IChemE

Water and Fluid Mixing Processes
Special Interest Groups

Mixing Advances & Applications in Water Treatment

16 September 2026,
School of Chemical Engineering, University of Birmingham, B15 2TT.

In Partnership with:

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Sulzer is a global leader in critical applications for core infrastructure and processes for large essential industries around the world. We ensure the security, quality and durability of critical goods and services by supporting energy security, natural resource management and efficiencies in process industries. This in turn supports the transition to a circular economy.

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Ansys is a leading providing of 3D physics-based simulation tools including CFD, DEM and Structural FEA. The Ansys CFD software (Fluent) is extensively used for a range of waste-water as well as upstream and potable hydraulic simulation applications.

Event Schedule

9:30 - 10:00	**Registration**
10:00- 10:15	**Jon Chouler & Mark Simmons** Welcome address
10:15 - 10:40	**Prof. Andrea Ducci, University College London** Multiscale measurement approaches to study fluid and mixing dynamics
10:40 - 11:00	**Dr. David N Thomas, Mott MacDonald Bentley, Technical Director Process Engineering** **Dr. David. J. Burt, Associate, Leridian Technical Services** A Modern Standards Approach to Clarifier Design for the UK Water Industry
11:05 - 11:25	**Break: Poster session, Networking and Refreshments**
11:25 - 11:45	**Dr. Tom Arnot, University of Bath, Senior Lecturer & Director of WIRC** Manipulating hydrodynamics to mitigate fouling in Membrane Bioreactors
11:45 - 12:05	**Patrik Kolmodin, Product Manager Agitators, Sulzer** Benefiting from the Latest Developments in Agitation Technology

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Event Schedule

12:05 - 12:25 **Scott Beard, Design & Advanced Technology Mechanical (CFD) Engineer, AtkinsRealis**
What Makes a Good Contact Tank? Lessons from CFD Investigation Design & Advanced Technology

12:25 - 13:15 Lunch

13:15 - 13:35 **Dr. Thomas Abadie, Assistant Professor, University of Birmingham**
Numerical simulations of bubbly flows & transport phenomena in environmental applications

13:35 - 13:55 **Sabrina Hafid, Application Engineer, Ansys**
3D CFD/DEM simulation for water industry applications 2026 update

14:00 - 14:45 **Workshop - Part 1**
Exploring Challenges and Solutions for Fluid Mixing in Water Treatment

14:45 - 15:05 Break: Poster session, Networking and Refreshments

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Event Schedule

15:05 - 15:50 **Workshop - Part 2**
Exploring Challenges and Solutions for Fluid Mixing in Water Treatment

15:50 - 16:20 **Workshop - Part 3**
Presentations and open Q&A

16:20 - 16:30 Closing address

About the afternoon Workshop

We are pleased to be hosting a dynamic afternoon workshop for delegates to team up and discuss mixing challenges in their professional areas, and work together to explore potential solutions and research avenues for tackling these topics.
We hope this will a great opportunity for attendees to build collaborative links with other water and fluid mixing professionals across the water sector.

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Speaker Biographies

Andrea Ducci, Professor, University College London

Andrea is a Professor in the Mechanical Engineering Department, Deputy Chair of the Fluid Mixing Process Special Interest Group, and UK Delegate to the European Federation of Chemical Engineers Working Party on Mixing. He earned a Laurea in Aeronautical Engineering from the University of Pisa, Italy, in 1999, and a PhD from King's College London in 2004, researching viscous dissipative scales in stirred reactor flows. From 2004–2007, he served as a Research Associate at King's College London, applying advanced laser techniques to study fluid mechanics in stirred vessels.

Patrik Kolmodin, Product Manager Agitators, Sulzer

Patrik is the global product manager for agitators at Sulzer, with more than 10 years of experience in mixing technology. Working across a wide range of industries, including water and wastewater, he has developed broad expertise in diverse applications and in addressing challenging mixing requirements.

During his lead, Sulzer has taken significant steps in advancing its capabilities, developing new and more efficient agitators and introducing new tools and methods, such as CFD analysis. In this presentation, Patrik will share insights into how these developments create value in practical applications.

Tom Arnot, University of Bath, Senior Lecturer & Director of Water Innovation Research Consortium

Tom is Founder and Director of the Water Innovation and Research Consortium at the University of Bath, focusing on circular economy and net-zero strategies for water and wastewater systems across research, innovation, and policy. His work includes membrane fouling and the use of membrane bioreactors to reclaim treated wastewater for irrigation and fertigation in the MENA region. He co-leads water reuse and circularity expert groups for Water Europe and the UK Water Partnership, and serves on the Technical Programme Committee for the IWA World Water Congress 2026 in Glasgow, leading the Wastewater and Resource Recovery theme.

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Speaker Biographies

Sabrina Hafid, Application Engineer, Ansys

Sabrina is working as a lead application engineer at ANSYS UK and has over 13 years of experience in the simulation field. She is specialised in 3D and 1D fluid system analysis and has worked on projects for customers in the water industry. She holds a master's degree in mechanical engineering.

Dr Thomas Abadie, Assistant Professor, University of Birmingham

Thomas is an Assistant Professor at the University of Birmingham, specialising in fluid mechanics, multiphase flows, and interfacial phenomena. His research focuses on bubble dynamics, complex fluids, surfactants, and interfacial transfer, addressing challenges in water resources and formulation engineering. Combining experimental techniques—including imaging and particle image velocimetry—with advanced numerical simulations, he studies bubbly flows from microreactors to aeration, flotation, and electrolysis systems, as well as spray formation and mixing in complex fluids.

Scott Beard, Design & Advanced Technology Mechanical (CFD) Engineer, AtkinsRealis

Scott Beard is UK Water and Wastewater CFD Capability Lead at AtkinsRéalis, leading the application of Computational Fluid Dynamics (CFD) to optimise and de-risk water and wastewater infrastructure, including contact tanks, reservoirs, and treatment assets. Previously a Project Engineer at Severn Trent, he delivered resilience schemes on critical water infrastructure, including contact tank refurbishments. Drawing on experience from both owner-operator and consultancy perspectives, Scott brings a practical understanding of CFD's strengths and limitations in engineering design and asset optimisation.

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