



The 45th Midwest Universities Fluid Mechanics Retreat

MUFMECH 2018

April 12-14, 2018
Geneva Center, Rochester, Indiana

PROGRAM

-----Friday April 13 -----

7:30 – 8:20am **BREAKFAST**

Session I (Friday Morning)

Chair: S. Morris KOTGOF: T. Conlisk

| Talk | Time | Authors | School | Title |
|------|-------|--|-----------|---|
| 0 | 8:30 | S. Morris | ND | Opening Remarks |
| 1 | 8:40 | A. Mirhashemi S. Morris | ND | Turbulent Prandtl number modeling |
| 2 | 9:00 | K. Rangharajan P. Mohamasundaram J. Lazenby A.T. Conlisk S. Prakash | TOSU | Frictionless surfaces for high flux liquid-vapor separation |
| 3 | 9:20 | G. Di Cristina S. Kozhumal S.K. Im A. Rangwala A. Simeoni N. Skowronski | ND | Design and initial experiments of portable wind tunnel for fire research |
| 4 | 9:40 | K. Bellur | Mich Tech | A combined experimental and multi-scale modeling approach to determine phase change coefficients of cryogenic propellants |
| 5 | 10:00 | A. Herescu | PU-NW | Pore level liquid protrusion under mixed wetting conditions |

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

Session II (Friday Morning)

Chair: P. Merati KOTGOF: S. Wereley

| Talk | Time | Authors | School | Title |
|------|-------|---|--------|--|
| 1 | 10:40 | A. Hess T. Gao | MSU | A fluid-structure interaction model of soft robotics using an active strain approach |
| 2 | 11:00 | P. Sundaram S. Prakash A.T. Conlisk | TOSU | Influence of finite size reservoirs in Wilson's transport problem |
| 3 | 11:20 | S. Pellone | UM | Vorticity dynamics of pressure-wave-driven interfaces |
| 4 | 11:40 | S. Dharmarathne H. Evans A.Hamed B. Aksak L. Chamorro M. Tutkun L. Castillo | PU | Large-scale motions on wind turbine blade aerodynamics |

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

Session III (Friday Afternoon)
Chair: T. Lui KOTGOF: S. Williams

| Talk | Time | Authors | School | Title |
|------|------|--|--------|--|
| 1 | 1:20 | M. Albrecht A. Naguib M. Koochesfahani | MSU | Lift on a translating low Reynolds number airfoil in uniform-shear flow |
| 2 | 1:40 | L. Watson A. Maxson | TOSU | Real-time control of heat transfer reduction in turbulent drag reducing surfactant solutions (Jack Zakin's Holy Grail) |
| 3 | 2:00 | C. Pannier M. Wu | UM | Modeling liquid drop spreading and coalescence for microscale electrohydrodynamic jet printing |
| 4 | 2:20 | P. Merati | WMU | Traction prediction in EHL |
| 5 | 2:40 | J. Szcudlak S. Morris | ND | Secondary flow temperature distortion in a turbine nozzle |

3:00 - 5:30pm **R & R, Group Photograph, Table Tennis**
 5:30 - 6:30pm **DINNER**

Session IV (Friday Evening)
Chair: K. Tajiri KOTGOF: A. Naguib

| Talk | Time | Authors | School | Title |
|------|------|---|------------|---|
| 1 | 6:30 | H. Masoud | Mich Tech | Evaporation of a sessile droplet on a slope |
| 2 | 6:50 | T. Liu | WMU | Saturn's North Polar vortex structure |
| 3 | 7:10 | M. Feero A. Naguib M. Koochesfahani | MSU | Towards the measurement of mean surface pressures and forces on non-circular cylinders at Reynolds numbers from 1,000 to 10,000 |
| 4 | 7:30 | Y. Huang | UM | Inertial migration of particles in plane Poiseuille flow using DPD |
| 5 | 7:50 | S. Williams | Louisville | Whiskey webs |

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

-----Saturday April 9-----

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

Session V (Saturday Morning)
Chair: J. Foss KOTGOF: W. Schultz

| Talk | Time | Authors | School | Title |
|------|------|---|-------------|--|
| 1 | 8:40 | D. Qi | WMU | Simulations of muscle driven swimming bodies |
| 2 | 8:50 | K. Sharp | Louisville | Shear-augmented dispersion in oscillatory flow in Darcy-Brinkman media: Applications to transport in cerebrospinal fluid |
| 3 | 9:10 | K. Gupta S.T. Wereley | PU | Electrothermal vortex particle trapping |
| 4 | 9:30 | P. Hammer D. Olson M. Visbal A. Naguib M. Koochesfahani | WMU | Simulations of deformable blockages in elastic blood vessel |
| 5 | 9:50 | <i>Multiple</i> | <i>Many</i> | <i>Sound Bite Presentations</i> |

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

Session VI (Saturday Morning)
Chair: C. Petty KOTGOF: T. Corke

| Talk | Time | Authors | School | Title |
|-------------|-------------|--|---------------|--|
| 1 | 10:40 | D. Olson M. Albrecht A. Naguib M. Koochesfahani | MSU | Experimental measurements of a steady airfoil in a shear flow at low Reynolds number |
| 2 | 11:00 | L. Xu R. Krasny S. Alben W. Schultz | UM | Axisymmetrization and tripole formation in an elliptic vortex |
| 3 | 11:20 | J. Segnini, H. Evans, L. Castillo | PU | Flow characteristics in a realistic trachea model with cartilaginous rings |
| 4 | 11:40 | S.J. Kang | Mich Tech | Hydrodynamics of vibrating porous cylinders |

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

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