ESPCI
Laboratoire PMMH
10 rue Vauquelin, 75231 Paris Cedex 05

Séminaire PMMH

Bureau d'Études, Bâtiment L, 2 ème étage

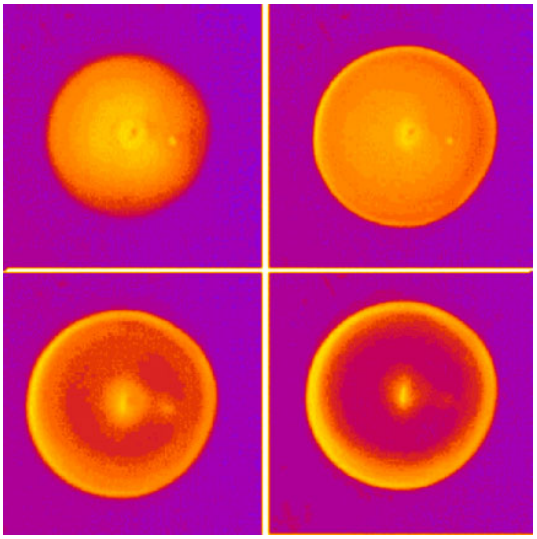
Vendredi 6 juin 2014, 11h00-12h00

Arshad Kudrolli

Clark University

Active Granular Matter

We discuss experiments designed with granular matter to develop the physics of self-propelled particle systems which move and interact via simple physical rules. The shape and mass distribution of a particle can be exploited to fabricate elements which perform random motions or directed random walks on a vibrated plate. The number density is varied from the dilute to the dense regime where they can move freely or suffer dynamical arrest. We will discuss the self-diffusion and density fluctuations of the self-propelled particles as a function of their degree of shape anisotropy and self-propulsion. We will give several examples of dynamic collective behavior which arises including clustering, swarming, and vortex motion depending on the individual interactions with neighboring particles. We will further examine the broader role of particle shape and discuss the application of models drawn from polymer physics on the packing and dynamics of granular matter.



Prochain séminaire : Vendredi 13 juin, 11h00-12h00, Julien Chopin (Universidade Federal do Rio de Janeiro)
Programme des séminaires : www.pmmh.espci.fr, onglet *Séminaires PMMH*
Contact : Ramiro Godoy-Diana, Étienne Reyssat, seminaires@pmmh.espci.fr