



The
University
Of
Sheffield.

7th International Granulation Workshop

Sheffield, UK, June 2015

Granulation Course: 29th - 30th June

Granulation Conference: 1st - 3rd July

7th International Granulation Workshop, Sheffield, UK

Course: 29th-30th June 2015
Conference: 1st-3rd July 2015

Granulation encompasses a number of processes vital to the food, pharmaceutical, chemical, mineral, metallurgical, fertiliser, waste water treatment and catalysts industries, among others. Growing interest in the field has led to the development of International Granulation Workshop, which has become the one of the world's largest forum for industry and academia to share and discuss recent developments in this complex and evolving field.

The 7th edition of this workshop will take place in 2015 in Sheffield, United Kingdom. It will consist of two parts: a 2-day hands-on Course to serve as an introduction to agglomeration technologies, hosted by some of the world's leading experts in granulation in industry and academia, followed by a 3-day scientific conference, during which cutting-edge research in the field will be presented.

In addition to being a platform for interaction between industry and academia, we also strive to make the workshop a prime venue for professional networking, with a friendly atmosphere and social events included in the conference program.

We look forward to welcoming you to Sheffield in 2015,

Prof. Agba Salman
Prof. Stefan Palzer
Prof. Mike Hounslow

Plenary Speakers

Prof. Jim Litster: "Model Driven Design of Dense Phase Wet Granulation Processes" *Purdue University, US*

Prof. Stefan Palzer: "The role of particle technology in manufacturing of high quality chocolate and coffee products" *Nestlé, Switzerland*

Prof. Gavin Walker: "Agglomeration within Pharmaceutical Powder Processing" *University of Limerick, Ireland*

Prof. Khashayar Saleh: "Caking of powders – from microscopic mechanisms to macroscopic manifestations" *University of Technology at Compiègne, France*

Prof. Mojtaba Ghadiri: "Effect of Structure on Strength of Agglomerates" *University of Leeds, UK*

Prof. Evangelos Tsotsas: "Interrelation of drying and particle formation in spray fluidized bed granulation" *Otto von Guericke University, Magdeburg, Germany*

Granulation Course 29th – 30th June 2015

Prior to the Conference there will be a 2 day Granulation Course, led by experts from the food, detergent and pharmaceutical industries. This course is designed for you if *you work in industrial granulation or are a PhD student*. At the course you will get hands-on granulation experience and knowledge from renowned experts in the field.

Topics:

- Product and Process Design.
- Elements of granulation technology – wet granulation regime map.
- Understanding granule formation: Mechanisms in agglomeration – mechanisms of size enlargement, effects of liquid distribution, binder selection, control of granule size.
- Equipment for granulation, including: low and high shear mixers, fluid bed agglomerators, roller compaction, tableting, extrusion and spheronisation.
- Continuous and batch granulation.
- Finished product characterization; Key finished particle properties will be investigated.

Scientific Committee

- Prof. Hans Kuipers, Technical University of Eindhoven, The Netherlands
- Dr. Judith Bonsall, Unilever Research Port Sunlight, UK
- Dr. Gabriele M.H. Meesters, DSM, The Netherlands
- Dr. Marcel de Matas, AstraZeneca, UK
- Prof. Chris Vervaet, Ghent University, Belgium
- Prof. Mojtaba Ghadiri, University of Leeds, UK
- Dr. Bindhu Gururajan, Novartis Pharma AG, Switzerland
- Prof. Jonathan Seville, University of Surrey, UK
- Prof. Anne Juppo, University of Helsinki, Finland
- Prof. Karen Hapgood, Monash University, Australia
- Prof. Stefan Heinrich, Technical University Hamburg-Harburg, Germany
- Prof. Jim Litster, Purdue University, USA
- Prof. Mike Adams, University of Birmingham, UK
- Prof. Peter Kleinebudde, Heinrich-Heine-University Duesseldorf, Germany
- Dr. Tibor Attila Nagy, Gedeon Richter Ltd., Hungary
- Prof. Evangelos Tsotsas, Otto-von-Guericke-University Magdeburg, Germany
- Dr. Gavin Reynolds, AstraZeneca, UK
- Dr. Renee Boerefijn, Purac, The Netherlands
- Mr. Nigel Sommerville Roberts, Procter & Gamble Co, UK
- Dr. Gerhard Niederreiter, Nestlé, Switzerland
- Dr. Kendal Pitt, GSK, UK
- Prof. Khashayar Saleh, Université de Technologie de Compiègne, France
- Mr. James Cartwright, GSK, UK
- Dr. Ingela.N. Björn, AstraZeneca, Sweden
- Prof. David York, University of Leeds, UK
- Prof. Göran Alderborn, Uppsala University, Sweden
- Prof. Anders Rasmuson, Chalmers University of Technology, Sweden
- Prof. Frank Kleine Jaeger, BASF, Germany
- Miss Liz Holt, Johnson Matthey, UK
- Prof. Frantisek Stepanek, Institute of Chemical Technology, Prague, CZ
- Prof. Chuan-Yu Wu, University of Surrey, UK
- Prof. Satoru Watano, Osaka Prefecture University, Japan
- Dr. Hong Sing Tan; Procter & Gamble Co, China
- Prof. Gavin Walker, University of Limerick, Ireland
- Prof. Stefan Palzer Nestlé, Switzerland
- Prof. Mike Hounslow, University of Sheffield, UK
- Prof. Agba Salman, University of Sheffield, UK

