

MS-5 Nonlinear Phenomena in Granular Solids: Modelling and Experiments

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Abstract:

Granular solids exhibit a variety of nonlinear mechanical behavior that emerges due to their grain-scale interactions. This mini symposium will cover a range of nonlinear phenomena, their modelling and experimental observations, of relevance to materials with granular texture, including: inherent and evolving loading induced anisotropy; pressure and load-path dependency; evolving volume compaction/dilation; mixed mode strain localization and failure/fracture characterized by bands of finite thickness; energy localization; force chains; damage and plasticity; strain softening and phase transitions; effects of pore fluids; erosion and collapse; grain-interactions and grain-breakage; fabric formation and evolution; wave dispersion; granular metamaterials; and coupled or “multi-“ physics phenomena.