2pm **Compatible Second-Order Finite Elements for Use in Explicit-Dynamic Simulations That Facilitate Hex-Dominant Meshing**
» Mr. Robert Browning, Dr. Kent Danielson, Dr. David Littlefield

2:15pm **Simulation of Post-Event Capacity for Reinforced Concrete Structures**
» Mr. Andrew Groeneveld, Mr. Robert Browning, Dr. Wesley Trim

2:30pm **Implementation of MCEER TR 14-0006 Blast Load Curves in LS-DYNA® and Benchmark to Commonly Practiced Blast Loading Application Methods**
» Mr. Devon Wilson, Ms. Deborah Blass, Mr. Sam Noli, Ms. Kendra Jones

Continued from **Friday, 21 June**

2:45pm **REFINEMENTS TO A CONTACT METHOD FOR MULTI-MATERIAL EULERIAN HYDROCODES**
» Dr. David Littlefield

3pm **Progressive Collapse Fragility Analysis and Progressive Collapse Potential Assessment of RC Spatial Frames with Infilled Walls**
» Prof. Mingming Jia, Prof. Dagang Lu

3:15pm **Challenges in Modeling Contact in Explicit High-Velocity Impact Computations**
» Mr. Dominic Wilmes, Dr. Casey Meakin, Mr. Joe Magallanes

2pm MS20 - Multiscale Behavior of Damage and Failure Mechanics; Part 2

2pm **Multi-scale random media modeling of concrete**
» Prof. Jie Li, Dr. Hankun Liu, Prof. Xiaodan Ren

2:15pm **A Computational study of the micro-mechanics underlying ballistic impact towards designing a class of better ballistic composites**
» Mr. Ramachandran Varun Raj, Prof. Ron Peerlings, Prof. Vikram Deshpande

2:30pm **A novel multi-scale model for predicting the thermal damage of hybrid fiber reinforced concrete**
» Dr. Yao Zhang, Prof. Woody Ju

2:45pm **Effective elastoplastic damage mechanics for fiber reinforced nanocomposites with evolutionary fiber debonding**
» Mr. Yinghui Zhu, Prof. Woody Ju

3pm **Micromechanical damage formulation and experimental testing for internal freeze-thaw damage of porous concretes**
» Mr. Tien-Shu Chang, Prof. Woody Ju

2pm MS72 - Mechanics and Physics of Granular Materials

2pm **Stress Wave Propagation in Granular Columns**
» Mr. Christopher Kubik, Prof. Anthony Rosato, Dr. Denis Blackmore

2:15pm **Structural signature of the onset of granular creep flow in rotating drum systems**
» Liuchi Li, Prof. José Andrade

2:30pm **On the effect of grain friction on characteristics of slip instabilities in a sheared granular fault gouge**
» Dr. Omid Dorostkar, Prof. Jan Carmeliet

2:45pm **Study of an athermal quasi static plastic deformation in a 2D granular material**
» Dr. Jie Zhang

2pm MS104 - Analysis of Heritage Structures: Tools and Methods for Assessing Historic Monuments and Structures; Part 2

2pm **Scale model collapse analyses of freestanding multi-drum Pompeian columns**
» Ms. Janille Maragh, Mr. Samuel Raymond, Mr. Eric Wong, Prof. John Ochsendorf, Prof. John Williams, Prof. Admir Masic

2:15pm **Diagnosis of damage on historic structures: Manifold learning and numerical methods for building pathology and diagnostics**
» Ms. Rebecca Napolitano, Dr. Wesley Reinhart, Mr. David Sroczynski, Prof. Branko Glisic

2:30pm **Calx Viva: technological insights into the production of ancient Roman concrete**
» Ms. Linda Seymour, Ms. Janille Maragh, Dr. James Weaver, Prof. Admir Masic

2:45pm **Structural Vulnerability of Roof Structures in Nepali Pagoda Temples Due to Load Path Discontinuity**
» Mr. Dilendra Maharjan, Ms. Maimuna Hossain, Ms. Maria del Pilar Rodriguez, Dr. Fernando Moreu

