

# Full Program

## Sunday, June 22

17:00–20:00 Arrival, Get Together & Registration

## Monday, June 23

08:30–09:00 Registration & Coffee

09:00–09:15 Opening Session

09:15–10:00 Session 1.1 - Electric-Field Effects

(Chairman: Mikishev A.)

09:15–09:30 Maxwell stress long wave instabilities in a thin aqueous film under time-dependent electro-osmotic flow.

*M. Mayur and S. Amiroudine*

09:30–09:45 Temperature based weak ac field enhanced patterns formation in vertical deposition of colloids.

*R. Aslam, M. Pichumani and W. González-Viñas*

09:45–10:00 Experimental investigation of the instability between two immiscible fluids flowing in a microchannel in the presence of an electric field.

*P. Eribol and A. K. Uguz*

10:00–10:35 Session 1.2 - Posters

(Chairman: Kuhlmann H.)

10:35–11:00 Coffee Break

11:00–12:00 Session 1.3 - Droplet Motion and Migration

(Chairman: Doumenc F.)

11:00–11:15 Numerical simulation of the Marangoni effect on transient mass transfer from a single moving deformable drop.

*J. Chen, X. Feng, P. Fan, C. Yang and Z.-S. Mao*

11:15–11:30 Control of drop motion by mechanical vibrations.

*M. Bestehorn*

11:30–11:45 A phase field description of ratchet-like motion of a shaken drop.

*R. Borcia, I. D. Borcia and M. Bestehorn*

11:45–12:00 Thermocapillary effect on migration of micro-droplet along a non-uniform thermal substrate.

*X. Chen, Q.-S. Liu, Z.-Q. Zhu, Y.-N. Sun and Y.-D. Yu*

<b>12:00–14:00</b>	<b>Lunch Break</b>
<b>14:00–15:00</b>	<b>Session 1.4 - Thermocapillary Liquid Bridges</b> (Chairman: Schwabe D.)
14:00–14:15	Instabilities of structured metal films on nanoscale. <i>L. Kondic, N. Dong, Y. Wu, S. Fu, J. Fowlkes and P. Rack</i>
14:15–14:30	Time-scale estimates for particle accumulation in thermocapillary liquid bridges. <i>H. C. Kuhlmann and F. H. Muldoon</i>
14:30–14:45	Spatial and kinematic topology within an ensemble of particles in a thermocapillary flow in a liquid bridge. <i>D. Melnikov, T. Watanabe, D. Pushkin, V. Shevtsova and I. Ueno</i>
14:45–15:00	Particle-size effect in the formation of particle-depletion zones in thermocapillary liquid bridges. <i>T. Lemeé and H. C. Kuhlmann</i>
<b>15:00–15:35</b>	<b>Session 1.5 - Posters</b> (Chairman: D’Alessio S.)
<b>15:35–16:00</b>	<b>Coffee Break</b>
<b>16:00–17:45</b>	<b>Session 1.6 - Evaporation and Condensation</b> (Chairmen: Melnikov D. & Riegler H.)
16:00–16:15	The stabilizing effect of mass loss on an evaporating thin liquid film due to the vapor concentration gradient. <i>K. Kanatani</i>
16:15–16:30	Effect of a constant heat source on evaporative instability in a solid-liquid-vapor system. <i>A. Karacelik, R. Narayanan and K. Uguz</i>
16:30–16:45	Jumping pool boiling into mesoscopic structures of monodispersed microspheres. <i>A. S. Dmitriev, M. A. El Bouz and P. G. Makarov</i>
16:45–17:00	Coalescing droplets with suspended particles in a tube creeping flow. <i>M. Muraoka, T. Kamiyama, T. Wada, I. Ueno and H. Mizoguchi</i>
17:00–17:15	Thermocapillary convection in the evaporation droplets. <i>B. He and F. Duan</i>
17:15–17:30	Evolution of thermo-convective flows in liquid bridges due to evaporation. <i>Y. Gaponenko and V. Shevtsova</i>
17:30–17:45	Flow regimes in a cylindrical macropore. <i>P. Beltrame and S. Sammartino</i>
<b>17:45–18:00</b>	<b>IMA8 - Presentation</b> (Bestehorn M.)
<b>19:30–21:00</b>	<b>Reception at the Mayor’s House</b>

## Tuesday, June 24

### 09:00–10:00 Session 2.1 - Liquid Film Experiments

(Chairman: Mizev A.)

