INVITED SESSION

Data-Driven Modelling of Particulate and Multiphase Systems

ORGANIZER
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ABSTRACT

Numerical methods for the modelling of particulate and multiphase media are potentially powerful tools for both industry and academia, in many cases capable of yielding quantitatively accurate simulations of real experimental systems. However, this accuracy is sensitively reliant on careful calibration and validation procedures - if improperly calibrated, these techniques can yield inaccurate or even unphysical results. The processes of calibration and validation are, in turn, reliant on the careful application of characterisation experiments, the acquisition of detailed experimental data from the real systems being modelled and, crucially, an intelligent manner in which to handle and utilise the data acquired.

In this mini-symposium, we will discuss:

i) advances in the methodologies and tools used to characterise particles and powders
ii) new developments in the experimental imaging methodologies used to acquire data from particulate and multiphase systems.
iii) novel, data-driven approaches to the creation, calibration, and validation of particle-based numerical models

The symposium's goal is to bring together experimentalists, theoreticians, modellers, and data scientists from diverse scientific disciplines to exchange ideas and form mutually-beneficial new collaborations.