Master's thesis project offer

Jamming transition in granular packings under various gravitational accelerations

Project description

The jamming transition in a granular system can be defined phenomenologically as the transition from a flowing, *liquid-like* state, to a disordered but *solid-like* state: it marks the onset of mechanical stability. While the jamming transition has been in the past defined exclusively by a packing density, recently, the influence of many other parameters has been studied, including the shape, friction, or stiffness of particles. We propose here to study the effect of an external parameter on the jamming transition: gravitational acceleration.

In this project, we will:

- Use particles of different shapes, obtained by 3D printing, and X-ray computed tomography to observe *in-situ* the local packing fraction and typical particles' motion.
- Test different levels of gravity using a density matching fluid around the particles to simulate low- and microgravity.
- Test our hypothesis under real microgravity conditions by taking our experimental setup to the Bremen drop tower.

Contact

Starting and finishing dates are flexible. Questions and expression of interest should addressed to Olfa D'Angelo:

olfa.dangelo@fau.de



ENGINEERING M OF ADVANCED MATERIALS Institute for Multiscale Simulation