



The 41st Midwestern Universities Fluid Mechanics Retreat
MUFMECH '14
April 10-12, 2014
Geneva Center, Rochester, Indiana

PROGRAM

April 11

7:30–8:10 Breakfast

Session I (Friday Morning)

Chair: J. Allen, KOTGOF: T. Conlisk

Time	Speaker	School	Title
8:10	W. Schultz	UM	Opening Remarks, “The Frog Meeting Rules”
8:20	J. Khor, A. Mishra S. Wereley	PU	The Effect of Electrode Thickness on Opto-Electric Particle Manipulation
8:40	N. Tobin	UIUC	On the Turbulent Flow over Gradual Surface Roughness Transitions
9:00	T. Liu	WMU	Lift in Low-Reynolds-Number Unsteady Flows
9:20	A. Work	UL	A Numerical Study of the Physics Behind Droplet Splashing
9:40	N. Jaffa, S. Morris	ND	Investigation of CT Hot-Wire System Response Using Laser Pulse

10:00–10:20 Coffee Break

Session II (Friday Morning)

Chair: J. Foss, KOTGOF: C. Pantano

Time	Speaker	School	Title
10:20	B. Aboulhasanzadeh S. Dabiri G. Tryggvason	ND	Multiscale computations of thin films between colliding drops
10:40	K. Rangharajan T. Conlisk S. Prakash	TOSU	Antibody-Cell Binding and Mixing in a Lab-on-a-Chip Device
11:00	L. Lu W. Schultz M. Solomon	UM	Sticky Saliva
11:20	D. Diesenroth	MTU	Measurement of Thin Film Shock Formation in Two-Phase Microchannel Flow via Reflectance Confocal Microscopy
11:40	B. Blackwell	UIUC	Yield Stress Fluid Droplet Impact on Coated Surfaces

12:20–1:30 Lunch

Session III (Friday Afternoon)

Chair: D. Rempfer, KOTGOF: B. Patterson

Time	Speaker	School	Title
1:30	S. Wang	MTU	Photocrosslinkable Alginate Microencapsulation of Mammal Cells Using Microfluidics
1:50	B. Davoudi	MSU	Fluttering Motion of a Falling Plate
2:10	J. Byun	UIUC	Direct Simulation of Sound by a Compressible Jet using High-Order Finite Differences in Curvilinear Meshes
2:30	V. Konduru	MTU	Modeling Multiphase Fluid and Thermal Transport in Thin Porous Layers
2:50	J. Foss B. Davoudi	MSU	Aero Acoustic Characteristics of the Rotating Controlled Diffusion Blades

3:10–5:30 R&R, Group Photograph, Table Tennis, ...

5:30–6:30 Dinner

Session IV (Friday Evening)

Chair: S. Wereley, KOTGOF: L. Chamorro

Time	Speaker	School	Title
6:30	J. Methel N. Smith, N. Key	PU	Vane Wake Characterization for a Multistage Compressor
6:50	M. Rodriguez E. Johnsen	UM	Bubble Collapse Dynamics in a Viscoelastic Media
7:10	M. Makhmalbaf T. Liu, S. Kode R. Ramasamy P. Merati	WMU	Skin Friction Fields Extracted from Surface Dye Visualizations Water on Delta Wings in Water
7:30	A. Cotel	UM	Mixing dynamics between water and biofuels
7:50	G. Li, A. Karimi A. Ardekani	ND	Near-wall Motion of a Squirmer in Viscoelastic Fluids

8:10–11:00 Evening Social Gathering at Butler Lodge

----- **April 12** -----

7:30–8:10 Breakfast

Session V (Saturday Morning)

Chair: P. Merati, KOTGOF: S. Williams

Time	Speaker	School	Title
8:20	D'Antonio Cameron S. Morris	ND	Measurements of Front Stage Axial Compressor Stable Rotating Stall
8:40	P. Kozak D. Rempfer	IIT	Added Mass Effects and Variable Blade Pitch for Vertical-Axis Wind Turbines (VAWTs)
9:00	P. Mehrpooya D. Rempfer	IIT	Effect of Wake Recovery on Performance of Vertical Axis Wind Turbines (VAWTs)
9:20	C. Palma	UM	Semiconductor Electrowetting for Microfluidic Actuation
9:40	C. Yang	MTU	Size, Shell Material and Medium Conductivity Dependence on Dielectrophoretic Behaviors Of Air Core, Chitosan/Poly-L-Lysine Shell Nanoparticles: Experimental Results

10:00–10:20 Coffee Break

Session VI (Saturday Morning)

Chair: R. Ewoldt, KOTGOF: N. Key

Time	Speaker	School	Title
10:20	Y. Zhang W. Liou	WMU	Modeling of Excessive Water Intake on Human Cardiovascular System
10:40	T. Smith	UIUC	Modeling Particle Dispersion Using an Eulerian Kernel Density Method: Non-Conservative Hyperbolic Systems
11:00	S. Rimer	UM	Initial Approaches for Application of Computational Fluid Flow Control Model to Physical Prototype for Real-Time Detection and Mitigation of 'Contaminant'
11:20	P. Hammer	MSU	Forces and Flow Field of an Airfoil Pitching Asymmetrically at High Reduced Frequency
11:40	A. Cotel	UM	Closing Remarks

12:10–1:30 Lunch