

Workshop Agenda

Advances in Numerical Methods for Simulation, Optimization, and Uncertainty Quantification of Coupled Physics Problems

April 23-24, 2018



Locations:

Talks and Poster Session: Discovery Learning Center (DLC), Room 1B50 (Bechtel Learning Collaboratory) – Map is attached to this document and may be found [here](#) as well.

Monday Evening Banquet: University Memorial Center (UMC), Aspen room – Direction to UMC is attached to this document and may be found [here](#) as well.

Monday, April 23rd

Speaker	Talk Title	Time (AM/PM)
Registration, Coffee & Refreshments		8:00-9:00
Prof. Brian Argrow (AES Dept. Chair)	Welcome Note	9:00-9:20
Prof. Alireza Doostan	Workshop Logistics	9:20-9:30
Prof. Charbel Farhat	Data-Driven Stochastic Hyperreduced Computational Models for the Feasible Modeling and Quantification of Model-Form Uncertainties	9:30-10:15
Prof. Eugenio Oñate	Time integration schemes for transient problems with enhanced stability and accuracy via Finite Increment Calculus (FIC)	10:15-11:00
Break		11:00-11:15
Prof. MC Natori	Concepts and Mechanics of Space Structures – Joint Research Topics with University of Colorado	11:15-12:00
Lunch		12:00-13:00
Prof. Roger Ghanem	Advances in Stochastic Reduction	13:00-13:45
Dr. Gregory Reich	Development and Application of Artificial Hair Sensors	13:45-14:30
Dr. Amy Robertson	Modeling and Analysis of Offshore Wind Systems	14:30-15:15
Break		15:15-15:30
Prof. Hiraku Sakamoto	Analysis and Flight Demonstration of Advanced Lightweight Space Structures	15:30-16:15
Dr. Keats Wilkie	Recent Progress in NASA Solar Sail Technology Development	16:15-17:00
Reception/Drink at UMC, Aspen Room		17:30-18:30
Dinner at UMC, Aspen Room		18:30-20:00

