

15th International Meeting on Thermodiffusion

May 29th – June 1st, 2023 – Tarragona (Spain)

IMT 15

Program



Monday May 29th - Afternoon Program

Location:	Campus Catalunya - Aula Magna
16:00 - 16:30h	Registration Desk
16:30 - 17:00h	Inaugural session - Marina Galià, (Vicerector for Research, Rovira i Virgili University, Tarragona)
	Inaugural session - Joan Josep Carvajal Martí (Dean of the Chemistry Faculty, Rovira i Virgili University, Tarragona)
17:00 - 18:00h	IL - 01 Abbas Firoozabadi Thermal Diffusion in Multicomponent Mixtures including H ₂ O-CO ₂ -Salts from Molecular Simulations
18:15 - 18:30h	Welcoming session - Diana Cristina Dubert (The Organizing Committee)
19:30h	Social event - Welcoming Cocktail Location: Tarraco Amphitheatre

IL - invited lecture

Tuesday May 30th - Morning Program

Session 1 - Topic 01		Chairman: Fernando Bresme
9:00 - 9:15h	OC-01 Arantxa Alonso Complex time dependent patterns in the Soret regime	
9:15 - 9:30h	OC-02 Gabriela Guevara Carrión Diffusion and thermodiffusion of supercritical CO ₂ mixtures: A molecular simulation study	
9:30 - 9:45h	OC-03 Abdelkader Mojtabi Mixed convection in porous thermogravitational column	
9:45 - 10:00h	OC-04 Vegard Gjeldvik Jervell Revised Enskog Theory for Mie Fluids: A predictive model for transport properties in dense gases	
10:00 - 10:15h	OC-05 Simone Wiegand Thermodiffusion of aqueous salt solutions: Hofmeister Series and overlapping hydration	
10:30 - 11:00h	Coffee Break / Poster Discussion	
11:00 - 11:15h	OC-06 Alice Hutchinson Modelling thermodiffusion in aqueous sodium chloride solutions – best performing water models for predicting inversion temperatures	
11:15 - 11:30h	OC-07 David Cesar Malaspina Einstein-Helfand and Green-Kubo expressions in isothermal and energy conserving Dissipative Particle Dynamics	
11:30 - 11:45h	OC-08 Shuqi Xu Optical measurement of thermodiffusion inversion temperature in binary solutions using digital interferometry	
12:00h-13:00h	IL - 02 Werner Köhler Thermodiffusion of polymer solutions in mixed solvents	
13:00h-14:30h	Lunch time	

Tuesday May 30th - Afternoon Program

Session 2 - Topic 01		Chairwoman: Simone Wiegand
14:30 - 14:45h	OC-09 Kasmir Gregory Modelling the thermodiffusion of lone cations and anions in dilute aqueous	
14:45 - 15:00h	OC-10 Giuseppe Colella Generalised Energy-Conserving Dissipative Particle Dynamics with Mass Transfer:	
15:00 - 15:15h	OC-11 Fernando Bresme Non-monotonic dependence of the Soret coefficient in fluid mixtures: insights from non-equilibrium molecular dynamics	
15:15 - 15:30h	OC-12 Ane Errarte Mass transport phenomena of hydrocarbon ternary system MN Tol nC10	
16:00 - 16:30h	Coffee Break	
16:30 - 16:45h	OC-13 Asbjørn Krüger Measurement of the Soret coefficient in liquid Al-Ag alloys using X-ray radiography	
16:45 - 17:00h	OC-14 Felipe Mourão Coelho Thermodiffusion of CO ₂ in Saline Solutions by Non-Equilibrium Molecular Dynamics Simulations	
17:00 - 17:15h	OC-15 Cecilia Santos Separation stability in binary TEG-water mixtures observed by digital interferometry	
17:15 - 17:30h	OC-16 AbdelKader Mojtabi Forced convection in two sided lid-driven horizontal cavity filled with a binary fluid: Optimal species separation	
17:30 - 18:30h	Free time	
18:30 - 20:30h	Roman Tarragona guided tour - 2 groups	
21:00h	Dinner	

Wednesday May 31st – Morning Program

Session 1 - Topics: 02, 03, 04, 05, 09, 10 and 11
Chairman: Henri Bataller

9:00 - 9:15h	OC-01 Pietro Anzini Thermo-osmosis: Theory and Simulations
9:15 - 9:30h	OC-02 Roberto Piazza Optothermal heating effects on the structure and dynamics of a soft disordered solid
9:30 - 9:45h	OC-03 Bjørn Hafskjold Thermal Marangoni effects, thermodiffusion, and thermo-osmosis in slit pores dense gases
9:45 - 10:00h	OC-04 Shilpa Mohanakumar Complementary Experimental Methods to Obtain Thermodynamic Parameters of Protein Ligand Systems
10:00 - 10:15h	OC-05 Pablo Salgado Sánchez Thermocapillary-driven melting of PCMs in microgravity: performance enhancement strategies
10:30 - 11:00h	Coffee Break / Poster Discussion
11:00 - 11:15h	OC-06 Juan Felipe Torres On the potential of thermodiffusion as means for large-scale desalination
11:15 - 11:30h	OC-07 Koorosh Kazemi Numerical investigation of a pair of bubbles rising in Newtonian and shear-thinning fluids with passive scalar transfer at the interface
11:30 - 11:45h	OC-08 Dan-Esli Bouyou Bouyou Analysis of non-equilibrium fluctuations during thermodiffusion in a binary mixture by two-wavelength shadowgraphy
12:00h-13:00h	IL - 03 Valentina Shevtsova Scientific outcome from microgravity experiments and beyond
13:00h-14:30h	Lunch time

