



The
University
Of
Sheffield.

6th International Granulation Workshop

Sheffield, UK, June 2013

Granulation Course: 24th - 25th June

Granulation Conference: 26th - 28th June

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Granulation and agglomeration technology is a popular topic and of growing interest for industry - and, therefore, academia - as it is such a key process in the manufacture of many solid products.

Like all previous workshops, this one will provide an international forum for both industrialists and academics to hear about the key challenges and developments in the field of granulation in the 21st century. The workshop will cover a variety of important topics and will offer a platform for participants to present their latest results, to discuss ideas and to establish new collaborations.

This event is split up into two parts; a two-day course and a three-day conference, both of which will be hosted by the University of Sheffield, United Kingdom.

The granulation conference will provide an excellent opportunity to gain a complete overview of how the field of granulation stands at present with the presentation of a range of papers from both academia and industry. The idea of the conference is to unify the research conducted all over the world from a wide range of institutions in order to improve understanding and subsequent implementation into industrial processes.

The granulation course is purposely designed to give delegates a hands-on granulation experience with knowledgeable experts from all over the world.

We welcome you to join us and look forward to meeting you.

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

Plenary Speakers

Prof. Mike Adams: "Agglomeration: a physics perspective"
University of Birmingham, UK.

Prof. Mike Hounslow: "It's not well mixed, and they don't all have the same composition: a multi-compartment, multi component model of high-shear granulation"
University of Sheffield, UK.

Prof. Hans Kuipers: "Dense gas-particle flows with wet particle-particle interaction - A multi-scale approach"
Technical University of Eindhoven, The Netherlands.

Prof. Peter Kleinebudde: "Recent advances in pharmaceutical extrusion"
Heinrich-Heine-University, Germany.

Prof. Jim Litster: "Modeling and optimization of continuous granulation: Applications in specialty chemicals, consumer goods and industrial enzymes"
Purdue University, US.

Prof. Stefan Palzer: "Food structures for nutrition, health and wellness"
Nestlé, Switzerland.

Granulation Course

24th - 25th June 2013

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:

- 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
Prof. Jean Paul Remon, Ghent University, Belgium
Dr Christian Seiler, Merck, UK
Dr Mike Pollitt, Merck, UK
Dr Judith Bonsall, Unilever Research Port Sunlight, UK
Dr Gabriele M.H. Meesters, DSM, The Netherlands
Prof. Jonathan Seville, University of Surrey, UK
Prof. Anne Juppo, University of Helsinki, Finland
Prof. Mike Adams, University of Birmingham, UK
Prof. Peter Kleinebudde, Heinrich-Heine-University Dusseldorf, 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
Prof. Mojtaba Ghadiri, University of Leeds, 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
A/Prof. Karen Hapgood, Monash University, Australia
Prof. Stefan Heinrich, Technical University Hamburg-Harburg, Germany
Prof. Jim Litster, Purdue University, USA
Mr Nigel Somerville Roberts, Procter & Gamble Co, UK
Dr Kendal Pitt, GSK, UK
Prof. Dr. Frank Kleine Jaeger, BASF, Germany
Prof. Hugh Stitt, Johnson Matthey, UK
A/Prof. Frantisek Stepanek, Institute of Chemical Technology Prague, Czech Republic
Prof. Satoru Watano, Osaka Prefecture University, Japan
Dr Hong Sing Tan, Procter & Gamble Co, China
Prof. Gavin Walker, University of Limerick, Ireland
Mr Klaus Eichler, Technology Training Center, Germany
Dr Gerhard Niederreiter, Nestlé, Switzerland
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

- Fluidized Bed Spray Granulation
- High Shear Granulation
- Extrusion-Spheronisation and Pelletization
- Roller Compaction and Tableting
- Coating and Encapsulation
- Continuous Granulation (including feed rate and granule composition)
- Scale-Up
- Evaluating Product Performance
- Environmental Aspects / Energy Consumption
- Overall Process Concepts & Design
- Tools for Process Control
- Granulation: Variability and Error

The Macro Scale II: Applications

- Pharmaceutical Granulation and Tableting
- Agglomeration in the Food Industry
- Detergent and Personal Care Products
- Nano-Granulation
- Green Granulation - Innovative Processes
- Agglomeration in Suspension-Flocculation
- Agglomeration in the Metallurgical Industry
- Fertilizer Granulation
- Catalysts
- Agglomeration in other Processes
- Undesired Agglomeration

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

The Micro Scale: Granules and Smaller

- Structure-Property (Granule Structure, Product Performance)
- Product Structure vs. Application Properties
- Droplet; Wetting, Spreading and Rebound Phenomena
- Interparticle Forces
- Hierarchically Structured Granules
- New Granule Characterisation Methods

Towards a Generalised Model of Agglomeration

- 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)

How to register

To register please visit:

<http://www.sheffield.ac.uk/agglom/2013/registration>

Organisation Committee

Mr James Cartwright
Dr Hong Sing Tan
Dr Yuen Sin Cheong
Mr Nigel Somerville Roberts
Dr Waleed Al Nasser
Dr Csaba Sinka
Dr Robert Sochon
Dr Ramana Sundara
Dr Ian Gabbott
Dr Ali Hassanpour
Dr Paul Avontuur
Dr Bindhu Gururajan
Dr Vikram Chouk
Mr James Osborne

Local Organisation Committee:

Mr Menan Balashanmugam
Ms Christine Haider
Mr Robert Mitchell
Ms Alessandra Alves Negreiros
Dr Kate Pitt

Abstracts

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

<http://www.sheffield.ac.uk/agglom/2013/abstracts>

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

<http://www.sheffield.ac.uk/agglom/2013/papers>

Further Information

<http://www.sheffield.ac.uk/agglom/2013>

Dr Kate Pitt
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

Poster Competitions

There will be poster competitions at the conference, sponsored by TTC and GSK. For each competition, 3 prizes will be awarded: £300 first prize, £150 second prize and £50 third prize. For more information, please see: <http://www.sheffield.ac.uk/agglom/2013/posters>

Sponsors



Good Food, Good Life



Conference Social Events

26th June 2013

Tour and Gala Dinner

Chatsworth House

Chatsworth House, located in the heart of the Peak District National Park, is the home of the Duke and Duchess of Devonshire. The magnificent house has been in the Cavendish family for over 16 generations and its splendid architecture and art collection have been evolving for five centuries. More recently, films such as *Pride and Prejudice*, *The Duchess*, and *The Wolf Man* were shot at Chatsworth. Also, a recent BBC documentary shows Chatsworth behind the scenes.



27th June 2013

Official Conference 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.

