

# Programme of the Burgers Symposium 2024

29<sup>th</sup> and 30<sup>th</sup> May 2024, Hotel De Werelt in Lunteren



Research School for Fluid Mechanics

## **Organizing Committee**

Chair: Ruud Henkes

Support: [jmburgerscentrum@tudelft.nl](mailto:jmburgerscentrum@tudelft.nl)

Members: Alvaro Marin, Daniel Tam, Dominik Krug, Hanneke Gelderblom, Marjolein van der Linden, Tim Peeters, Valeria Garbin, Woutijn Baars, Yali Tang



## 2024 Burgers Lecture by Prof. Elisabeth Guazzelli

### "Falling clouds of particles in vortical flows"



Elisabeth Guazzelli graduated from Ecole Normale Supérieure de Fontenay-aux-Roses and obtained a doctorate of the third cycle in 1981 at Université de Paris Sud and a State Doctorate in 1986 at Université de Provence, and then completed a postdoctoral stay at Stanford University. Her research interests are in the field of particulate multiphase flows, such as fluidized beds, suspensions, sedimentation, and sediment transport. Spending her entire career as a CNRS (French National Centre for Scientific Research) researcher, she has led a very active and diversified research group at the IUSTI Laboratory of Aix-Marseille Université, and has now moved to the MSC (Matière et Systèmes Complexes) Laboratory of Université Paris Cité. She is a Rector of the International Center for Mechanical Sciences in Udine (Italy). Since 2005, she has been an Associate Editor of the Journal of Fluid Mechanics and is presently acting as the JFM Rapids Editor. Fellow of the American Physical Society since 2008 and of the European Mechanics Society (EUROMECH) since 2010, she is the recipient of the EUROMECH Fluid Mechanics Prize 2016. She was elected an international member of the Istituto Veneto di Scienze, Lettere ed Arti in 2020 and of the National Academy of Engineering in 2021. She was the 2023 Recipient of the APS Fluid Dynamics Prize.

**Abstract of lecture.** In many natural phenomena or industrial applications, heavy particles are transported in complex flows. The flow structures may happen to promote the stirring and dispersion of the particles. But the opposite can also take place and the flow configuration may contribute to the focussing and accumulation of particles within specific regions of the flow. This work explores how a collection (i.e. a cloud) of heavy particles evolves under gravity in a complex flow (i.e. large vortices). The key question is whether the cloud maintains a cohesive entity or disintegrates and spreads. The objective is to tackle the interplay between the multibody particle interactions and the interaction between the particles and the spatial structures of the flow. This coupling is examined for a cloud of heavy spheres settling in a cellular flow field which is a simple model flow capturing key features of vortical effects on the particles. The focus here is on flow regimes where inertia is small but can become finite.

This work has been undertaken with Laurence Bergougnoux and Benjamin Marchetti at Aix-Marseille Université, CNRS, IUSTI, Marseille, France.

## Evening Lecture by Prof. Leif Ristroph

### "The Feynman Sprinkler, and a Sprinkling of Related Problems"



Leif Ristroph has a MSc degree (2007) and a PhD degree (2011), both in Physics from Cornell University. He currently is Associate Professor of Mathematics at New York University's Courant Institute. He is an experimental physicist and applied mathematician who specializes in fluid dynamics, with a particular emphasis on fluid-structure interactions as applied to biological and geophysical flows. His biophysical work includes studies of the aerodynamics and stabilization of insect flight as well as the hydrodynamics of schooling and flow-sensing in swimming fish. Relevant to geophysical flows, he is interested in problems ranging from instabilities of interfacial flows to the evolution of shape during fluid mechanical erosion

**Abstract of lecture.** Fluids, if urged to move reversely through or around some geometry, do not simply reverse course but rather generate entirely different patterns and currents. This fact about flows with inertia has many interesting consequences and practical applications. The lecture gives some curious examples of natural systems and engineered devices that rely on fluid mechanical irreversibility. The main focus is on the tough and enduring mystery of the so-called reverse sprinkler problem, which has remained unsolved for 140 years and which we have very recently made progress on. This and the other problems will hopefully show how questions from fluid mechanics can impact so many other disciplines and can inspire new and interesting math, physics, and engineering ideas.



