

MONITORING, MODELING AND CONTROL OF CRYSTALLIZATION PROCESSES

Workshop at the ISIC 18
Tuesday September 13th 2011; 13:15-17:00

G. Févotte^a, H.J.M. Kramer^b, Z.K. Nagy^c, A. Mesbah^b

^a Ecole Nationale Supérieure des Mines des St-Etienne, France

^b Delft University of Technology, The Netherlands

^c Loughborough University, United Kingdom

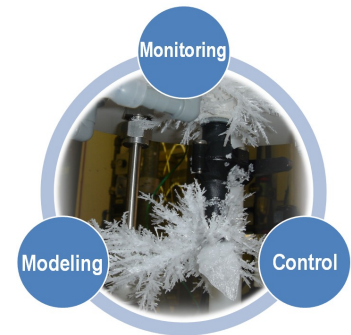
Purpose and objective:

In the absence of a dedicated control system, industrial crystallizers often perform sub-optimally, which is mostly reflected in a low quality product with a wide or multimodal size distribution, undesirable mean crystal size, a sub optimal crystal shape or an unwanted crystal structure. Recent developments in in situ monitoring, modeling and in both model-free and model-based nonlinear optimal control strategies however enable new opportunities in the design and application of control strategies in practical situations.

The workshop provides an overview of the state-of-the-art in the monitoring, modeling and control of industrial crystallization process and illustrates how these recent developments can contribute to better product quality and improved performance of industrial crystallization processes.

Program:

- In-line sensors and model-based monitoring strategies – *Gilles Févotte*
- Modeling, parameter estimation and validation of process models – *Herman J.M. Kramer*
- Model-free control and design of crystallisation processes – *Zoltan K. Nagy*
- Optimal Operation of Industrial Batch Crystallizers – *Ali Mesbah*



Topics discussed: In situ monitoring of process variables, model based sensor technologies, population balance modeling, parameter estimation, design of experiments, scale-up, model-free crystallization control (supersaturation and direct nucleation control), optimal operation and control, output feedback nonlinear model based control

Who should attend: the workshop is dedicated to PhD students, researchers and industrialists, who are interested in the theory and practice of modern crystallization monitoring and control technologies, exemplified with recent case-studies presenting the implementation of these approaches from laboratory to industrial scale.