

A microscopic view of numerous dark, spherical granules of varying sizes, some showing a porous, textured surface, set against a light, hazy background.

# 11th International Granulation Workshop

*Granulation Course:  
Sheffield, UK, 23<sup>rd</sup> – 24<sup>th</sup> June*

*Granulation Conference:  
Hamburg, Germany, 2<sup>nd</sup> - 4<sup>th</sup> July 2025*

# 11th International Granulation Workshop,

Course: Sheffield, UK, 23<sup>rd</sup>-24<sup>th</sup> June 2025

Conference: Hamburg, Germany, 2<sup>nd</sup>- 4<sup>th</sup> July 2025: This event will be chaired by Prof. Stefan Heinrich and his group ([Institute of Solids Process Engineering and Particle Technology](#))

Granulation and agglomeration technology is a popular topic and of growing interest for different industries - and, therefore, academia - as it is such a key process in the manufacture of many solid products. 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 11<sup>th</sup> edition of this conference will take place in 2025 in Hamburg, Germany and the course will be in Sheffield, United Kingdom. The workshop 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, and a 3-day scientific conference, during which cutting-edge research in the field will be presented. 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.

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 Hamburg & Sheffield in 2025.

## Plenary Speakers

Prof. Stefan Palzer: "How data science, artificial intelligence, and quantum computing will impact particle technology", *Nestlé Research Center, Switzerland*

Prof. Jim Litster: "Bringing systems engineering to particle product manufacture", *The University of Sheffield, UK*

Prof. Göran Alderborn: "Some aspects on the engineering of pharmaceutical granules", *Uppsala University, Sweden*

Prof. Stefan Heinrich: "Challenges in modelling and understanding of fluidized bed spray granulation", *Hamburg University of Technology, Germany*

Prof. Lilia Ahrne: "Sustainability and food powder systems", *University of Copenhagen, Denmark*

Prof. Csaba Sinka: "Pharmaceutical tableting: from mechanistic models to data analytics", *University of Leicester, UK*

## Granulation Course

Sheffield, UK, 23<sup>rd</sup>-24<sup>th</sup> June 2025

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:

- Artificial intelligence (AI) in granulation
- Material science for powder
- 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 granulators, roller compaction, tableting, extrusion and spheronisation
- Drying, milling, and tableting
- Continuous and batch granulation
- Finished product characterization; key finished particle

## Scientific Committee

Prof. Evangelos Tsotsas, Otto von Guericke University Magdeburg, Germany

Dr. Abderrahim Michrafy, Ecole Mines-Albi, France

Prof. Chuan-Yu Wu, University of Surrey, UK

Prof. Chris Vervaet, Ghent University, Belgium

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Prof. Lilia Ahrne, University of Copenhagen, Denmark

Prof. Frank Kleine Jaeger, BASF, Germany

Prof. Csaba Sinka, University of Leicester, UK

Prof. Kendal Pitt, University of Strathclyde (CMAC), UK

Prof. Enrique Sánchez Vilches, Universitat Jaume I Castellón, Spain

Prof. Ming-Chun Lu, National Chung Hsing University, Taiwan

A. Prof. Géza Regdon jr., University of Szeged, Hungary

Prof. Gerhard Niederreiter, Nestlé, Switzerland

Prof. Jim Litster, University of Sheffield, UK

Prof. Stefan Palzer, Nestlé, Switzerland

Prof. Agba Salman, University of Sheffield, UK

Prof. Stefan Heinrich, Hamburg University of Technology, Germany

# Workshop Themes

## The Macro Scale I: Processing for Granulation Processes

- Fluidised Bed Granulation
- High Shear Granulation
- Twin Screw Granulation
- Roller Compaction
- Spray Drying
- Extrusion-Spheronisation and Pelletisation
- Tableting
- Coating and Encapsulation

## The Macro Scale II: Applications

- Agglomeration in the Food Industry
- Sensory Perception and Mouthfeel of Food Particles
- Pharmaceutical Granulation
- Fertiliser Granulation
- Detergent and Personal Care Products
- Agglomeration in the Metallurgical Industry
- Agglomeration in Suspension-Flocculation
- Nanoparticle-Granulation
- Agglomeration in Catalysts
- Bio-granulation-Aerobic granulation
- Undesired Agglomeration and Powder Caking
- Green Granulation - Innovative Processes
- Agglomeration in Batteries and Energy Storage
- Deglobalization of manufacturing process via small & local industrial-scale sites