### KIVI Hoogendoorn Fluid Mechanics Award for dr. Vatsal Sanjay

He defended his PhD thesis (with Cum Laude distinction) on 15<sup>th</sup> July 2022 at the University of Twente, with promotor prof. Detlef Lohse. The thesis is entitled: "Viscous Free-Surface Flows". This thesis investigates several free-surface phenomena to illustrate the role of viscous stresses. The study includes the impact of spherical liquid drops on non-wetting substrates, with a focus on capillary-driven retraction of films and bursting of free-surface bubbles. The three-fluid model developed in this thesis can thus be used as a base model to incorporate multi-physical aspects, such as Marangoni flows and multicomponent systems.



### 2023 Leen van Wijngaarden Prize for dr. ir. Sander Huisman

The Leen van Wijngaarden Prize for excellence in Fluid Mechanics is awarded every four years for a researcher less than 40 years of age affiliated with one of the groups of the JM Burgerscentrum. The prize is intended for an important and interesting contribution to fluid mechanics. The work of Sander Huisman was selected for the depth and breath, and scope of the research, incorporating the complete research cycle from design to implementation and data analysis, as well as the worldwide impact his research has created. His papers are a delight to read and study.

## Wednesday 29<sup>th</sup> May 2024

**09:30 – 10:30 Registration with coffee/tea**

**10:30 – 10:40 Opening in Room “Earth”**

**Hans van Duijn** – Opening by the Chair of the Board of the Burgerscentrum

**Ruud Henkes** – Welcome by the Scientific Director of the Burgerscentrum

**10:40 – 11:30 Burgers Lecture in Room “Earth”**

**Prof. Elisabeth Guazzelli (Université Paris Cité, France) – The 2024 Burgers Lecture “Falling clouds of particles in vortical flows”**

**11:30 – 12:30 Fluid Flow Impact (Room “Earth”) (Chair: Tim Peeters)**

**Hans Meerman** (Industrial R&D): Fluid Flow in Process Engineering

**David Fernandez Rivas** (University of Twente): Entrepreneurial Physics and Empathic Engineering

**Jos van ‘t Westende** (TNO): The drag reduction project

**Claas Willem Visser** (IAMFLUIDICS): Fluid mechanics in industrialization and upscaling of in-air microfluidics

**Varsha Kapoerchan** (NWO): Physics of Fluids and Soft Matter

**12:30 – 13:30 Lunch**

(Separate lunch meeting for members of Industrial Advisory Board in Meeting Room 9)

Wednesday, 29<sup>th</sup> May 2024

13:30 – 14:30 Parallel Sessions

Room “Earth”	Room “Air”
<b>Aerodynamics &amp; Turbulence</b> (Chair: Dominik Krug)	<b>Computational Methods</b> (Chair: Maïke Baltussen)
<b>Abdelrahman Hisham Hassanein</b> (TUD – Aerodynamics – Woutijn Baars): Attenuating the energy of large structures via inner-scaled Helmholtz resonators under a turbulent boundary layer grazing flow	<b>Alessandro Ballatore</b> (TU/e – Power Flow – Jeroen van Oijen): LES of reacting high-pressure DI-H2 with tabulated chemistry
<b>Laurens-Jan Legendijk</b> (TUD – Ship Hydromechanics – Tom van Terwisga): Working principles and simulation of flexible ship propellers	<b>Chang Wang</b> (RUG - Computational Mechanical and Materials Engineering – Antonis Vakis): CFD simulation and experimental study of flow around a cylinder
<b>Özgür Yalçın</b> (TUD – Wind Energy – Daniele Ragni): Analytical prediction of flow turbulence noise in wind turbines through Amiet’s model	<b>Danny van den Eertwegh</b> (TU/e – Multi-Scale Modelling of Multi-Phase Flows – Maïke Baltussen): Introducing a new numerical model for the electrical potential to describe the transport of charged species
<b>Ilambharathi Govindasamy</b> (WUR - Experimental Zoology – Florian Muijres): Fluid forces in viscous and inertial regimes of accelerating insect wings	<b>Jing Sun</b> (RUG – Computational and Numerical Mathematics – Roel Verstappen): Minimum-dissipation scalar transport model and low-dissipation methods for LES of thermally stratified turbulent flows
<b>Nadine Hobeika</b> (TUD – Architecture and the Built Environment - Clara García-Sánchez): Studying the impact of a line-following robot for less intrusive real-scale airflow measurements	<b>Tzu-Yao Huang</b> (TUD – Ship Hydromechanics – Gabriel Weymouth): Characterizing numerical surface tension in the conservative Volume-of-Fluid method