Continued from **Friday, 21 June**

3pm **Ontology-based Environment Integrating Cultural Heritage Structures and Earthquake Damage Data**
» Dr. Satwant Rihal, Dr. Hisham Assal

3:15pm **Comparison of the Uplift Horizontal Acceleration of the Single-Nave Barrel Vault and the Rocking Frame**
» Dr. Haris Alexakis, Prof. Nikolaos Makris

2pm MS106 - Mechanics of Rocks and Anisotropic Polycrystals

2pm **Multiscale modeling of the competition between mechanical damage and healing in salt polycrystals**
» Ms. Tingting Xu, Dr. Chloe Arson, Mr. Xianda Shen

2:15pm **Pros and cons of the Mori-Tanaka scheme for modeling damage propagation due to biotite weathering in granite**
» Mr. Xianda Shen, Dr. Chloe Arson, Dr. Sébastien Brisard

2:30pm **Modeling the anisotropic behavior of natural rock salt during creep tests using dislocation density-based crystal plasticity**
» Dr. Timothy Truster, Mr. Amirsalar Moslehy, Mr. Sunday Aduloju, Prof. Khalid Alshibli

2:45pm **A multiscale FE-FFT approach for modeling crack initiation and propagation in polycrystalline rock salt**
» Dr. Ran Ma, Prof. Wai Ching Sun

2pm MS4 - Computational Biomechanics: From Cell, Tissue, to Organ-Level Modeling

2pm **IMPROVED CONVERGENCE OF FORWARD AND INVERSE SOFT TISSUE MODELS**
» Dr. Ankush Aggarwal, Dr. Sanjay Pant, Dr. Yue Mei

2:15pm **A New Robust 3D Constitutive Model for the Passive Properties of Left Ventricular Myocardium**
» Mr. David Li, Dr. Reza Avazmohammadi, Mr. Samer Merchant, Dr. Tomonori Kawamura, Dr. Edward Hsu, Dr. Joseph Gorman, Dr. Robert Gorman, Dr. Michael Sacks

2:30pm **Oscillating Solitary Waves Supported by a Strain-Cued Strain Transformation and a Strain-Gradient-Cued Motility Transformation Can Segment an Initially Homogeneous Cell Population**
» Dr. Brian Cox

2:45pm **A multi-scale model to determine in-situ heart valve interstitial cell contractile behaviors in native and synthetic micro-environments**
» Dr. Michael Sacks

3pm **In-vitro measurement of nonlinear tissue elasticity with acoustic radiation force**
» Mr. Danial Panahandeh-Shahraki, Dr. Siavash Ghavami, Dr. Viksit Kumar, Dr. Matthew W. Urban, Mrs. Azra Alizad, Prof. Mostafa Fatemi, Prof. Bojan Guzina

3:15pm **The Effects of Mechanical Stress on the Collective Cell Behavior on Micropatterned Substrates**
» Ms. Habibeh Ashouri Choshali, Ms. Heather Cirka, Mr. Zachary Goldblatt, Prof. Nima Rahbar, Prof. Kristen Billiar

2pm MS35 - Computational Geomechanics; Part 2

2pm **Adaptive Mesh-Refinement for Poromechanics Problems of High-Order Continua: A Configurational Force Approach**
» Prof. Seon Hong Na, Prof. Wai Ching Sun

2:15pm **Simulation of Compaction Bands in Porous Rock Based on X-Ray CT Measurements**
» Mr. Ghassan Shahin, Prof. Cino Viggiani, Prof. Giuseppe Buscarnera

Continued from **Friday, 21 June**

2:30pm **A Meshfree Large-strain Computational Framework for Modeling Liquefaction-induced Deformations**
» Prof. J. S. Chen, Mr. Zhijian Qiu, Dr. Haoyan Wei, Prof. Ahmed Elgamal, Dr. Jinchi Lu

2:45pm **Recent Advances in Hydraulic Fracturing of Shale, Water and Gas Permeability, and Crack Branching**
» Mr. Saeed Rahimi-Aghdam, Prof. Zdenek Bazant, Dr. Viet Chau, Dr. Esteban Rougier, Dr. Hari Viswanathan, Dr. Gowri Srinivasan, Mr. Hoang Nguyen, Dr. Satish Karra, Mr. Hyunjin Lee

