



## INVITED SESSION

### Processing Particulate Material in an Industrial Environment

#### ORGANIZERS

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#### ABSTRACT

Multi-physics applications such as fluid-structure interaction (FSI), multi-phase reacting flows or Euler- Lagrange coupling (CFD-DEM) to name a few only have seen a tremendous development during the last decades. In particular, Euler-Lagrange concepts meaning a coupling through heat, mass and momentum transfer between a granular phase and fluid dynamics play an extremely important role in the worldwide manufacturing industry and are as diverse as pharmaceutical industry, processing and chemical industry, mining, construction and agricultural machinery, metal manufacturing, additive manufacturing, renewable energy generation and systems biology. Predominant products are, for example, coffee, corn flakes, nuts, coal, sand, biomass for energy production, fertilizers. These particulate materials are intermediates or products of approximately 60% of the chemical industry. An analysis of results on a particulate scale coupled to fluid dynamics offers an unprecedented insight into the complexity and thus, unveils the underlying physics. This newly gained knowledge enables engineers and practitioners to opt for truly innovative equipment design and operation at increased efficiency. Therefore, the session invites engineers and practitioners from both industry and academia to present and discuss latest developments in particulate applications.