Wednesday May 31st - Afternoon Program

Session 2 - Topic 03	Chairman: Xavier Ruiz
14:30 - 14:45h	OC-9 Mohammed CHRAGA Integrating artificial intelligence to the structure function analysis
14:45 - 15:00h	OC-10 Christian Obinna Oko Study of salts free-diffusion by shadowgraphy
15:00 - 15:15h	OC-11 Marina Carpineti Oscillations and internal gravity waves in a stratified fluid – an engaging experiment to introduce advanced physics
15:15 - 15:30h	OC-12 Andrés Arango Restrepo Chiral symmetry breaking induced by energy dissipation
15:30 - 16:00h	Coffee Break
16:00 - 20:30h	Free time
20:30h	Conference dinner

Thursday June 1st - Morning Program

Session 1 - Topics: 06 and 08 Chairwoman: Diana Dubert

10:00 - 10:15h	OC-01 Berin Seta Simultaneous appearance of fingers and overstable instability in isothermal ternary systems
10:15 - 10:30h	OC-02 Katia Ali-amar Soret effect on viscous dissipation thermal instability of Poiseuille flows in binary mixtures; Part I: Linear stability
10:30 - 10:45h	OC-03 Antton Sanjuan Analysis of the thermogravitational behaviour of binary liquid mixtures for positive and negative Soret coefficients
10:45 - 11:30h	Coffee Break / Poster Discussion
11:30 - 11:45h	OC-05 Happiness Imuetinyan Convective Plume Spreading in Model Transparent Porous Media
11:45 - 12:00h	OC-06 Alexander Nepomnyashchy Marangoni convection in a surfactant solution containing micelles
12:00-12:15h	OC-07 Paul Fruton Thermal diffusion experiments in CO ₂ -1-hexanol mixtures at different gravity levels Design and data overview of a parabolic flight campaign
12:15h-13:15h	IL - 04 Alberto Vailati Diffusion in liquid mixtures
13:15h-14:45h	Lunch time
14:45 - 15:00h	Awards and Farewell

A long, arched tunnel with stone pillars and warm lighting, leading to a poster session. The tunnel is illuminated with warm, yellow light, creating a sense of depth and perspective. The walls are made of rough, textured stone, and the floor is paved with large, flat stones. In the distance, several people are visible, suggesting a social or academic gathering. The overall atmosphere is one of historical significance and intellectual pursuit.

Poster session

P01	Soret effect on viscous dissipation thermal instability of Poiseuille flows in binary mixtures; Part II: Nonlinear stability	Mohamed Najib	Ouarzazi
P02	Non-isothermal water treatment technology using green polymeric membranes	Loreto	García-Fernández
P03	Measurement of Thermodiffusion in Molten Al-Cu-Ag	Elke	Sondermann
P04	Temperature dependent measurements of the diffusion- and Soret-coefficient in a binary polystyrene/toluene mixture by means of a transient holographic grating technique	Jannik	Kantelhardt
P05	Measurements on Diffusion and Thermodiffusion on thermoresponsive Poly(N-acryloylglycinamide) in water and polystyrene/toluene mixtures with a scaled down double-pass Optical-Beam-Deflection setup	Roman	Reh
P06	Measurement of the Soret coefficient of binary mixtures in porous media	M Mounir	Bou-Ali
P07	The melting-solidification cycle for materials with different Prandtl numbers	Diana	Dubert
P08	Transport phenomena binary and ternary mixtures of Fullerene C60 in aromatic solvents	Ane	Errarte
P09	Thermodiffusion coefficients in Polystyrene-Toluene and Polystyrene-Cyclohexane mixtures at different mass fractions	Antton	Sanjuan
P10	Mass transport properties of C60 THN Tol mixture in ground laboratories and microgravity: Results of DCMIX4 mission	Valentina	Shevtsova
P11	Non-Equilibrium Fluctuations during Free-Diffusion in a highly stratified solution of Glycerol and Water	Stefano	Castellini
P12	Diffusion and thermodiffusion of polymers in mixed solvents	Daniel	Sommermann
P13	Soret-induced convection of ternary fluid in horizontal porous layer heated from below	Tatyana	Lyubimova
P14	Nonlinear regimes of Soret-induced convection in a two-layer porous system with an interface simulating a synclinal fold	Tatyana	Lyubimova