DATA-DRIVEN METHODS AND MACHINE LEARNING FOR PARTICLE SYSTEMS

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ABSTRACT

This invited session will serve as a dynamic forum to present and debate the latest trends and advancements in the timely topic of data-driven methods and machine learning applied to particle-based systems. The session is application- and systems-agnostic, with the objective of fostering scientific cross-pollination across various domains within the realm of particulate media.

General areas of interest include but are not limited to solid and fluid mechanics (e.g. suspensions and colloids), geomechanics (e.g. sands), biomechanics (e.g. cells), metamaterials (e.g. nanoparticle lattices), and planetary science (e.g. asteroids). Of particular interest are contributions that illuminate issues related to data acquisition and mining (from simulations, experiments, or other sources), data assimilation, and numerical techniques that leverage such data, aiming to advance our understanding and ability to predict and design the behavior of particle-based systems.