3pm **Finite Element Analyses of Granular Assembly Under 1D Confined Compression Incorporating Computed Tomography Imaging and Damage Mechanics**
» Ms. Anne Turner, Mr. Aashish Sharma, Dr. Dayakar Penumadu, Dr. Eric Herbold

2pm MS51 - Multiscale Characterization and Modeling of Infrastructure Materials; Part 2

2pm **Effects of internal curing on permeability properties of cement mortar: simulation and experimental analysis**
» Dr. Qingli Dai, Mr. Ruizhe Si

2:15pm **Effects of realistic tire–pavement contact stresses on pavement nonlinear responses**
» Prof. Maryam Shakiba, Ms. Angeli Gamez, Prof. Imad Al-qadi, Prof. Dallas Little

2:30pm **Numerical Modeling of Frictional Contact between a Blunt Tool and Quasi-brittle Rock**
» Dr. Yaneng Zhou, Prof. George Z. Voyiadjis

2:45pm **Wave and Static Moduli of Elasticity of Concrete Materials**
» Mr. Dongxu Liu, Prof. Pizhong Qiao, Dr. Zhidong Zhou, Prof. Lizhi Sun

3pm **Behavior of Saturated Cohesionless Soils to High Speed Cone Penetration**
» Prof. Chung Song, Mr. Binyam Bekele

3:15pm **Use of APT Performance Data to Enhance Asphalt Mix Design**
» Ms. Chunru Cheng, Prof. Linbing Wang

2pm MS45 - The Link Between Composition, Structure, and Physical Properties of Materials; Part 2

2pm **Engineering thermal and viscoelastic properties of calcium-silicate-hydrates (C-S-H) via organic-inorganic crosslinking.**
» Mr. Amir Moshiri, Mr. Ali Morshedifard, Dr. Mohammad Javad Abdolhosseini Qomi, Prof. Konrad J.Krakowiak

2:15pm **A thermo-hygro-mechanical model of nano porous media based on concave pores**
» Mr. Hoang Nguyen, Mr. Saeed Rahimi-Aghdam, Prof. Zdenek Bazant

2:30pm **Multiscale Poromechanics of Wet Cement Paste**
» Dr. Katerina Ioannidou, Mr. Tingtao Zhou, Prof. Franz Ulm, Prof. Martin Bazant, Dr. Roland Pellenq

2:45pm **Two models based on local microscopic relaxations to explain long-term basic creep of concrete**
» Dr. Matthieu Vandamme

3pm **Moisture induced crossover in the thermodynamic and mechanical response of hydrophilic biopolymer**
» Mr. Chi Zhang, Dr. Benoit Coasne, Dr. Robert Guyer, Dr. Dominique Derome, Prof. Jan Carmeliet

3:15pm **Hygromechanical hysteretic behavior of wood cell wall - studied by molecular dynamics**
» Dr. Dominique Derome, Mr. Chi Zhang, Mr. Mingyang Chen, Dr. Benoit Coasne, Prof. Jan Carmeliet

3:30pm **Coffee break/Poster session**

Continued from **Friday, 21 June**

4pm **MS80+92 - Structural Identification and Damage Detection, Advances in computational methods for rapid uncertainty quantification and robust/performance-based design of civil structures/systems exposed to natural and man-made hazards**
Ramo (371)

4pm **Uncertainty Quantification of Modal Parameters from Combined Deterministic-Stochastic Subspace State-Space System Identification**
» Mr. Tianhao Yu, Prof. Erik Johnson

4:15pm **Vibration-based estimation of offshore monopile foundation stiffness**
» Dr. Anela Bajric, Prof. Manolis Chatzis, Prof. Ross Mcadam, Prof. Byron Byrne

4:30pm **Output-only particle filtering for structural system identification**
» Dr. Saeed Eftekhar Azam, Prof. Daniel Linzell

4:45pm **Sparsity-Promoting Acceleration Sensor Placement for Estimator Design in Civil Structures**
» Ms. Kali Gustafson, Dr. Lauren Linderman

