

FRANÇOIS GUILLARD

E-mail: francois.guillard@sydney.edu.au

Particles and Grains Laboratory
School of Civil Engineering
The University of Sydney
NSW 2006 Australia

Born in Poitiers (France)
in 1987.

Phone: +61-(0)2-93-512-134

Cellphone: +61-(0)4-49-287-812

Webpage: <http://francoisguillard.com>

Education

Education

- 2014-2016 **Post-doctoral researcher**
Compaction of brittle porous media.
Supervisors: I. EINAV, L. SHEN.
Particles and Grains Laboratory, the University of Sydney (Australia).
- 2015-2016 **Licensed X-ray radiation user for research**
Local Radiation Safety Coordinators
School of Civil Engineering, the University of Sydney, New South Wales.
- 2010-2013 **PhD Degree** (obtained 2013-12-11 *with first class honours*)
Drag and lift forces in granular media.
Supervisors: O. POULIQUEN, Y. FORTERRE.
IUSTI laboratory, Aix-Marseille University (France).
- 2010 **Master's Degree** (obtained *cum laude*)
Fundamental Physics – Physics of out-of-equilibrium phenomena
École Normale Supérieure of Lyon (France).
- 2008 **Bachelor's degree** (obtained *cum laude*)
Science of Matter – Physics
École Normale Supérieure of Lyon (France)
- 2007-2010 Student at the École Normale Supérieure of Lyon (France)
Physics Department.
- 2005-2007 Preparatory school for entrance examinations to the French Grandes Écoles.
Lycée Louis-le-Grand, Paris (France)
- 2005 **High School Diploma** in Science (obtained *magna cum laude*)
Lycée Victor Hugo, Poitiers (France)

Additional Research Experience

Additional Research Experience

- 2009/05 – 2009/07 *Control parameters in recorder playing*
Supervisor: B. FABRE.
Research team: Instrument-Making, Acoustics, Musics.
Jean Le Rond d'Alembert Institute, Paris 6 University (France).
- 2008/06 – 2008/07 *Pattern formation in flows of colloidal suspension*
Supervisor: S. MANNEVILLE
Physics laboratory of the École Normale Supérieure of Lyon (France).

Publications

Publications

Transition failure stress in a chain of brittle elastic beads under impact

LIU D., SHEN L., GUILLARD F., EINAV I. *Int. Journal of Impact Engineering*, **93** 222, 2016.

Dynamic patterns of compaction in brittle porous media

GUILLARD F., GOLSHAN P., SHEN L., VALDÈS J., EINAV I. *Nature Physics*, **11** 835, 2015.

Origin of a depth-independent drag force induced by stirring in granular media.

GUILLARD F., FORTERRE Y., POULIQUEN O. *Physical Review E*. **91** 022201, 2015.

Lift forces in granular media.

GUILLARD F., FORTERRE Y., POULIQUEN O. *Physics Of Fluids*, **26** 043301, 2014.

Depth-independent drag force when stirring in granular media.

GUILLARD F., FORTERRE Y., POULIQUEN O. *Physical Review Letters*, **110** 138303, 2013

Drag and lift forces in granular media.

GUILLARD F., FORTERRE Y., POULIQUEN O. *Proceedings of the 21st French Mechanics Congress (in french)*. 2013

Structuring music in recorder playing: a hydrodynamical analysis of blowing control parameters.

FABRE B., GUILLARD F., SOLOMON M., BLANC F. AND SIDORENKOV V. *Proceedings of 20th International Symposium on Music Acoustics*. 2010

Conference presentations

Conference presentations

- Invited speaker in International Symposium on Plasticity, Hawaii (United States), 2016/01
- Invited speaker in Soft and Granular Matter in Ambient and Extreme Conditions, Chángshā (China) 2015/09
- 22nd French Mechanics Congress, Lyon (France) 2015/08
- Computational Fracture Conference, Paris (France), 2014/06
- Invited talk San Diego State University (United States), 2014/10
- European Planetary Science Congress, London (United Kingdom) 2013/09
- 21st French Mechanics Congress, Bordeaux (France) 2013/08
- IMA Conference on Dense Granular Flows, Cambridge (United Kingdom) 2013/07
- Annual Meeting of APS Division of Fluid Dynamics, San Diego CA (United States) 2012/11
- 13th Condensed Matter Days, Montpellier (France) 2012/08
- Gordon Research Conference on Granular & Granular-Fluid flows, Davidson College NC, (United States) 2012/07

Tutorial teaching

Tutorial teaching

- C language (computing science)
Bachelor's degree – École Polytechnique Universitaire of Marseille (France)
- Probabilities and Statistics
Bachelor's degree – École Polytechnique Universitaire of Marseille (France)

Students supervision

Students supervision

- Student in Bachelor's Degree, École Normale Supérieure Paris (1 month)
Drag reduction digging a granular medium
- 2 students in 4th year École Polytechnique Universitaire of Marseille (1 week)
Drag and lift measurements in a granular medium
- 2 students in 4th year École Polytechnique Universitaire of Marseille (1 week)
Drag and lift measurements in a yield stress fluid

Popularization actions

Popularization actions

- Discussion after the projection of scientific and artistic movies. Participation to the RISC festival (International meeting Science and Cinema).
Association: *Polymagoo*.
- Presentations of experiments on granular media to students from 6 to 17 years old.
Associations: *Polymagoo* (Marseille), *Les Ateliers de Curiosité* (Aix-en-Provence).
- Animations about granular materials to general public
Palais Longchamp (Marseille) – Association: *Les Petits Débrouillards*

Computing skills

Computing skills

- Knowledge of Liggghts, a software dedicated to Molecular Dynamic Simulations for Granular Materials.
- Programming in various languages (C++, Matlab, LabView, L^AT_EX, Bash, Maple, HTML, Javascript ...)
- Knowledge of main softwares in Linux, Macintosh, Windows.

Foreign Languages

Foreign Languages

French: mother tongue.

English: good level. Level assessed by an IELTS test score of 8.

(Listening: 8.5/9, Reading: 9/9, Writing: 6.5/9, Speaking: 7/9)

Italian: moderate.

Basic notions in **Latin** and **Ancient greek**.

Other interests

Other interests

- Hiking
- Classical guitar player
- Amateur astronomer
- Analog photography
- Software development: movie editor.