## The Meso Scale: Mechanistic Description

- Wetting and Nucleation, and Growth and Consolidation
- Granulation Rate Processes
- Breakage in Granulation
- Transport Phenomena during Granulation

## The Micro Scale: Granules and Smaller

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

## Science & Technology of Reconstitution

- Fundamentals of Reconstitution: Wetting, Capillarity, Dispersion, Dissolution
- Innovative Analytical Methods to measure Reconstitution
- Mathematical Modelling of Reconstitution Processes
- Powder Processing Technologies to enhance Reconstitution
- Effect of Powder Structure on Reconstitution and related Functional Properties

## Systems Engineering of Granulation Processes

- Control of Granulation Processes
- Control and Optimisation of Flowsheets
- Dynamic Flowsheet Modelling

## General Topics

- Continuous Granulation (including Feeding, Blending and Granule Composition)
- Process Control in Continuous and Batch Systems
- Tools for Process Control and PAT
- Scale-Up
- Powder Mixing
- Toxicity of Nanoparticles
- Evaluating Product Performance
- Environmental Aspects / Energy Consumption
- Granulation: Variability and Error
- On-line measurement
- Affordability/Economics of Granulation
- Industrial Challenges in Manufacturing
- Feed Forward Control based on Powder Characterisation
- Application of Artificial intelligence (AI) and machine learning to R&D, process control, and trial data analysis
- Fast Start up and Shut downs and Quality Monitoring
- Advances in numerical modelling of powders and powder processing
- Machine learning and Artificial intelligence (AI) applied to granulation
- Granulation and 3D printing

# Organisation Committee

- Dr. Riyadh Al-asady
- Dr. Syed Islam
- Dr. Chalak Omar
- Dr. Kimiaki Washino
- Dr. Mingzhe Yu
- Dr. Mohammed Al Hanaq
- Dr. Ranjit Dhenge
- Dr. Wafaa Al Alaween
- Dr. Chiamaka Nnaedozie
- Dr. Chi Mangwandi
- Dr. Feng Li
- Dr. Yan Zhou

## Local Organisation Committee:

- Shaik Asif
- Bettina Bartels
- Falk Bunke
- Jhoan Sebastian Giraldo Yepes
- Nick Hildebrandt
- Zhi Cheng Hua
- Amirali Khosrozadeh
- Robert Kräuter
- Lennard Lindmüller
- Katharina Mohrdieck
- Maike Orth
- Dr.-Ing. Swantje Pietsch-Braune
- Marian Schmitt
- Vasyli Skorych

# Abstracts

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

<https://www.sheffield.ac.uk/agglom/call-abstracts>

# Further Information

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## Poster Competitions

There will be poster competitions at the conference, sponsored by Glatt/TTC, and Alexanderwerk.

# Sponsors



**How to register:** to register please visit:

<https://www.sheffield.ac.uk/agglom/11th-international-granulation-workshop-2025/registration-2025>

## Conference social events

### 2<sup>nd</sup> July 2025 Gala Dinner Besenbinderhof

The **Besenbinderhof** (engl. Broombinder Yard) with its historic music hall with beautiful stucco ceilings, reliefs and historic tiling from the 1920s is a traditional venue for all kinds of events since it was first opened in 1903. It is located very near the Hamburg Central Station. From 2011-2016 it was extensively restored and modernised. Today, multifunctional music hall and its stage are equipped with digitally controlled high-end technology for sound, lighting and presentation and are ideal for conferences.



### 3<sup>rd</sup> July 2025 Evening Dinner Louisiana star Boat

The **MS LOUISIANA STAR** is one of the most beautiful event ships in Europe and was built in 1999. With its nostalgic four chimneys, the paddle wheel and galleries, arches and pillars, it exudes opulent southern flair, which is also reflected below deck in the red carpets, wide staircases and polished brass.



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