

First Latin American SCAT Summer School

Universidad Técnica Federico Santa María, Valparaíso

Molecular dynamics simulation of granular fluids



One of a series of mini-courses taking place 6-12 January 2007

Description

The dynamics of granular fluids shows many interesting phenomena such as collective instabilities, pattern formation, segregation, avalanches, solid/liquid/gas-like coexistence, etc. Simulations have become an important tool to study granular fluids because of the accessibility to both the internal grain dynamics and the global characterization. Parameters can be easily changed making it possible to explore situations difficult to attain in experiments or to describe with theory.

In a series of lectures we will describe a very efficient algorithm for simulating granular fluids and the method to compute the hydrodynamic fields in complex flows. Examples and applications will be presented in the lectures.

The course will cover:

- ▶ The inelastic hard sphere model. Collision rules.
- ▶ Event-driven molecular dynamics simulations. Basic concepts.
- ▶ Event-driven molecular dynamics simulations. Optimization.
- ▶ Computation of global averages.
- ▶ Computation of hydrodynamic fields.

Lecturer:

Dr Rodrigo Soto, Departamento de Física, FCFM, Universidad de Chile
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This course will be in Spanish.

For more information, email info@scat-alfa.eu or visit www.scat-alfa.eu



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