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14. Juni 2012

Einladung zum Vortrag

von

Dr. Gary W. Delaney
CSIRO MATHEMATICAL AND INFORMATION SCIENCES, AUSTRALIA

Geometrical and Physical Interpretations of the Properties of Disordered Granular Packings

Disordered granular media composed of non-spherical particles are a recurring feature in natural systems and one of the most important inputs into industrial activities ranging from construction and manufacturing, to food processing and pharmaceuticals. We utilize discrete particle simulation methods to generate disordered granular packings of superellipsoids We simulate a range of preparation methods including pouring, particle expansion, and slow settling of grains in a viscous liquid. These allow us to generate systems ranging from the densest disordered to the loosest mechanically stable packings.

We utilize a range of order parameters to quantify how features of the individual grain shapes affect the properties of the system in the packed state. By considering a broad range of packings, prepared via multiple preparation methods and composed of a range of grain shapes, we are able to identify the effects of key properties of the particle shape that determine the structure of packed granular media. We find that anisotropy and broken rotational symmetry in the individual particle shapes play key roles in determining the properties of the resulting granular packings. We are also able to decompose the contribution from the geometric shape of the grain, the inter-grain interaction properties (in particular inter-grain friction) and the preparation method.

Termin: **Mittwoch, 4. Juli 2012, 14:15 Uhr**

Ort: **Universität Ulm, Helmholtzstr. 18, Raum E60**

Der Vortrag findet im Rahmen unseres Forschungsseminars statt.
Interessenten sind herzlich eingeladen.

gez. V. Schmidt