Third International Symposium on Instabilities and Bifurcations in Fluid Dynamics

10-13 August 2009, Nottingham, UK

Preliminary program
### Monday, August 10

<table>
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<tr>
<th>Time</th>
<th>Sessions</th>
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<tr>
<td>8:30 – 9:30</td>
<td>Opening</td>
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<td>9:30 – 10:30</td>
<td>Invited lecture: <em>Tom Mullin</em>, &quot;Bifurcation Phenomena in Pipes and Channels&quot; (chair A. Cliffe)</td>
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<td>10:30 – 11:00</td>
<td>Coffee break</td>
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<td>11:00 – 11:20</td>
<td><strong>Flows around bodies</strong> (chair N. Pelekasis)</td>
<td><strong>Natural convection</strong> (chair P.Bar-Yoseph)</td>
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<td>12:20 – 12:40</td>
<td><em>F. Mikami, R. Toyota, N. Nishikawa</em>, “Observation of the instability in the shear layer behind a paraboloidal-nose cylinder”</td>
<td><em>M.C. Navarro, L. Martin Witkowski, L. Tuckerman, and P. Le Quéré</em>, “Reduced models to study Rayleigh-Benard convection in cylindrical geometry”</td>
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<td>12:40 – 14:40</td>
<td>Lunch</td>
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| 14:40 – 15:00 | **Films & Drops: keynote lecture** (chair A. Oron)  
              *E. Knobloch*, "Pinning and self-pinning of localized structures" |
| 15:00 – 15:20 | **Films & Drops** (chair S. Wilson)  
              *P. Beltrame, P. Hanggi, E. Knobloch and U. Thiele*, "The depinning transition of 3D driven drops on a heterogeneous substrate" |
| 15:20 – 15:40 | **Films & Drops** (chair S. Wilson)  
              *R. Borcia, S. Menzel and M. Bestehorn*, "Coalescence of droplets with miscible liquids: lubrication and phase field theories" |
| 15:40 – 16:00 | **Films & Drops** (chair S. Wilson)  
              *A.B. Mikishev and A.A. Nepomnyashchy*, "Long-scale evolution of parametrically excited Marangoni convection" |
| 16:00 – 16:20 | **Bifurcations and Instabilities in MHD flows** (chair Th. Boeck)  
              *N. A. Pelekas, D. Dimopoulos*, "Magnetic field effects on three dimensional stability of natural convection flows in differentially heated cavities"  
              *F. Pétrélis*, "Mechanism for reversals"  
              *J. Priede, S. Aleksandrova and S. Molokov*, "Linear stability of Hunt’s flow" |
<p>| 16:20 – 16:50 | <strong>Coffee break</strong> |</p>
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<thead>
<tr>
<th>Time</th>
<th>Films &amp; Drops (chair E. Knobloch)</th>
<th>Shear flows: pipes, channels, jets and layers (chair F. Marques)</th>
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<tr>
<td>17:10 -17:30</td>
<td><em>A. Juel,</em> “Symmetry-breaking in partially occluded tubes: directing bubbles with tube geometry”</td>
<td><em>J.M. Ortiz de Zárate,</em> “Nonequilibrium transverse velocity fluctuations in planar Couette flow”</td>
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<td>17:50 -18:10</td>
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<td><em>S.C. Generalis, T. Itano, S. Toh and J.P. Fletcher,</em> “New equilibrium Couette states-the hairpin vortex solution (HVS)”</td>
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<td>8:30 – 9:30</td>
<td><strong>Invited lecture:</strong> Dwight Barkley, “Direct optimal growth analysis for timesteppers” (chair A. Gelfgat)</td>
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<td>9:30 – 9:50</td>
<td><strong>Natural convection</strong> (chair A. Juel)</td>
<td><strong>Computational modeling</strong> (chair D. Barkley)</td>
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<td>11:10 – 11:40</td>
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<td><strong>Coffee break</strong></td>
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<td>11:40 – 12:00</td>
<td><strong>Shear flows</strong> (chair O.M.H. Rodriguez)</td>
<td>S. Jung, S.D. Hoath, G.D. Martin and I.M. Hutchings, “Collision of two Newtonian impinging jets”</td>
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<td>12:00 – 12:20</td>
<td><strong>Miscellaneous topics</strong> (chair T. Mullin)</td>
<td>X.B. Ren, L. Li, J.S. Wang, X.X. Lu, X.F. Yan, Y.C. Dong, “The experimental research and numerical simulation of nanometer granular flow in vacuum tube”</td>
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<td>12:40 – 14:40</td>
<td>Lunch</td>
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<td>15:20 – 15:40</td>
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<td>H. Gadêlha and J. A. Miranda, “Role of viscous stresses on the radial viscous fingering problem”</td>
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<td>15:40 – 16:00</td>
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<td>H. Vitoshkin and A. Yu. Gelfgat, “Non-modal energy and enstrophy norm growth in the viscous mixing layer flow”</td>
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<td>16:00 – 16:20</td>
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<td>A. A. Nepomnyashchy, I. B. Simanovskii, “Instabilities of non-isothermal ultra-thin two-layer films”</td>
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<td>V.A. Batishev, “Asymptotics of secondary regimes for junction of bifurcation points in a thermocapillary flow”</td>
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<td>Time</td>
<td>Films &amp; Drops (chair M. Bestehorn)</td>
<td>Rotating flows (chair M. Brøns)</td>
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<td>16:50-18:10</td>
<td><strong>O. Baumchen and K. Jacobs</strong>, Sliding fluids: Dewetting experiments reveal the solid/liquid boundary condition</td>
<td><strong>Ch. Davies and Ch. Thomas</strong>, “Disturbance evolution in rotating-disk boundary layers: competition between local instability and global stability”</td>
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<td>16:50-18:10</td>
<td><strong>A. Muench</strong>, The dynamics of thin films with varying degree of slippage</td>
<td><strong>S. Altmeyer, Ch. Hoffmann, M. Lücke</strong>, “Transitions between Taylor vortices and spirals via wavy Taylor vortices and wavy spirals”</td>
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<td>20:00-22:00</td>
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<td>Dinner</td>
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### Wednesday, August 12

