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## Séminaire PMMH

*Bureau d'Études, Bâtiment L, 2<sup>ème</sup> étage*

*Vendredi 27 mars 2015, 11h00-12h00*

### Ko Okumura

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#### **Granular physics in two dimension : jamming, bubbling, clogging and meandering**

In this talk, we will discuss three small-scale granular experiments, all prepared in (quasi) two dimension : (1) drag friction in a granular medium [1], (2) granular statics and dynamics in a certain hopper [2], and (3) meandering air flow in a granular medium [3]. For the drag friction, we highlight the divergence of the friction force towards the jamming point and a simple physical explanation for it. For the hopper problem, we discuss the statics of an unstable state and the dynamics of bubbles and its connection to clogging, again in simple physical frameworks. For the meandering problem, we discuss the mechanism of its destabilization and stabilization, together with a quasi-static nature. In all cases, we derive scaling laws for the phenomena on physical grounds, which all agree well with experiments.

[1] Y. Takehara and K. Okumura, Phys. Rev. Lett. 112 (2014) 148001. [2] Yui Yagisawa, and Ko Okumura, in preparation. [3] Yuki Yoshimura, Yui Yagisawa, and Ko Okumura, Phys. Rev. Lett. (under revision).