



UNIVERSITY OF LEEDS

**Crystallisation Science & Engineering
Wednesday 23 – Friday 25 January 2019**

School of Chemical and Process Engineering (SCaPE), Faculty of Engineering

Programme		
Wednesday 23 January 2019		
08:45 - 09:15	Registration and coffee	
09:15	Introduction	
Crystallisation Fundamentals		
09:30 – 10:15	Crystallisation route map	Professor Kevin Roberts SCaPE, University of Leeds
10:15 – 11:00	Nucleation & crystal growth	Dr Tom Turner SCaPE, University of Leeds
11:00 – 11:20	Coffee	
11:20 – 12:05	Crystal morphology & habit modification	Dr Ian Rosbottom SCaPE, University of Leeds
12:05 – 12:50	Fundamentals of polymorphism	Dr Robert Hammond SCaPE, University of Leeds
12:50 – 13:35	Lunch	
13:35 – 14:20	Solid-state analysis	Dr Gerry Steele PharmaCryst Consulting Ltd
14:20 – 15:05	Screening for polymorphs (solid form selection)	Dr Bob Docherty Pfizer, Sandwich
15:05 – 15:50	Characterisation of pseudo polymorphs (TGA, DVS, IGC)	Dr Gerry Steele PharmaCryst Consulting Ltd
15:50 – 16:10	Tea	
Laboratory Demonstrations		
16:10 – 17:25	D1 – Nucleation kinetics	Dr Tariq Mahmud & Dr Tom Turner SCaPE, University of Leeds
	D2 – Growth kinetics	Dr Xiaojun Lai & Mohammed Najib SCaPE, University of Leeds
17:25	End of day one	
19:00	Course dinner	

Thursday 24 January 2019		
Crystallisation Processes		
08:45	Coffee	
09:00 – 09:50	Batch crystallisation: Process development & scale up	Professor Chris John Price Chemical & Process Engineering, University of Strathclyde
09:50 – 10:40	Hydrodynamics, mixing & heat transfer in batch crystallisers	Dr Tariq Mahmud SCaPE, University of Leeds
10:40 – 11:00	Coffee	
11:00 – 11:50	Continuous crystallisation: Process development & scale up	Christian Melches GEA
11:50 – 12:35	Solvent selection: properties and solubility	Professor John Blacker School of Chemistry, University of Leeds
12:35 – 13:20	Lunch	
13:20 – 14:05	Post crystallisation unit operations: Filtration and drying	Dr Amgad Moussa Syngenta, Mönchwilten
Measurements & Control		
14:05 – 14:45	Particle size and shape measurements & characterisation	Mehrdad Pasha SCaPE, University of Leeds
14:45 – 15:05	Tea	
15:05 – 15:45	Control of crystallisation processes for PSD	Dr Tariq Mahmud SCaPE, University of Leeds
15:45 – 16:25	Process spectroscopic techniques (IR, UV-vis, Raman)	Dr Xiaojun Lai SCaPE, University of Leeds
Laboratory Demonstrations		
16:25 – 17:40	D3 – Particle characterisation	Suneela Sardar SCaPE, University of Leeds
	D4 – Raman spectroscopy	Dr Xiaojun Lai and Tom Turner SCaPE, University of Leeds
17:40 - 19:00	Poster and drinks reception followed by close of day two	

Friday 25 January 2019		
08:45	Coffee	
Measurements & Control (cont.)		
09:00 – 09:45	Particle properties & performance	Dr Richard Storey Astra Zeneca
Co-Crystals		
09:45 – 11:15	Fundamentals of co-crystallisation and case studies of recent developments	Dr Mingzhong Li De Montfort University Professor Anant Paradkar University of Bradford
11:15 – 11:35	Coffee	
Crystallisation Modelling & Software Demonstrations		
11:35 – 12:20	Molecular to crystal science modelling route map	Dr Robert Hammond SCaPE, University of Leeds
12:20 – 13:05	Software demonstration: VISUAL HABIT	Dr Jonathan Pickering SCaPE, University of Leeds
13:05 – 13:50	Lunch	
13:50 – 14:35	Model-based design of crystallisation processes	Niall Mitchell Process Systems Enterprise (PSE), London
14:35 – 15:35	Software demonstration: The gCRYSTAL modules of gPROMS FormulatedProducts	Niall Mitchell PSE
15:35 – 15:50	Wrap-up and feedback from delegates	Dr Xiaojun Lai Dr Tariq Mahmud