- 09:00–09:15 Experimental study on pulsating heat pipe using self-rewetting fluid as a working fluid (visualization of thin liquid film and surface wave).  
*K. Fumoto, T. Ishida, K. Yamagami, T. Kawanami and T. Inamura*
- 09:15–09:30 Flow structures in a double free-surface film with small imposed Marangoni numbers.  
*B. Messmer, T. Lemeé, K. Ikebukuro, K. Edwin, I. Ueno and R. Narayanan*
- 09:30–09:45 Foam drainage: experimental study and numerical simulations.  
*A. Bureiko, N. Kovalchuk, A. Trybala, O. Arjmandi-Tash and V. Starov*
- 09:45–10:00 Dynamic wetting failure and air entrainment: what can thin-film models teach us?  
*E. Vandre, M. S. Carvalho and S. Kumar*

### 10:00–10:35 Session 2.2 - Posters

(Chairman: Montanero J.M.)

### 10:35–11:00 Coffee Break

### 11:00–12:00 Session 2.3 - Contact-Line Dynamics

(Chairman: Bestehorn M.)

- 11:00–11:15 Salt-induced Marangoni flow in evaporating sessile droplets.  
*V. Soulié, S. Karpitschka, F. Lequien, T. Zemb, H. Möhwald and H. Riegler*
- 11:15–11:30 Contact line motion of a volatile liquid in an inert gas.  
*V. Janeczek, F. Doumenc, V. Nikolayev and B. Guerrier*
- 11:30–11:45 Self-induced Marangoni flow in alcoholic binary mixtures.  
*C. Buffone, A. Cecere and R. Savino*
- 11:45–12:00 Convective/capillary deposition of charged nanoparticles directed by receding contact lines: effect of collective diffusion and hydration forces.  
*D. Noguera-Marin, C. L. Moraila-Martinez, M. A. Cabrerizo-Vilchez and M. A. Rodriguez-Valverde*

### 12:00–14:00 Lunch Break

- 14:00–15:30**      **Session 2.4 - Droplet Manipulation**  
(Chairmen: Liu Q.-S. & Khayat R.)
- 14:00–14:15      Impact of complex drops onto surfaces: particle distribution.  
*V. Grishaev, C. S. Iorio and A. Amirfazli*
- 14:15–14:30      Drops on cylindrical surfaces.  
*I. D. Borcia, R. Borcia, M. Bestehorn, C. Borcia, N. Dumitrascu and C. Egbers*
- 14:30–14:45      Droplet formation in thin liquid layers under the action of the laser-induced solutocapillary flows.  
*N. A. Ivanova*
- 14:45–15:00      Deformation of long slender non-newtonian drop in shear flow.  
*O. M. Lavrenteva, M. Favelukis and A. Nir*
- 15:00–15:15      Non-negligible Marangoni part in convective transport of heavy vapor from a highly volatile pendant droplet on a wafer.  
*A. Rednikov, S. Dehaeck and P. Colinet*
- 15:15–15:30      Drop transfer between two surfaces.  
*H.Chen, T.Tang and A.Amirfazli*

**15:30–16:00**      **Coffee Break**

- 16:00–18:00**      **Session 2.5 - Interfacial Deformation**  
(Chairmen: Lyubimova T. & Dietze G.)
- 16:00–16:15      An overview of thermo-vibrational instabilities in near-critical fluids.  
*G. Gandikota, S. Amiroudine, Chatain D., Lyubimova T. P. and Beysens D.*
- 16:15–16:30      Interfacial instabilities between miscible fluids under horizontal vibrations.  
*V. Shevtsova, Y. Gaponenko, M. Torregrosa, V. Yasnou and A. Mialdun*
- 16:30–16:45      Dynamical stability of a liquid bridge.  
*C. Ferrera, J. M. Montanero, M. A. Herrada, M. Torregrosa and V. Shevtsova*
- 16:45–17:00      Two-frequency excitation of single-mode Faraday waves.  
*W. Batson, F. Zoueshtiagh and R. Narayanan*
- 17:00–17:15      The dynamics of hydraulic jumps in a viscous liquid flowing down an inclined plate.  
*E. S. Benilov and V. N. Lapin*
- 17:15–17:30      A numerical study of electrohydrodynamic patterning of viscoelastic materials.  
*G. Karapetsas and V. Bontozoglou*
- 17:30–17:45      On the interplay between inertia and shear thinning for free-surface jet flow near channel exit.  
*R. E. Khayat*
- 17:45–18:00      Free surface flow simulation with application to bluff body flow control.  
*S. Kocabiyik and C. Bozkaya*

## Wednesday, June 25

### 09:00–10:30 Session 3.1 - Marangoni Instability

(Chairmen: Imaishi N. & Köllner T.)

