Review on segregation in flowing and vibrated granular systems

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ABSTRACT

For this session, a review over more than 20 years of research on segregation in chute flows or vibrated granular systems will be given, with focus on some of the traditional, long-standing questions:

- what are the mechanisms causing segregation? [1,2]
- what causes hydrodynamic flows that can influence segregation? [7,8].
- what segregation mechanisms are specific to vibrated granular media? [2,5], and what are the important/dominating control parameters [7,8] of vibrated granular systems?
- is it possible to describe discrete granular particle systems, including segregation by continuum methods?

Phenomena like convection [2,8], particle-size driven geometric segregation [1], thermal fluctuations [3], shear- or temperature-gradients [4], condensation [5], or detachment [7], will be discussed and an outlook for a hydrodynamic description of vibrated systems [8] will be given. The review will end with a brief overview of the session.

REFERENCES