5pm **Optimal Protective Measures for Coastal Infrastructure Subjected to Hurricane Induced Storm Surge and Sea Level Rise**
» Ms. Yuki Miura, Prof. Kyle Mandli, Prof. George Deodatis

5:15pm **Sensor Data Visualization using Augmented Reality and Database**
» Mr. Marlon Aguero, Ms. Soamiya Chavez, Mr. Dilendra Maharjan, Mr. David Mascarenas, Dr. Fernando Moreu

4pm **MS89+88+84 - Bayesian Inference in System Identification: Efficient Algorithms and Applications, Modeling deterioration of structures and infrastructure, Stochastic Methods and Data-Driven Approaches in Computational Mechanics**
Steele 102 (130)

4pm **Bayesian Finite Element Model Updating for A Long-Span Suspension Bridge Utilizing Hybrid Monte Carlo Simulation**
» Mr. Jianxiao Mao, Prof. Hao Wang

4:15pm **Long-term Evolution of Systems Modeled by Partially Observable Markov Decision Processes**
» Mr. Shuo Li, Prof. Matteo Pozzi

4:30pm **Unscented Kalman Filtering with State Interval Constraints for Joint Seismic Input and Parameter Estimation of Nonlinear Structural Models**
» Mr. Jixing Cao, Prof. Haibei Xiong, Dr. Farid Ghahari, Prof. Ertugrul Taciroglu

4:45pm **Characterization of spatial heterogeneity in material properties using a probabilistic hybrid approach**
» Mr. Agnimitra Dasgupta, Prof. Erik Johnson, Prof. Steve Wojtkiewicz

5pm **Bayesian model updating of a CRTS-II slab track system**
» Dr. Qin Hu

5:15pm **Distribution-Free Polynomial Chaos Expansion Surrogate Models for Efficient Structural Reliability Analysis**
» Mr. HyeongUk Lim, Prof. Lance Manuel

4pm **MS96 - Advances in quantitative sustainability and resilience, physics-based, data-driven and uncertainty-informed modeling and prediction**
Kerckhoff 119 (174)

4pm **Uncertainty Quantification and Reliability Assessment of Pipelines Using Separation of Variables Methodology**
» Dr. Omer Erbay, Mr. Frederic Grant, Dr. Juan Jimenez-Chong, Mr. Peter Nardini, Dr. Murat Engindeniz

4:15pm **A close look at interdependencies for infrastructure disaster management: the implementation in PRAISys**
» Dr. Wenjuan Sun, Dr. Paolo Bocchini, Dr. Brian Davison

Continued from **Friday, 21 June**

4:30pm **Probabilistic Inverse Framework to Identify Roughness Variables and Dynamic Characteristics of Vehicle Based on Smartphone's Measurement**
» Mr. Meshkat Botshekan, Dr. Mazdak Tootkaboni, Dr. Arghavan Louhghalam

4:45pm **Efficient Probabilistic Learning on Manifolds: Application to Oil Spills.**
» Dr. Ruda Zhang, Prof. Roger Ghanem

5pm **Development of surrogate models for steel plate shear wall systems for parametric analysis**
» Mr. Nasar Khan, Prof. Gaurav Srivastava

5:15pm **Data-Driven Methods for Building Energy Consumption Efficiency under Climate Change**
» Ms. May Haggag, Dr. Ahmad Siam, Dr. Sharon McNicholas, Prof. Wael El-Dakhakhni

4pm MS26+27 - Relating microstructure to toughness: controlling damage and fracture, Modeling and Simulation of Material Damage

4pm **Cross-mode Couplings for the Fatigue Damage Evaluation of Tri-modal Gaussian processes**
» Prof. Xiang Yuan Zheng, Mr. Shan Gao, Prof. Yi Huang

4:15pm **A mathematical framework to couple concrete material degradation with mechanical damage**
» Mr. Amit Jain, Dr. Bora Gencturk

4:30pm **A microcrack damage model using directional distribution density for Anisotropic Damage**
» Mr. Mitul Sisodiya, Dr. Yida Zhang

4:45pm **INTERACTION MECHANISMS IN BONDED ANCHOR SYSTEMS UNDER SUSTAINED LOAD**
» Mr. Ioannis Boumakis, Mr. Kresimir Nincevic, Dr. Marco Marcon, Prof. Roman Wan-Wendner