- 09:00–09:15 Experimental and numerical observations of surface deformation during drying of polymer solutions due to Marangoni phenomena.  
*S. G. Yiantsios, S. K. Serpetsi, F. Doumenc, S. Mergui and B. Guerrier*
- 09:15–09:30 Wavelet analysis of imperfect symmetries of nonlinear patterns in Marangoni flows.  
*I. I. Wertgeim and V. G. Zakharov*
- 09:30–09:45 Long-wave Marangoni convection in a binary-liquid layer with Soret effect and surfactant adsorption/desorption.  
*M. Morozov, A. Nepomnyashchy and A. Oron*
- 09:45–10:00 From linear to highly non-linear steady-state pattern bifurcation diagrams in confined surface-tension-driven-convection.  
*M. Medale and P. Cerisier*
- 10:00–10:15 Effects of external shield on particle accumulation structure (PAS) due to thermocapillary effect in a half-zone liquid bridge.  
*M. Gotoda, T. Sano, T. Kaneko and I. Ueno*
- 10:15–10:30 Benard-Marangoni instability in a fluid with a deformable free surface.  
*D. V. Lyubimov, T. P. Lyubimova, N. I. Lobov and A. E. Samoilova*

### 10:30–11:00 Coffee Break

### 11:00–12:00 Session 3.2 - Droplet Coalescence

(Chairman: Borcia R.)

- 11:00–11:15 Drop coalescence and drop shape: influence of Marangoni flows.  
*S. Karpitschka and H. Riegler*
- 11:15–11:30 Marangoni instability driving motion, deformation and fission of an oil drop on a surfactant solution.  
*J. Irvoas, K. Eckert, K. Schwarzenberger, C. Antoine, M. Brost and V. Pimienta*
- 11:30–11:45 Marangoni flow during coalescence of sessile drops: liquids with a precipitation reaction.  
*M. Jehannin, S. Karpitschka, S. Charton, H. Möhwald, T. Zemb and H. Riegler*
- 11:45–12:00 Interfacial instability arisen on vapor bubble in subcooled pool.  
*I. Ueno, J. Ando, T. Saiki and T. Kaneko*

### 12:00–22:00 Wachau River-Boat Trip

## Thursday, June 26

### 09:00–10:30 Session 4.1 - Long Waves and Heat Transfer

(Chairmen: Starov V. & Duan F.)

- 09:00–09:15 Thermal coupling between two liquid films undergoing long-wavelength instabilities.  
*M. Vécsei, M. Dietzel and S. Hardt*
- 09:15–09:30 On dynamic excitation of Marangoni instability of deformable liquid layer with insoluble surfactant.  
*A. B. Mikishev and A. A. Nepomnyashchy*
- 09:30–09:45 Healing of an axisymmetric thin liquid film on a harmonically oscillating horizontal cylindrical surface.  
*O. Haimovich and A. Oron*
- 09:45–10:00 Creating localized-droplet train by traveling thermal waves.  
*V. Frumkin, W. Mao, A. Alexeev and A. Oron*
- 10:00–10:15 How to deal with negative surface heat capacities.  
*W. Schneider*
- 10:15–10:30 Effect of groove angle and distance between grooves on the micro-jet forms.  
*C. Liu, Q.-J. Feng and X.-H. Liang*

### 10:30–11:00 Coffee Break

### 11:00–12:00 Session 4.2 - Solutocapillary Layers

(Chairman: Oron A.)

- 11:00–11:15 Hierarchical Marangoni roll cells caused by mass transfer: direct numerical simulations and supporting experiments.  
*T. Köllner, K. Schwarzenberger, K. Eckert, S. Odenbach and T. Boeck*
- 11:15–11:30 Interfacial spreading motions in 2-layer solutal Rayleigh-Marangoni convection: 3D direct numerical simulations and experiments.  
*T. Köllner, K. Schwarzenberger, T. Boeck and K. Eckert*
- 11:30–11:45 Early Hofmeister series salt solutions: model formulation and linear stability analysis.  
*J. J. A. Conn, S. K. Wilson, D. Pritchard, B. R. Duffy, P. J. Halling and K. Sefiane*
- 11:45–12:00 Buoyancy driven instabilities in miscible fluids.  
*J. Carballido-Landeira, P. M. J. Trevelyan, C. Almarcha and A. de Wit*

