Annual Research Students Event of IChemE FMP SIG







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The Research Students Event of our SIG was first organised in 1991 and has since been held on an annual basis at different universities in the UK where there is ongoing research in the field. FMP SIG maintains close links with the Working Party on Mixing of EFCE and North American Mixing Forum (NAMF) and it has been the tradition to award one of the presenters a prize to contribute towards the costs of attending a conference associated with either NAMF or EFCE.

This year's Event, held at Loughborough University on 31 March 2025, was another splendid occasion to listen to research students working on the very many different aspects of mixing processes and applications. The event included a poster session with a 3-minute introductory talk, giving the opportunity to those who have either performed a short-term research project as part of their degree course or in the early stages of their PhD project.



Oral presentations from Loughborough, Birmingham, London and Manchester Universities, demonstrated the diversity of the research performed in the area: single and multiphase mixing processes, technique development/adaptation, relevant to different products/industrial applications varying from crop protection, biopharmaceuticals, crystallisation to personal care.



Many had links with industry or other research groups. List of presentations from both oral and poster sessions are included below; abstracts can be found on the SIG website. Anyone interested in a particular project and would like to find out more, can contact the authors direct or via the SIG.

Following an evaluation by an independent jury comprising attendees from Syngenta, Framatome and GSK, the prize for the best presentation was awarded to Darius Khoshdel from the University of Birmingham. Darius is planning to present his work with multiple impeller systems during a NAMF session.

This year's prize, as in the past few years, was also sponsored by Syngenta.

List of Oral presentations

Nanoemulsification of a plant based oil through process intensification- Diksha Vats, Department of Chemical Engineering Loughborough University and IIT Roorkee

A Novel, low cost, safe flow visualisation technique for stirred tanks- George Truc, University of Birmingham and Johnson Matthey

A Novel method for Reynolds number estimation and fluid regime characterization in a **2L rocked bag bioreactor-** Laia Miranda Garrido, UCL and AZ

A Novel Lagrangian approach for calculating mixing times in stirred tanks- William Pearce, Department of Chemical Engineering University of Birmingham and IFP Energie Nouvelle

Impact of mixing on the evolution of particle size distribution of cooling crystallization processes- Kimiya Ramezani, Department of Chemical Engineering University of Manchester

Power and mixing time analysis of dual-shaft, turbine-anchor stirred tanks for Newtonian fluids in the transitional regime- Darius Khoshdel, Department of Chemical Engineering University of Birmingham and Unilever

The Need for novel impeller designs: preliminary power measurements- Cristina Aleu Heredia, UCL and Cytiva

Investigating the effect of agitator geometry and fluid rheology on the performance of sawtooth impellers using experimental and computational techniques- Shreyasi Deshpande, Department of Chemical Engineering University of Birmingham, Design Manufacturing & Engineering Management University of Strathclyde and Unilever Wirral

List of Poster Presentations

Dispersion protocols for an antimicrobial coating additive- Aydan Hatherley, Department of Chemical Engineering Loughborough University

Blending performance of batch rotor-stators- Aled O. Williams, Department of Chemical Engineering University of Birmingham and Loughborough University

Low-energy formulation of stable nanoemulsions from selected essential oils- Mateusz Guz, Department of Chemical Engineering Loughborough University and Jerzy Haber Institute of Catalysis and Surface Chemistry, Polish Academy of Sciences

Microencapsulation of phase change materials for thermal storage and nanoparticleembedded bifunctional capsules- Nibina Nizar, Department of Chemical Engineering and Department of Materials Engineering, Loughborough University

Continuous removal of products from fermentation broths using hot microbubble gas stripping- Ashraf H. Nyako, Department of Chemical Engineering Loughborough University

Numerical study of the effects of geometry on solid dispersion performance in continuous oscillatory baffled crystallizers- Wei Huang, Department of Chemical Engineering, Loughborough University and School of Chemistry and Chemical Engineering, Wuhan University of Science and Technology