5pm **Restrained Shrinkage Cracking of Borehole Cement**
» Ms. Yige Zhang, Prof. Mija Hubler

5:15pm **Role of Interphase Properties on Mechanical Properties of Nacreous Structures**
» Dr. Sina Askarinejad, Prof. Nima Rahbar

4pm MS36 - Constitutive Modeling and Advances in Computational Geotechnics

4pm **A discrete element method with electromagnetic induced cohesion: dusts, powders and clays**
» Mr. Daniel Bustamante, Prof. Alex Jerves

4:15pm **Micromechanical approach to model deformation response of granular materials using FEM considering meso-structure from X-ray computed tomography**
» Mr. Mohmad Mohsin Thakur, Dr. Dayakar Penumadu

4:30pm **Lattice Element Method with refined beam theory for failure in cemented granular media**
» Mr. Shahbaz Ahmad, Dr. Zarghaam Rizvi, Prof. Frank Wuttke

4:45pm **Generalized effective stress equation for soil**
» Prof. Chao Zhang, Prof. Ning Lu

5pm **Extending the Generalized Bounding Surface Model for Saturated Cohesive Soils to Non-Isothermal Conditions**
» Prof. Victor Kaliakin, Dr. Meysam Mashayekhi

5:15pm **Implementation and Validation of a Liquefiable Soil Model in LS-DYNA**
» Dr. Kevin Stanton, Dr. Yuli Huang

Continued from **Friday, 21 June**

4pm **MS54 - Mechanical metamaterials for waves mitigation and control**

4pm **Practical aspects of seismic isolation using metafoundations: a case study**
» Mr. Panagiotis Martakis, Dr. Vasilis Dertimanis, Prof. Eleni Chatzi

4:15pm **Soil Structure Interaction and Structured Soils**
» Dr. Stephane Brule, Dr. Sebastien Guenneau, Dr. Stefan Enoch

4:30pm **Numerical and experimental investigations on the wave mitigation properties of elastic metamaterials in bounded and non-periodic domains**
» Dr. Andrea Colombi, Mrs. Rachele Zaccherini, Dr. Vasilis Dertimanis, Prof. Eleni Chatzi

4:45pm **Dynamics of a metamaterial beam consisting of periodically-coupled parallel flexural elements**
» Ms. Setare Hajarolasvadi, Prof. Ahmed Elbanna

5pm **A systematic approach for engineering the dispersive behavior of periodic media**
» Mr. Heedong Goh, Prof. Loukas Kallivokas

5:15pm **Multistable Architectures on Elastic Foundation for Tunable, Reversible Wave Propagation**
» Mr. Vinod Ramakrishnan, Prof. Michael Frazier

4pm **MS45 - The Link Between Composition, Structure, and Physical Properties of Materials; Part 3**

4pm **Predicting the Young's Modulus of Silicate Glasses using High-Throughput Molecular Dynamics Simulations and Machine Learning**
» Mr. Kai Yang, Ms. Xinyi Xu, Mr. Benjamin Yang, Prof. Mathieu Bauchy

4:15pm **Enhancing reactivity of light burned magnesia through morphological and microstructural modification**
» Dr. Abdullah Khalil, Dr. Rotana Hay, Prof. Kemal Celik

4:30pm **Mechanistic Insight into the Formation of C-S-H Gel During Cement Hydration**
» Mr. K M SALAH UDDIN, Dr. Andreas Funk, Prof. Bernhard Middendorf

4:45pm **Influences of combinational distributions of various Ca/Si ratios and defects on the mechanical properties of calcium silicate hydrates**
» Mr. Yuan Chiang, Dr. Shu-Wei Chang

5pm **On the Allowable or Forbidden Nature of Vapor-Deposited Glasses**
» Mr. Zhe Wang, Mr. Tao Du, Prof. Mathieu Bauchy

5:15pm **Water ageing effects upon the mechanical properties of E-glass fibre reinforced epoxy and its constituents**
» Dr. Gustavo Quino, Dr. Vito Tagarielli, Dr. Nik Petrinic