### 12:00–14:00 Lunch Break

- 14:00–15:30**      **Session 4.3 - Surface-Tension-Driven Flows**  
(Chairmen: Shevtsova V. & Yiantsios S.)
- 14:00–14:15      Flow instabilities in annular pool of low Pr fluid.  
*N. Imaishi, M. Ermakov, W.Y. Shi, Y.R. Li and L. Peng*
- 14:15–14:30      On instability of Marangoni convection on the surface of a surfactant solution.  
*A. Mizev and A. Trofimenko*
- 14:30–14:45      A drying droplet spreads out its wings: thermo-capillary fingering.  
*R. De Dier, W. Sempels, J. Hofkens and J. Vermant*
- 14:45–15:00      Space experiment on flow transition of Marangoni convection in liquid bridge with high Prandtl number.  
*S. Matsumoto and S. Yoda*
- 15:00–15:15      Local corrosion of SiO<sub>2</sub>(s) driven by Marangoni convection in the melting liquid surface systems.  
*Z. Yuan, Y. Wu, K. Mukai and B. Xu*
- 15:15–15:30      Numerical methods for interfacial flows with high density ratios and high surface tension.  
*F. Denner and B. G. M. van Wachem*

**15:30–16:00**      **Coffee Break**

- 16:00–18:00**      **Session 4.4 - Falling Films**  
(Chairmen: Schneider W. & Kondic L.)
- 16:00–16:15      The effects of variable fluid properties on thin film stability.  
*S. D'Alessio, C. Seth and J.-P. Pascal*
- 16:15–16:30      Heat and mass transfer between a vertical flat absorbing falling liquid film and a gas flow in a channel.  
*B. Beladi and H. C. Kuhlmann*
- 16:30–16:45      Dynamics of thin liquid films controlled by thermal fluctuations.  
*S. Nestic, R. Cuerno, E. Moro and L. Kondic*
- 16:45–17:00      Investigation of the liquid film flows with evaporation by means of new mathematical models based on the general interface conditions.  
*O. N. Goncharova and E. V. Rezanova*
- 17:00–17:15      Interfacial heat transfer of liquid film flows in narrow channels.  
*F. Denner, M. Vieweg, C. N. Markides, S. Kalliadasis and B. G. M. van Wachem*
- 17:15–17:30      Direct and model-based simulations of three-dimensional falling liquid films: surface waves and associated flow structures.  
*G. F. Dietze, W. Rohlf, K. NÄhrich, R. Kneer and B. Scheid*
- 17:30–17:45      Thermally induced break-up of regularly excited three-dimensional surface waves on a vertical liquid film.  
*M. Rietz, W. Rohlf, and R. Kneer*
- 17:45–18:00      An efficient numerical approach to systematically investigate the interfacial heat and mass transfer for wavy falling films.  
*E. Hofmann and H. C. Kuhlmann*

**18:00–18:20**      **Adjourn**

## Poster Sessions

### Monday, June 23

- 10:00–10:35**      **Session 1.2 - Posters**  
(Chairman: Kuhlmann H.)
- 10:00–10:03      A1: Study of the acoustic surface waves propagation of porous silicon using different coupling fluids  
*S. Bouhedja and F. Hamdi*
- 10:03–10:06      A2: Threshold initiation of solutocapillary Marangoni convection near air-bubble surface in horizontal rectangular channel.  
*M. O. Denisova, K. G. Kostarev, A. L. Zuev and A. Viviani*
- 10:06–10:09      A3: Liquid layered phenomenon and initial droplet size distribution during explosive dispersal process.  
*Y. N. Shi, T. Hong, C.S. Qin and Q.J. Feng*
- 10:09–10:12      A4: Instabilities of liquid crystal films.  
*L. Kondic, M. Lam, T.-S. Lin, U. Thiele and L. Cummings*
- 10:12–10:15      A5: Rupture of liquid film placed on solid substrate and on deep liquid under action of thermal beam.  
*A. Ovcharova and N. Stankous*
- 10:15–10:18      A6: Numerical investigation for the direction of thermocapillary flow in a cooled circular water film.  
*T. Yamamoto, Y. Takagi, Y. Okano and S. Dost*
- 10:18–10:21      A7: Evolution of the thermocapillary motion of three liquids in a flat layer.  
*V. Andreev and E. Cheremnih*
- 10:21–10:24      A8: An index for evaluating the wettability alteration of reservoir rock toward more water wet condition by combined low salinity water and surfactant flooding.  
*M. Nourani, T. Tichelcamp and G. Øye*
- 10:24–10:27      A9: Study of dynamics of drying processes in  $\text{Fe}_2\text{O}_3$  and  $\text{SiO}_2$  nanocolloid droplets.  
*A. S. Dmitriev and P. G. Makarov*
- 10:27–10:30      A10: Self-patterning induced by a solutal Marangoni effect in a receding drying meniscus.  
*F. Doumenc and B. Guerrier*
- 10:30–10:33      A11: Weakly nonlinear stability of Marangoni convection in a half-zone liquid bridge.  
*K. Fujimura*