**Wednesday, 29<sup>th</sup> May 2024**

**14:40 – 15:30 Parallel Sessions**

<b>Room “Earth”</b>	<b>Room “Air”</b>
<b>Environmental Flows (Chair: Vasileios Kitsikoudis)</b>	<b>Microscale Flow (Chair: Michelle Spanjaards)</b>
<b>Arghyanir Giri</b> (TUD – Architecture and the Built Environment – Philomena Bluysen): Aerosol droplets in an indoor space	<b>Guanxing Kuang</b> (UT – Thermal Engineering – Wilko Rohlf): 3D printing polyurethane foams via direct bubble writing
<b>Shravan Raaghav Kaveripuram Ramasamy</b> (TU/e – Fluids and Flows – Matias Duran Matute): Bubble curtain dynamics in lock-exchange flows	<b>Jan Siemen Smink</b> (UT – Engineering Fluid Dynamics – Kees Venner): Solidification of a gravity-stretched liquid jet
<b>Ivan Paden</b> (TUD - Architecture and the Built Environment – Clara García-Sánchez): Automated 3D city reconstruction for urban flow simulations	<b>Burak Akdeniz</b> (UT – Soft Matter, Fluidics, and Interfaces – Rob Lammertink): Diffusiophoresis in polymer and nanoparticle gradients
<b>Simen Bootsma</b> (UT – Physics of Fluids – Sander Huisman): Surface morphology of a vertical ice cylinder melting in a saline environment	<b>Vincent Siekman</b> (UT – Physics of Complex Fluids – Frieder Mugele): Understanding the growth dynamics of capillary bridges

**15:30 – 16:00 Coffee / Tea**

**16:00 – 16:30 One-minute pitches in Room “Earth” (Chair: Alvaro Marin)**

**16:30 – 18:30 Burgers Gallery (Posters & Movies) with drinks in Room “Fire”**

**18:30 – 20:15 Symposium Dinner**

**20:30 – 21:30 Symposium Evening Lecture (Chair: Hanneke Gelderblom)**

**Prof. Leif Ristroph, (New York University’s Courant Institute) – The Feynman Sprinkler, and a Sprinkling of Related Problems**

**21:30 End first symposium day**

(bar open until midnight)

## Thursday 30<sup>th</sup> May 2024

**09:00 – 10:30 Plenary Session in Room “Earth”**

**Presentations by New Staff Members (Chair: Yali Tang)**

**Abel-John Buchner** (TUD – Fluid Mechanics): Wake-body interactions in multibody systems

**Julian Koellermeier** (RUG – Computational and Numerical Mathematics): Beyond shallow water simulations using hierarchical moment models

**Jieke Jiang** (UT - Engineering Fluid Dynamics): Fluid mechanics in the fabrication and application of functional particles

**Michelle Spanjaards** (TU/e - Microsystems): Numerical modeling of microfluidic and biomedical micro devices

**Lionel Hirschberg** (UT - Engineering Fluid Dynamics): Contributions to the fundamental understanding of indirect combustion noise

**Emma Hinderink** (TUD – Multiphase Systems): Fluid mechanics in sustainable food processing

**10:30 – 11:00 Coffee / Tea**



Thursday, 30<sup>th</sup> May 2024

11:00 – 11:50 Parallel Sessions

Room “Earth”	Room “Air”
<p><b>Oceans &amp; Waves</b> (Chair: Ton van den Bremer)</p>	<p><b>Complex Fluids</b> (Chair: Joshua Dijksman)</p>
<p><b>Anna Boon</b> (TUD – Ship Hydromechanics – Peter Wellens): Identifying dynamical systems for ship motions using machine learning and large (experimental) datasets</p>	<p><b>Hugo Leonardo França</b> (UVA - Soft Matter Group – Mazi Jalaal): Merging filaments of elastoviscoplastic fluids</p>
<p><b>Esra Uksul</b> (TUD – Multiphase Systems – Christian Poelma): Insights into VLFS response to surface waves: Particle Image Velocimetry analysis</p>	<p><b>Parajal Rai</b> (TU/e – Processing and Performance of Polymers – Nick Jaensson): Effect of confinement on the dynamics of magnetic particles in complex fluids</p>
<p><b>Rens Stigter</b> (TUD – Fluid Mechanics – Gerrit Elsinga): An early assessment of the effect of water quality and sea-state on propeller cavitation inception of a full-scale vessel</p>	<p><b>Anteun de Groot</b> (WUR – Physics and physical chemistry of foods – Leonard Sagis): Surface stress decomposition in large amplitude oscillatory interfacial dilatation of complex interfaces</p>
<p><b>Jessamy Mol</b> (TUD – Environmental Fluid Mechanics – Ton van den Bremer): A laboratory study of wave-induced transport in a rotating wave flume</p>	<p><b>Tim Kousemaker</b> (RUG – Computational Mechanical and Materials Engineering – Pablo Druetta): Modelling the effect of supercritical CO<sub>2</sub> plasticization in twin screw extruders</p>

