



# The 45<sup>th</sup> Midwest Universities Fluid Mechanics Retreat

## MUFMECH 2019

April 11-13, 2019  
Geneva Center, Rochester, Indiana

### PROGRAM

----- Friday April 12 -----

7:30 – 8:20am **BREAKFAST**

#### Session I (Friday Morning)

*Chair: W. Schultz; KOTGOF: S. Williams*

Talk	Time	Authors	School	Title
0	8:30	S Wereley	PU	Opening Remarks
1	8:40	Lyons	UW	Exploring the Fluid Mechanics of Seal Whisker Geometry
2	9:00	Figueroa-Ibrahim & Morris	ND	Outdoor acoustic measurements of a large-scale fan rig
3	9:20	Pandey & Gregory	TOSU	Streamwise Vortices in a Convex Wall Jet
4	9:40	Feng	UIUC	Interfacial petals formed by alkane film dewetting on aqueous substrate
5	10:00	Poovathingal	UK	Analysis of micro-scale flows inside heat-shield materials

10:20 - 10:40am **COFFEE**

#### Session II (Friday Morning)

*Chair: J. Foss; KOTGOF: L. Castillo*

Talk	Time	Authors	School	Title
1	10:40	Hammer, Naguib & Koochesfahani	MSU	Thickness effect on a viscous airfoil in shear flow
2	11:00	Fagehi, Moussa, Merati, Liu	WMU	Measurements of flow structures in twin jets
3	11:20	Agarwal & Hilgenfeldt	UIUC	Manipulation of inertial microparticles by oscillation induced rectification forces
4	11:40	Mahmudur Rahman, Payne, Wakefield, Williams	UL	Hydrodynamically guided colloid aggregation and dispersion in a vertically rotated confined cell

12:00 - 1:20pm **LUNCH** Steering Committee Meeting

#### Session III (Friday Afternoon)

*Chair: T. Lui; KOTGOF: T. Conlisk*

Talk	Time	Authors	School	Title
1	1:20	Liu	PUNW	Flow Unsteadiness contributes the most lift production in hovering
2	1:40	Alsaati & Marconnet	PU	Membranes for Enhanced Evaporation & Boiling
3	2:00	Chan & Morse	UW	Heat Transfer Measurements During Dryout of Two-Phase Annular Flow
4	2:20	Ahangar	MTU	High-speed Surface Plasmon Imaging of Dropwise Condensation
5	2:40	Assorted		Lightning round short talks

3:00 - 5:30pm **R & R, Group Photograph, Table Tennis**

5:30 - 6:30pm **DINNER**

**Session IV (Friday Evening)**

*Chair: I. Christov; KOTGOF: K. Tajiri*

<b>Talk</b>	<b>Time</b>	<b>Authors</b>	<b>School</b>	<b>Title</b>
1	6:30	Lu, Municchi & Christov	PU	Theory and computation of interfacial instabilities in shaped fractures
2	6:50	Sarfi & Wagner	NU	Incorporation of melt pool fluid flow in a reduced-order additive manufacturing model
3	7:10	Liu, Montefort, Stanfield, Palluconi & Crafton	WMU	Self-similarity of surface heat transfer fields on a pre-heated finite base in an obliquely impinging sonic jet
4	7:30	Oliva & Morris	ND	A unified approach to 1D flow with compressibility, area change, heat flow, and friction
5	7:50	Bellur	MTU	Kinetic theory of phase change: thermo-mechanical stability in thin films

8:15 - 11:00pm **Evening Social Gathering at Butler Lodge**

----- Saturday April 13 -----

7:45 - 8:30am **BREAKFAST**

**Session V (Saturday Morning)**

*Chair: P. Merati; KOTGOF: S. Morris*

<b>Talk</b>	<b>Time</b>	<b>Authors</b>	<b>School</b>	<b>Title</b>
1	8:30	Wadas & Johnsen	UM	Perturbed interfaces subjected to transient accelerations
2	8:50	Capecelatro	UM	Conveying principles of fluid mechanics... through dance?
3	9:10	Harter & Gregory	TOSU	Lagrangian Coherent Structures of Vortex Rings
4	9:30	Gan, Wagner & Liu	NU	A physics-driven digital twin of additive manufacturing
5	9:50	Kim & Dunn	UIUC	Thixotropic mechanics of hydrogel lubrication captured by tribo-rheometry

10:10 - 10:30am **COFFEE**

**Session VI (Saturday Morning)**

*Chair: G. Warner; KOTGOF: J. Chen*

<b>Talk</b>	<b>Time</b>	<b>Authors</b>	<b>School</b>	<b>Title</b>
1	10:40	Vishwanathan & Juarez	UIUC	Steady streaming flows of Newtonian and non-Newtonian liquids in microfluidic devices
2	11:00	Alvarado	PU	Low-level jet atmospheric phenomenon effect on wind farm performance
3	11:20	Alofari	MTU	Computationally Efficient Model to Calculate Trapped Saturations in Porous Materials
4	11:40	Safaripour & Koochesfahani	MSU	Aerodynamic forces on a static airfoil in a two-stream shear layer

12:00 - 12:15pm **CLOSING**

12:15 - 1:00pm **LUNCH**