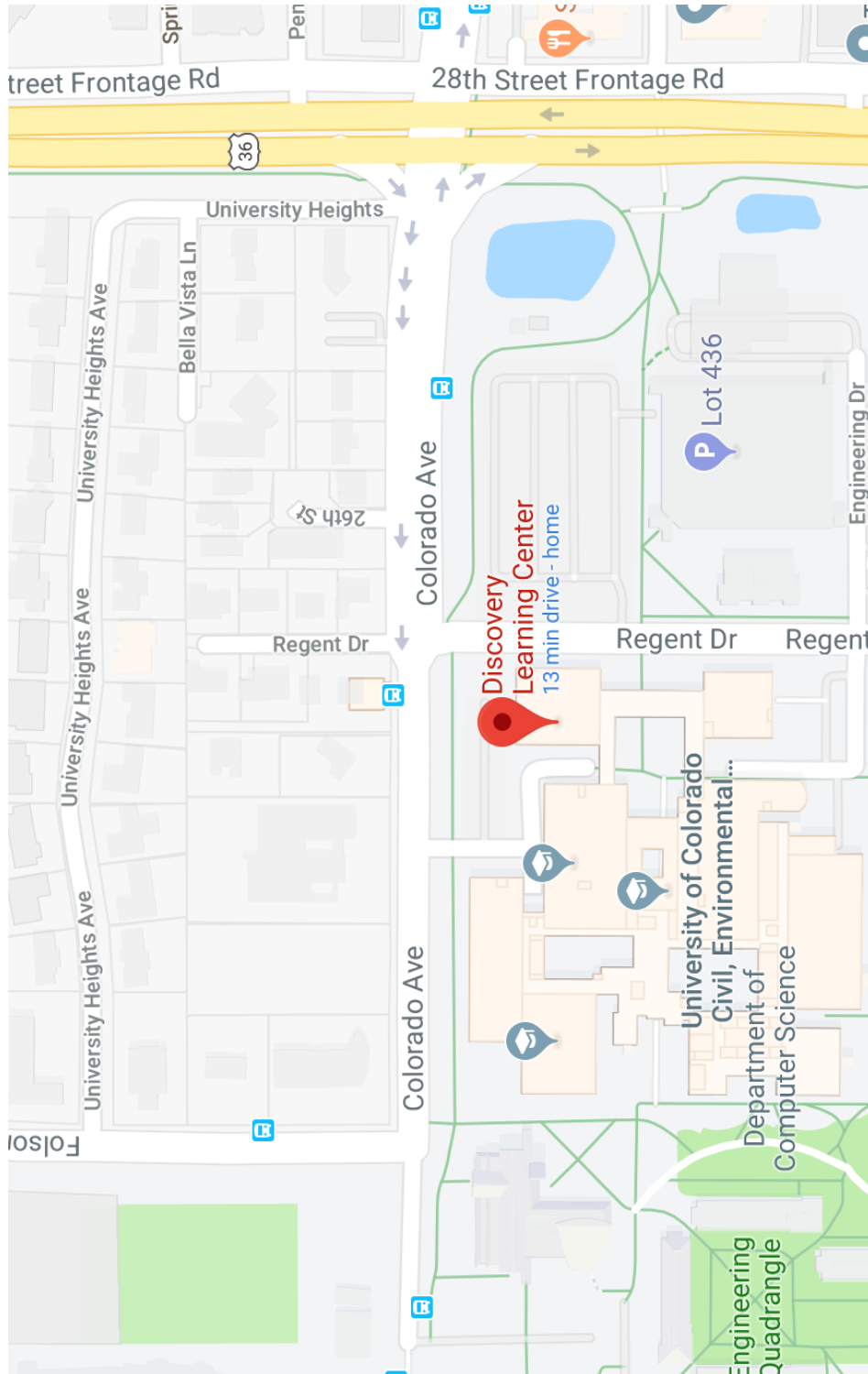
Tuesday, April 24th

Speaker	Talk Title	Time (AM/PM)
Registration, Coffee & Refreshments		8:00-8:30
Prof. Byung Man Kwak	Review of Frictional Contact Mechanics and Solution Method based on Continuous CP	8:30-9:15
Prof. José González	Reciprocal Mass Matrices for Isogeometric Analysis via the Method of Localized Lagrange Multipliers	9:15-10:00
Prof. Alicia Kim	Advances in Numerical Methods for Topology Optimization	10:00-10:45
Break		10:45-11:00
Prof. Yong-Hwa Park	Coupled Field Vibration Analysis of Bio-systems for Non-invasive Measurement of Biomarkers	11:00-11:45
Lunch		11:45-12:45
Dr. Sergio Idelsohn	Direct Numerical Simulation in CFD via Lagrangian Formulations and Multi-Scale Homogenization	12:45-13:30
Prof. Pål Bergan	Modelling, analysis and verification of thermal batteries for large-scale energy storage	13:30-14:15
Dr. Radek Kolman	Component-wise partitioned finite element method in discontinuous wave propagation problems	14:15-15:00
Poster Session at DLC lobby		15:00-16:30

List of Posters

Poster Number	Title and author list
1	Multiscale Modeling of Heterogeneous Materials Using Micromorphic Continuum Theory – Nathan Miller and Richard Regueiro
2	Pass-Efficient Compression of High-Dimensional Turbulent Flow Data – Alec Dunton, Lluís Jofre, Alireza Doostan, and Gianluca Iaccarino
3	Low-Dimensional Representation Techniques for Uncertainty Quantification – Paul Diaz, Paul Constantine, Stephen Pankavich, and Alireza Doostan
4	A Divergence-Conforming Hybridized DG Method for the Incompressible RANS Equations – Eric Peters and John Evans
5	An Evaluation of Bi-Fidelity Modeling Efficiency on a General Family of NACA Airfoils – Ryan Skinner, Alireza Doostan, and Kenneth E. Jansen
6	A Robust Computational Framework for the Design of Elastomeric Gels – Jorge Barrera and Kurt Maute
7	Space-Time XFEM with Face-Oriented Stabilization – Toshiki Nagai and Kurt Maute
8	Combined Level-Set-XFEM-Density Topology Optimization of 4D Printed Structures undergoing Large Deformation – Markus Geiss and Kurt Maute
9	An XFEM Enriched Computational Model Generation Library for Multi-material and Multi-physics Applications – Keenan Doble and Kurt Maute
10	Thermo-elastic Optimization with Stress Constraints using Level-Set XFEM – Mathias Schmidt and Kurt Maute
11	Optimization of Electronic Transport in Defected Semiconductor Superlattices – Vitaly Proshchenko and Sanghamitra Neogi
12	Electron and Phonon Transport in Multilayered Materials – Tyler Sterling, Manoj Settupalli, Vitaly Proshchenko and Sanghamitra Neogi
13	The Influence of Higher Harmonics and Structural Deformability in Stall Flutter – Ethan Culler and John Farnsworth
14	A Comparison of Modeling Strategies for High-Lift Systems – Riccardo Balin and Kenneth E. Jansen
15	A new strong form meshfree collocation method: the particle difference method and its applications – Ashkan Almasi, Andrew Beel, Peter Schaefferkoetter and Jeong-Hoon Song
16	A Low-rank, Bi-Fidelity Approximation Approach for Uncertainty Quantification – Hillary Fairbanks, Lluís Jofre, Gianluca Geraci, Alireza Doostan, and Gianluca Iaccarino

Map of Discovery Learning Center (DLC)



Direction from DLC to UMC for Monday Banquet

Colorado Avenue