Thursday, 30<sup>th</sup> May 2024

11:55 – 12:30 Parallel Sessions

Room “Earth”	Room “Air”
<b>Wall-Bounded Turbulence</b> <b>(Chair: Rudie Kunnen)</b>	<b>Droplets &amp; Bubbles</b> <b>(Chair: Vatsal Sanjay)</b>
<b>Bilal Khan Yusufi</b> (TUD – Sanitary Engineering – Dhruv Mehta): Ultrasonic velocity profiling of non-Newtonian fluids in pipes	<b>Çayan Demirkır</b> (UT – Physics of Fluids – Dominik Krug): Contact line dynamics of coalescing electrolytic bubbles on a transparent electrode
<b>Marko Draškić</b> (TUD – Energy Technology – René Pecnik): The (un)stable stratification of carbon dioxide at supercritical pressures	<b>Raphael Saiseau</b> (UT – Physics of Fluids – Alvaro Marin): Evaporation-driven colloidal skin formation
<b>Asif Manzoor Hasan</b> (TUD – Energy Technology – Pedro Costa): Intrinsic compressibility effects in near-wall turbulence	<b>Yiwei Long</b> (UT – Thermal Engineering – Claas Willem Visser): Fabrication of core-shell particles via In-air microfluidics for CO <sub>2</sub> capture

12:30 – 13:30 Lunch

Thursday, 30<sup>th</sup> May 2024

13:30 – 15:00 Parallel Sessions

Room “Earth”	Room “Air”
<b>Multiphase &amp; Particle-Laden Flows</b> (Chair: Lorenzo Botto)	<b>Reactive Flows</b> (Chair: Theo van der Meer)
<b>Ziqi Wang</b> (TU/e – Fluids and Flows – Federico Toschi): Localization-delocalization transition for light particles in turbulence	<b>Berksu Erkal</b> (UT – Thermal Engineering – Jim Kok): Investigating thermoacoustic behaviour: An experimental study on the impact of hydrogen addition in a lab-scale combustor with variable upstream length
<b>Linfeng Jiang</b> (UT – Physics of Fluids – Dominik Krug): Turbulence effect on the bubble-particle collision rate	<b>Wouter Leen van der Does</b> (TUD – Energy Technology – Willem Haverkort): CFD of bubble transport around gas-evolving electrodes for alkaline water electrolysis
<b>Xander de Wit</b> (TU/e – Fluids and Flows – Rudie Kunnen): Efficient point-based simulation of four-way coupled particles in turbulence at high number density	<b>Aniket Ambekar</b> (TU/e – Multiscale Modelling of Multiphase Flows – Frank Peters): Multiphase monolith reactors
<b>Heng Li</b> (TUD – Complex Fluid Processing – Lorenzo Botto): Hindered settling of log-normally distributed particulate suspensions: theoretical models vs. Stokesian simulations	<b>Shyam Hemamalini</b> (TU/e – Power and Flow – Xiaocheng Mi): Preferential concentration in turbulent iron powder combustion – simulations of a mixing layer
<b>Jochem Meijer</b> (UT – Physics of Fluids – Detlef Lohse): Frozen Cheerios effect: Particle-particle interaction induced by an advancing solidification front	<b>Akmal Irfan Majid</b> (TU/e – Power and Flow – Niels Deen): Innovative electrolytic production of iron powder for the circularity of iron fuel cycle
<b>Richard Benders</b> (WUR – Physical Chemistry and Soft Matter – Jasper van der Gucht): Lubricating the flow of powder mixtures in (high pressure) extrusion conditions	<b>Helen Prime</b> (TU/e – Power and Flow – Philip de Goey): Iron powder dispersion in air for combustion applications
<b>Manikuntala Mukhopadhyay</b> (WUR – Physical Chemistry and Soft Matter – Uddalok Sen): Capillary evaporation of salty solutions: to diffuse or to creep?	<b>Conrad Hessels</b> (TU/e – Power and Flow – Giulia Finotello): Unravelling internal porosity of metal powders using 3D X-ray vision