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<th>Time</th>
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<tr>
<td>8:30 – 9:30</td>
<td><strong>Invited lecture:</strong> <em>Fabian Waleffe</em>, “The coherence of turbulence: 3D unstable coherent states in canonical shear flows” (chair P. Bar‐Yoseph)</td>
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<td>9:30 – 9:50</td>
<td><strong>Films &amp; Drops</strong> (chair O.K. Matar)</td>
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<td><em>E. Novbari and A. Oron</em>, “Energy integral method model for the nonlinear dynamics of an axisymmetric thin liquid film falling down a vertical cylinder”</td>
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<td>9:50 – 10:10</td>
<td><em>C. Lee and P. H. Gaskell</em>, &quot;The dynamics of thin film flow on flexible surfaces containing micro-scale topography&quot;.</td>
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<td>10:10 – 10:30</td>
<td><em>J. Hu, B. Zhou, Y. Hang, Q. Yu</em>, &quot;Linear temporal and spatiotemporal stability of ice growth under a falling water film&quot;.</td>
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<td>10:30 – 10:50</td>
<td><em>I. D. Borcia and M. Bestehorn</em>, &quot;Surface structures on thin fluid layers of a binary mixture&quot;</td>
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<td>10:50 – 11:10</td>
<td><em>H.-Ch. Tsai and Ch.-L. Lai</em>, “Stability analysis of thin liquid film in a micro-pipette”</td>
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<td>11:10 –11:40</td>
<td><strong>Coffee break</strong></td>
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<td><strong>Natural convection</strong> (chair L. Martin Witkowski)</td>
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<td><em>A. Westhoff, D. Schmeling, J. Bosbach and C. Wagner</em>, “Oscillations of heat transfer and large-scale circulation in turbulent mixed convection”</td>
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<td><em>K. Boronska, L.S. Tuckerman</em>, “Bifurcations in cylindrical Rayleigh‐Benard convection: trigonometric and roll states”</td>
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<td><em>I. Mercader, A. Alonso, O. Batiste, and E. Knobloch</em>, “Steady localized states in binary fluid convection. The influence of the boundary condition on the bifurcation diagrams”</td>
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<td><em>V. Haslavsky, E. Kit, A. Yu. Gelfgat</em>, “Experimental study of temperature instabilities in Czochralski configuration”</td>
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<td>Films &amp; Drops (chair K. Jacobs)</td>
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<td>11:40 – 12:00</td>
<td><em>M. Bestehorn</em>, “Turing surface patterns on volatile heated thin films”</td>
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<td>12:00 – 12:20</td>
<td><em>D. Merkt</em>, “Convective instabilities and evaporation”</td>
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<td>12:40 – 14:40</td>
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<td>14:40 – 15:00</td>
<td><strong>Bifurcations and Instabilities in MHD flows</strong> (chair S. Molokov)</td>
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<td><em>B. Knaepen, M. Kinet, S. Molokov</em> “Numerical simulation of the instability of side jets in MHD square ducts with walls of finite conductivity”</td>
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<td>15:40 – 16:00</td>
<td><em>D. Gonzalez-Forero, M. A. Miranda, A. de la Torre, and J. Burguete</em>, “Instabilities of conducting fluid flows in cylindrical cavities”</td>
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<td>16:00 – 16:20</td>
<td><em>P. Delmont, R. Keppens</em>, “On regular shock refraction in ideal MHD”</td>
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<td>16:50 - 17:10</td>
<td><strong>Bifurcations and Instabilities in MHD flows</strong> (chair J. Priede)</td>
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<td><strong>Miscellaneous topics</strong> (chair E. Kit)</td>
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## Thursday, August 13

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<tr>
<td>9:00 – 9:20</td>
<td><strong>Instability in geophysical fluid dynamics</strong> (chair E. Heifez)</td>
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<td><em>H. de Vries, J. Methven, B. Hoskins and T. Frame,</em> “Viewing baroclinic initial value problems in terms of Rossby wave components”</td>
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<td>9:20 – 9:40</td>
<td><strong>E. Heifetz, N. Harnik, A. Rabinovich, O.M. Umurhan, and F. Lott,</strong> “A gravity-vorticity wave interaction approach to stratified shear flow instability”</td>
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<td>9:40 – 10:00</td>
<td><strong>O.M. Umurhan,</strong> “Barotropic stratified shear instabilities in astrophysical discs”</td>
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<td>10:40 – 11:10</td>
<td><strong>Coffee break</strong></td>
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<td>12:10 – 12:30</td>
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<td><strong>Bifurcations and Instabilities in MHD flows</strong> (chair A. Potherat)</td>
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<td>M. Ruderman, N.A. Belov, “Stability of MHD tangential discontinuities: Application to space physics”</td>
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<td>Beltrán, S. Cuevas, E. Ramos, M. Brons, “Vortex generation by an oscillatory magnetic obstacle”</td>
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<td>M. Amaouche and F. Nait Bouda, “The onset of instability of an axisymmetric stagnation flow on a rotating cylinder in magnetohydrodynamics”</td>
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<td><strong>Closure</strong></td>
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