Abstract

We usually transit from one state of matter to another by modifying the temperature of the system. This process can also be used in other -less common- states of matter, such as granular media. In this case, the energy injection is controlled by the vibration of the container, either by modifying its amplitude or frequency. This thesis explores what happens in a vibrated granular system that keeps its energy injection constant and where its geometry is modified. We quantify the system dynamics for different containers by analyzing the velocity field using a high-speed camera to track the particles’ dynamics. Also, we performed a statistical analysis of the velocity fluctuations to obtain information on the statistical distribution of the fluidized granular medium. Finally, we compare the dissipative aspects of the granular medium between the experimental results and DEM simulations.