- 15:00–15:35**      **Session 1.5 - Posters**  
 (Chairman: D’Alessio S.)
- 15:00–15:03      B1: Bifurcations of the rotation in the Marangoni layers.  
V. A. Batishchev and V. A. Getman
- 15:03–15:06      B2: Oscillatory Marangoni instability in thin film heated from below.  
A. E. Samoilova and N. I. Lobov
- 15:06–15:09      B3: Large-amplitude Marangoni convection in a binary liquid.  
 S. Shklyayev, A. A. Nepomnyashchy and A. Ivantsov
- 15:09–15:12      B4: Influence of surfactants on thermocapillary convection on the confined interfaces.  
A. Mizhev and A. Shmyrov
- 15:12–15:15      B5: On locally high-frequency modulated Marangoni convection.  
A. B. Mikishev and I. I. Wertgeim
- 15:15–15:18      B6: Stability of stationary plane-parallel flow over a saturated porous medium.  
T. P. Lyubimova, D. Baidina and E. Kolchanova
- 15:18–15:21      B7: Onset of Benard-Marangoni convection in a two-layer system with deformable  
 fluid interface and fixed heat flux at the external boundaries.  
T. P. Lyubimova, D. V. Lyubimov and Y. Parshakova
- 15:21–15:24      B8: Marangoni convection in liquid layer under alternating heat flux.  
B. L. Smorodin and B. I. Myznikova
- 15:24–15:27      B9: A promising front tracking method with high order of accuracy.  
P. Fan and C. Yang
- 15:27–15:30      B10: Thermocapillary effect on the dynamics of viscous beads on vertical fibre.  
R. Liu and Q.-S. Liu
- 15:30–15:33      B11: Convective structures and diffusion in ternary isothermal liquid and gas  
 mixtures.  
V. Kossov, Y. Zhavrin, O. Fedorenko and G. Akylbekova

## Tuesday, June 24

### 10:00–10:35 Session 2.2 - Posters

(Chairman: Montanero J.M.)

- 10:00–10:03 C1: Effect of liquid bridge shape on the oscillatory thermal Marangoni convection.  
*T. Yano and K. Nishino*
- 10:03–10:06 C2: Experiments on falling water films in interaction with a counter-current air flow.  
*N. Kofman, S. Mergui and C. Ruyer-Quil*
- 10:06–10:09 C3: Evaporation rate from mesoscopic structures of monodispersed microspheres: experimental and computer simulations.  
*A. F. Ginevskiy, A. S. Dmitriev and M. A. El Bouz*
- 10:09–10:12 C4: Thermocapillary surface waves – reviewed.  
*C. Bach and D. Schwabe*
- 10:12–10:15 C5: The effect of heat flux from bottom on the thermal convection of silicon melt in shallow annular pool.  
*F. Wang and L. Peng*
- 10:15–10:18 C6: Flow instabilities in annular pool of medium Pr fluid effects of  $Bi_{top}$ ,  $Bi_{bottom}$  and  $Bo_d$ .  
*N. Imaishi, M. Ermakov and W.Y. Shi*
- 10:18–10:21 C7: Studying of fast interfacial loading of surfactants by PANDA.  
*W. Sempels, R. De Dier, J. Hofkens and J. Vermant*
- 10:21–10:24 C8: Concentration Marangoni convection as a factor of self-assembly in evaporating picolitre sessile drop of binary solvent mixture.  
*P. V. Lebedev-Stepanov*
- 10:24–10:27 C9: Numerical simulation of particle-laden droplet evaporation.  
*G. Son*
- 10:27–10:30 C10: Janus droplet as a catalytic motor.  
*S. Shklyaev*
- 10:30–10:33 C11: Numerical simulation of the isothermal dissolution of a single rising bubble in a liquid bath.  
*A. S. Mohamed, M. A. Herrada, J.M. López-Herrera and A. M. Gañán-Calvo*