**Thursday, 30<sup>th</sup> May 2024**

**15:10 – 16:00 Plenary Awards Session in Room “Earth” (Chair: Daniel Tam)**

- **2023 KIVI Hoogendoorn Fluid Mechanics Award (Laudatio & Presentation)**
- **2023 Leen van Wijngaarden Prize (Laudatio & Presentation)**
- **2 Young Scientist Awards for Best Oral Presentation**
- **2 Burgers Gallery Awards for Best Poster**
- **Burgers Gallery Award for Best Movie**

**15:55 Closure by Ruud Henkes**

**16:00 End of Burgers Symposium 2024**

**Jury two best junior oral presentations:**

Peter Veenstra – Yali Tang – David Fernandez Rivas – Pedro Simões Costa

**Jury two best posters and single best movie:**

Elizabeth Guazzelli – Leif Ristroph – Sowmya Kumar – Timo van Overveld – Hanneke Gelderblom – Alvaro Marin – Daniel Tam

# Burgers Gallery

(29<sup>th</sup> and 30<sup>th</sup> May in Room “Fire”)

## Movies:

**Akmal Irfan Majid** (TU/e – Power and Flow): Innovative electrolytic production of iron powder for the circularity of iron fuel cycle

**Arghyanir Giri** (TUD – Architecture and the Built Environment): Aerosol droplets in an indoor space

**Dennis Thuy** (TU/e – Power and Flow): Interface-resolved large eddy simulations of primary breakup in metal melt gas atomization using adaptive mesh refinement

**Héctor Aroldo Maldonado de León** (TUD – Bioprocess Engineering): A machine-learning flow based dynamic compartment model for simulating fed-batch fermentations

**Jing Sun** (RUG – Computational and Numerical Mathematics): Minimum-dissipation scalar transport model and low-dissipation methods for LES of thermally stratified turbulent flows

**Pim Dekker** (UT – Physics of Fluids): The mysterious case of an evaporating binary drop

**Ramon van Valderen** (TUD – Chemical Engineering): Scale-up of stem cell cultures from shake flask to bioreactor: a CFD-based comparison of hydrodynamic stress

**Shanwei Zhou** (TUD – Fluid Mechanics): Acceleration and ground effect on a wing

**Yee Li (Ellis) Fan** (UT – Physics of Fluids): Entrapped vapour pocket during boiling impact

## Posters:

**Abhirath Anand** (TUD – Multiphase Systems): Floating particle behaviour in free-surface turbulence

**Anastasia Marketou** (TUD – Wind Energy): Time-domain impedance boundary conditions for computational aeroacoustics

**Andi Li** (TU/e – Power and Flow): Euler-Lagrangian modeling of bubbly flows in alkaline water electrolysis system

**Ayush Kumar Dixit** (UT – Physics of Fluids): Elastocapillary Worthington jet & droplets produced by bursting bubbles

**Calum Thomas Ryan** (TU/e – Elementary Processes in Gas Discharges): Investigating plasma induced liquid shear stresses with respect to ion drift velocity

**Cem Bingol** (TU/e – Fluids and Flows): Gravity currents in the presence of oscillatory forcing: lifting, mixing, and density transport

**Chenyao Wang** (WUR – Experimental Zoology): How flying bumblebees land on rapidly moving flowers

**Chiel Koster** (TU/e – Fluids and Flows): Dynamics of cloud droplets in sound-induced turbulence

**Chris Howland** (UT – Physics of Fluids): Self-aggregation and vertical transport in Rainy-Bénard convection

**Chunlai Wu** (TU/e – Fluids and Flows): Shaping turbulence with smart particles

**Edoardo Bellincioni** (UT – Physics of Fluids): Melting dynamics of floating ice cylinders

**Erwin Gelissen & Mariska Bos** (Demcon): Fluid flow simulations in engineering projects

**Guillaume Ricard** (TUD – Ship Hydromechanics): Anderson localization of nonlinear surface gravity waves

**Hanah Pot** (TUD – Ship Hydromechanics): Stereovision experiments for wave-structure interaction of membrane-type floating photovoltaics

