Rocky Mountain Fluid Mechanics Research Symposium 2015 - Technical Program

Discovery Learning Center, University of Colorado, Boulder

August 4, 2015

Session	Start	End	Speaker	Affiliation	Title
	7:30 AM	8:00 AM	*Breakfast and check in*		
	8:00 AM	8:05 AM	*Welcome*		
Session 1: Biological and Environmental Fluid Mechanics	8:05 AM	8:19 AM	David Bark Jr.	CSU	Hemodynamic and thrombotic properties of a superhydrophobic prosthetic heart valve
	8:19 AM	8:33 AM	James Browning	CU	Right heart 3-dimensional flow in the normal and RVDD disease state
	8:33 AM	8:47 AM	Carlos Quiroz	CSU	Scalability of phobioreactors based on cyanobacteria by fluid dynamics approaches incorporated in growth kinetic models
	8:47 AM	9:01 AM	Kenny Pratt	CU	Impacts of non-divergence-free behavior on the coalescence of initially distant buoyant scalars on a turbulent free surface
	9:01 AM	9:15 AM	Jordan Kennedy	NREL	Rheology of concentrated algal slurrier
	9:15 AM	9:29 AM	Xingfu Yang	Mines	Propulsion of colloidal dimers by breaking the symmetry in electrohydrodynamic flow
	9:29 AM	9:43 AM	Yang Guo	Mines	Colloid transport in a microfluidic soil analog: population dynamics and single particle trajectories
	9:43 AM	9:57 AM	Claire Strebinger	Mines	High-accuracy numerical simulations of concentration polarization in reverse osmosis systems
	9:57 AM	10:40 AM	*Coffee, Poster Session 1, and Professional Development Table*		
Session 2: Fundamentals	10:40 AM	10:54 AM	Michelle Maiden	CU	Nonlinear wave trains in viscous conduits
	10:54 AM	11:08 AM	Benjamin Miquel	CU	Multiscale analysis of the equatorial dynamics of protoplanetary disks
	11:08 AM	11:22 AM	Ian May	CSU	Universality of dissipation scales in turbulence
	11:22 AM	11:36 AM	Colin Towery	CU	The dynamics of strongly compressible turbulence
Session 3: Reactions and Chemistry	11:36 AM	11:50 AM	Jack Ziegler	NREL	3D multiphase gas/particle flow modeling for reactor-scale biomass conversion and upgrading simulations: heat Transfer, mixing, and basic deactivation modeling in fixed, bubbling, and fluidized bed reactors
	11:50 AM	12:04 PM	Paul Schroeder	CU	Dual frequency comb spectroscopy of high temperature water vapor absorption: Testing and improving spectral databases for use in coal gasification
	12:04 PM	12:18 PM	John Mersch IV	CU	Fouling reduction through nano-imprint lithography (NIL) on ultrafiltration (UF) membranes
	12:18 PM	1:00 PM	*Lunch*		

Keynote	1:00 PM	2:00 PM	Diego Donzis	Texas A&M	
Session 4: Aerodynamics and Wind Energy	2:00 PM	2:14 PM	Jennifer Annoni	NREL	Reduced-order modeling for control of complex fluid systems
	2:14 PM	2:28 PM	Alec Kucala	CU	Phononic subsurfaces for laminar flow control
	2:28 PM	2:42 PM	William Liller	USAFA	Designing small propellers for optimum efficiency and low noise footprint
	2:42 PM	2:56 PM	Ella Sidor	USAFA	RANS of HIFiRE-6 flow path
	2:56 PM	3:10 PM	Ethan Culler	CU	Spanwise variation of stall flutter on a flexible NACA 0018 finite span wing
	3:10 PM	3:24 PM	Srinivas Gunter	NREL	Observations in MW scale wind turbine aerodynamic tests.
	3:24 PM	4:06 PM	*Coffee, Poster Session 2, and Professional Development Table*		
Session 5: Numerical Methods	4:06 PM	4:20 PM	Patrick French	USAFA	Reduced order model development for aircraft dynamics using indicial grid m\ovement
	4:20 PM	4:34 PM	Eric Brown-Dymkoski	CU	A Hybrid Adaptive Simulation Method Bounded Turbulent Flows
	4:34 PM	4:48 PM	Landon Owen	CSU	Lid-driven cavity flow simulation using fourth-order, compressible solver with mesh refinement
	4:48 PM	5:02 PM	Eric Peters	CU	A local kinematic/kinetic coupling algorithm for non-matching isogeometric/finite element and isogeometric/finite volume discretizations
	5:02 PM	5:16 PM	Joshua Christopher	CSU	Anisotropic patch-based adaptive mesh refinement for finite-volume method
	5:16 PM	5:30 PM	Meredith Purser	CU	Coupled level set volume of fluid method for incompressible two-phase flow
	5:30 PM	7:30 PM	*Dinner*		

Rocky Mountain Fluid Mechanics Research Symposium 2015 - Poster Presentations

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Presenter	Affiliation	Title
Bark, David	CSU	The pressure field and flow environment in the valveless embryonic zebrafish heart
Blakeley, Brandon	Mines	Autothermal reforming and catalytic partial oxidation of methane in a novel ceramic microchannel reactor
Bulk, Alexander	CSU	Mechanisms influencing retrograde flow through the atrioventricular canal during embryonic cardiogenesis
Cooper, Thomas	USAFA	Evaluation of Kestrel at hypersonic speeds
Galan, Cesar	CU	Evaluation of turbulence closures for rotating turbulence
Hayden, Torrey	CU	Large amplitude wavelength modulation spectroscopy for sensitive measurements of broad absorbers
Hsieh, Alan	CU	The minimal flow unit in rotating wall-bounded turbulence
Jimenez, Felix	CU	Inter-operator variability in the analysis of time resolved cardiac magnetic resonance imaging
King, Ryan	CU	Autonomic closure for large eddy simulation
Lapointe, Caelan	NREL	An advanced actuator line method for wind energy applications and beyond
Lehmann, Marcus	Mines	Microfluidic flow assays in thedDiagnosis of Type I Von Willebrand Disease
McArdle, Patrick	CSU	A numerical model for the determination of biomass ignition from a hotspot
McClain, Monique	CU	Lagrangian coherent structures in high-speed premixed turbulent reacting flows
Miller, Eric	NREL	Semi-implicit methods for solving the 1D momentum equation at finite volume junctions
Nieves, David	CU	Asymptotically reduced equations for rapidly rotating and strongly stratified flow
Oba, Ryan	CSU	In Vitro pulsatile flow loop using human blood to mimic physiological Flow conditions
Plumley, Meredith	CU	Simulations of rotating Rayleigh-Bérnard convection with Ekman pumping
Quon, Eliot	NREL	CFD investigation of wind turbine tower fairing geometries
Reid, Clayton	USAFA	Suitability of CFD in place of wind tunnel data for use in ATLAS simulation
Rinker, Jennifer	NREL	Nonstationary stochastic turbulence simulator via temporal coherence
Roberts, Trevor	CU	Effect of off shore wind tubines on wave height
Skinner, Ryan	CU	Active flow control in aggressive subsonic diffuser
Spotts, Nathan	CSU	A computational investigation of turbulence models for rotating flows
True, Aaron	CU	The fluid mechanics of siphon flows
Wisniewski, Natalie	USAFA	The influence of airfoil shape, tip geometry, Reynolds number and chord length on small propeller performance and noise
Woolwine, Kyle	CU	Reduced order modeling of an external compression supersonic engine inlet