

Understanding particle interactions and emergent phenomena for dense slurries

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Understanding rheology via a delicate balance between forces and resultant microstructures of aggregates is critical to control flows of dense slurries in various applications such as nuclear waste treatment. This needs the quantification of chemical and physical phenomena leading to hierarchical microstructures of aggregates and other response dynamics that couple across scales to create emergent properties of heterogeneous systems. This talk overviews our on-going activities and current knowledge as a part of efforts in IDREAM (Interfacial Dynamics in Radioactive Environments and Materials), an Energy Frontier Research Center funded by the U.S. Department of Energy, Office of Science, Basic Energy Sciences. The talk will clearly illustrate that a scale connection would be necessary to obtain a better understanding of rheology of dense slurries.

키워드 : particle interactions, scale connection, rheology