**Héctor Aroldo Maldonado de León** (TUD – Bioprocess Engineering): A machine-learning flow based dynamic compartment model for simulating fed-batch fermentations

**Hooman Eslami** (WUR – Food Process Engineering): 3D velocity measurement in a dense two-phase flow through the use of Particle Tracking Velocimetry (PTV) technique

**Isaac Bensignor** (TUD – Wind Energy): The physics of rotor noise of vehicles in urban environments

**Jesse Hofsteenge** (UT – Thermal Engineering): Comparison of the combustion dynamics of two hot blast stove designs using the flame transfer function

**Jesse Reijtenbagh** (TUD – Fluid Mechanics): A new scaling law for drag forces on accelerating plates

**Jnandeep Talukdar** (UT – Physics of Fluids): Dissipative anomaly in sliding drops

**Ka Kin Tou** (UT – Engineering Fluid Dynamics): Trailing-edge noise and non-equilibrium turbulent boundary layers

**Kaj Hoefnagel** (TUD – Aerodynamics): Spline-based volumetric boundary condition for the lattice Boltzmann method

**Kevin A. Redosado Leon** (UT – Mathematics of Multiscale Modelling and Simulation): Effective thermal conductivity of random configurations of stacked particles

**Lyke van Dalen** (TUD – Fluid Mechanics): Vortex behaviour in an instationary rotating flow

**Mariana Costa** (TUD – Fluid Mechanics): Cavitation onset in counter-rotating vortices from diverging disks

**Mahsa Kianinia** (WUR – Food Process Engineering): Transport phenomena in inverted capacitive deionization systems used for protein recovery

**Mees Flapper** (UT – Physics of Fluids): Orientation dynamics of chiral particles in turbulence

**Mikheil Kharbedia** (ARNCL – EUV source group): Laser-droplet interaction and the lifetime of the rim after detachment

**Nicola Savelli** (TUD – Fluid Mechanics): Force reconstruction from PIV for an accelerating plate

**Nicole Stevens** (TU/e – Power and Flow): Experimental study on sticking behavior during iron oxide reduction for the metal fuel cycle

**Pietro Carlo Boldini** (TUD – Energy Technology): Research on transitional boundary layers with fluids at supercritical pressure

**Ramon van Valderen** (TUD – Chemical Engineering): Scale-up of stem cell cultures from shake flask to bioreactor: a CFD-based comparison of hydrodynamic stress

**Ryane Bourkaib** (TUD – Ship Hydromechanics): Sensor fusion for improved system identification and estimation of vessel environment, loading, and response

**Sajjad Karimnejad** (TU/e – Fluids and Flows): Pore-fiber transport dynamics of aqueous co-solvent solutions in paper

**Suriyaprakash Senthil Kumar** (TUD – Complex Fluid Processing): Evaporation-driven buckling of a suspension drop containing graphene oxide nanoplatelets

**Sylwia Oleś** (UT – Thermal Engineering): How does pressure squeeze the flame?

**Swen van den Heuvel** (UT - Physics of Fluids): Double the bubble, double the speed?

**Tommaso Pettinari** (UvA – Soft Matter Group): Elasticity of self-organised frustrated disordered spring networks

**Thijs van Druenen** (TU/e – Building Physics): The impact of computational parameters on the CFD simulation of cyclist aerodynamics

**Tom Appleford** (UvA – Soft Matter Group): The dynamics of bubbles in elastoviscoplastic materials

**Tristan Vlogman** (UT – Engineering Fluid Dynamics): Comparison of fully resolved and unresolved particle-laden flow simulations in the lattice Boltzmann method

**Vasu Krishnan** (TUD – Ship Hydromechanics): Experimental impact of forced oscillations on the forces acting on a NACA0012 hydrofoil

**Victor Habiyaemye** (NRG/TU/e – Power & Flow): Modeling and simulation of two-phase flow in the core of a nuclear reactor

**Xuefeng Shen** (WUR – Physical Chemistry and Soft Matter): Understanding the coalescence stability of Pickering emulsion droplets

**Youri van den Brink** (TU/e – Power and Flow): Microplastics separation using acoustic standing waves

**Yuri Sinzato** (UvA – Soft Matter Group): Vertical migration of non-motile phytoplankton