Workshop Themes

The Macro Scale I: Processing for Granulation

Processes

- Fluidized Bed Granulation
- Spray Drying
- High Shear Granulation
- Extrusion-Spheronisation and Pelletization
- Roller Compaction
- Tableting
- Coating and Encapsulation

General topics

- Continuous Granulation (including feed rate and granule composition)
- Scale-Up
- Powder Mixing
- Particle Dissolution, Dispersion and Deposition
- Tools for Process Control and PAT
- Evaluating Product Performance
- Environmental Aspects / Energy Consumption
- Overall Process Concepts & Design
- Granulation: Variability and Error
- On-line measurement
- Variability and Error
- Affordability/Economics of granulation
- Industrial challenges in manufacturing
- Process control when running on the edge-continuous and batch systems
- Feed forward control based on powder characterisation
- Fast start up and shut downs

The Meso Scale: Mechanistic Description

- Wetting and Nucleation, and Growth and Consolidation
- Granulation Rate Processes
- Breakage in Granulation
- Characterisation of Material Properties and their Influence on Granulation
- Binder Properties
- Transport Phenomena during Granulation
- Stress Distributions and Flow Profiles in Granulation Processes

Towards a Generalised Model of Agglomeration

- Influence of material properties of feed particles on agglomeration mechanism
- High Viscosity and Low Viscosity Binders
- High Shear and Low Shear Granulators
- How to Design the Optimal Agglomerator
- How to Control Properties (Shape, Density, Strength and Size)

The Macro Scale II: Applications

- Tableting
- Pharmaceutical Granulation
- Fertilizer Granulation
- Agglomeration in the Food Industry
- Detergent and Personal Care Products
- Agglomeration in Suspension-Flocculation
- Nanoparticle-Granulation
- Agglomeration in the Metallurgical Industry
- Agglomeration in Catalysts
- Bio-granulation-Aerobic granulation
- Agglomeration in other Processes
- Undesired Agglomeration and Powder Caking
- Green Granulation - Innovative Processes

The Micro Scale: Granules and Smaller

- Structure-Property (Granule Structure, Product Performance)
- Droplet; wetting, spreading and rebound phenomena
- Interparticle Forces – Particle Adhesion – Sintering – Liquid bridge
- Product Structure vs Application Properties
- New Granule Characterisation Methods
- Hierarchically Structured Granules

How to register

To register please visit:

<http://www.sheffield.ac.uk/agglom/2015/registration>

Organisation Committee

- Dr. Dave Doughty
- Dr. Csaba Sinka
- Dr. Robert Sochon
- Dr. Ian Gabbott
- Dr. Ali Hassanpour
- Dr. Markus Thommes
- Dr. Iyad Rashid
- Dr. Nejat Rahmanian
- Dr. Constantijn Sanders
- Dr. Hong Sing Tan
- Dr. Yuen Sin Cheong
- Dr. Bindhu Gururajan
- Dr. Ranjit Dhenge
- Dr. Vikram Chouk
- Dr. Waleed Al Nasser
- Mr. James Cartwright
- Dr. Chi Mangwandi
- Dr. Kimiaki Washino

Local Organisation Committee:

- Mr Syed Islam
- Mr Menan Balashanmugam
- Mr Chalok Omar
- Mr Jiankai Yang
- Mr W. Robert Mitchell
- Miss Arthi Rajkumar
- Dr Ranjit Dhenge

Abstracts

For details on how to submit an abstract and the deadline, please visit:

<http://www.sheffield.ac.uk/agglom/2015/callforabstracts>

For details on how to submit a paper and the deadline, please visit:

<http://www.sheffield.ac.uk/agglom/2015/papersubmission>

Further Information

Dr Ranjit Dhenge

Chemical and Biological Engineering

University of Sheffield

Mappin Street, Sheffield, S1 3JD, UK.

Tel: +44 (0)114 222 7644

Fax: +44 (0)114 222 7501

Email: granulationworkshop2015@sheffield.ac.uk

Website: <http://www.sheffield.ac.uk/agglom/2015>

Poster Competitions

There will be poster competitions at the conference, sponsored by Unilever, AZ, GSK and TTC.

Sponsors



Conference Social Events

1st July 2015 Gala Dinner Cutlers' Hall

Cutlers' Hall, built in 1832, is an outstanding example of Victorian architecture and is described as being the most prestigious venue in Sheffield. It is home to the Company of Cutlers' in Hallamshire and, therefore, Sheffield's steel history shines through its walls.



2nd July 2015 Evening Dinner The City Hall

Sheffield City Hall is one of Sheffield's prominent historical landmarks, located in the heart of the city at Barker's Pool. It is a popular venue for numerous international and local events thanks to its famous ballroom and Concert Hall. It is also home to the Sheffield's War Memorial.

