



Granular Matter: from Packing to Flow

Course summary

The Course will illustrate the state of the art of the mechanics of granular materials, whose behaviour ranges from solid-like to gas-like, at the aim of simulating/understanding civil and industrial processes, with particular emphasis on transport phenomena. The course will focus on kinetic theories of granular gases, with examples of applications to simple flow configurations, and granular packing.

The course is subdivided into three modules:

Granular Flows: classic kinetic theory of granular gases; extended kinetic theory of granular gases; persistent contacts; phenomenological laws for dense shearing flows.

Applications: simple shear flow; steady, fully developed, inclined flow.

Granular Packing: constitutive relations for granular materials; from micro to macro-under quasi-static/dynamic monotonic and cyclic perturbations; critical state theory; failure and mechanical instabilities.

Numerical Simulations of granular matters: Discrete Element Modelling and Contact Dynamics.

The course will be taught by **James T. Jenkins** (Cornell University, USA), **Diego Berzi** (Politecnico di Milano, Italy), **Claudio Di Prisco** (Politecnico di Milano, Italy), **Vanessa Magnanimo** (University of Twente, The Netherlands) and **Stefan Luding** (University of Twente, The Netherlands).

Location and practical aspects

The Course will be held at the Politecnico di Milano, piazza Leonardo da Vinci 32, 20133 Milano, Italy from 8th to 12th June 2015.

To participate or have more information, please send an email to Dr. Diego Berzi, diego.berzi@polimi.it (+39 0223996262)