

# CALL FOR PAPERS

Crystallization is related to a vast range of fields in science and technology, including pharmaceuticals, healthcare, nanomaterials, and foodstuffs, as well as environmental issues like weathering and carbon capture. Over 70% of solids are processed and utilized in their solid forms and 90% of all pharmaceutical products contain active ingredients produced in crystalline form and failure to meet product specifications incurs significant costs. Building a fundamental understanding of crystal nucleation and growth is the key to advance controlling of crystallization processes. There has recently been a leap in the understanding of growth thanks to advances in analytical techniques, as synchrotron powder XRD, high-resolution cryo-TEM, and AFM, which also contribute to the observation of the nanoscale processes which govern the early stage of crystallization. However, there is not enough for us to capture and understand the whole process of crystallization in organic, inorganic, metal, and mineral materials; to freely prepare amorphous, crystalline, polymer, protein, nanoscale materials and porous structured materials; and to accurately design and control the shape, size, and structure of crystals and the complex crystallization process.

We invite authors to contribute original research articles as well as review articles that will contribute to the understanding of crystallization and advance the control and design of the crystallization process.

Potential topics include but are not limited to the following:

- ▶ Thermodynamics of solid phase and liquid phase: understanding the properties of solute and solvent
- ▶ Solution structure: understanding the interactions between solute and solvent
- ▶ Nucleation: understanding the clusters, first step/second step, and homogeneous/heterogeneous nucleation process
- ▶ Crystal growth: understanding the crystal growth by PAT method, including PVM, FBRM, X-ray scattering, Raman spectroscopy, and other in situ tools
- ▶ Polymorphism, cocrystal, chiral compound, protein, membrane crystallization, agglomeration crystallization: understanding the complexity of crystallization process
- ▶ Kinetics of solutions: understanding the influence of experiment conditions (shear rate, etc.)
- ▶ Design, scale up and control multidimensional population balances modelling; monitoring techniques; optimization and control of crystallization; and process control tools
- ▶ Industrial challenges: continuous crystallization, green solvent selections for crystallization, crystallization processes for sustainability, and novel crystallization platforms
- ▶ Advanced analytical techniques: understanding the nanoscale structure or process
- ▶ CFD simulation, molecular dynamic simulation, and process simulation related to crystallization

Authors can submit their manuscripts through the Manuscript Tracking System at <http://mts.hindawi.com/submit/journals/je/chemical.engineering/unoc/>.

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## Manuscript Due

Friday, 10 March 2017

## First Round of Reviews

Friday, 2 June 2017

## Publication Date

Friday, 28 July 2017