

Hector Alarcón

Personal Information

Name: Héctor Antonio Alarcón Hernández
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Mobile: +56 9 55328593
Date of birth: 23/10/1979
Civil status: Single
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Education

2012 **Ph.D. Physics**, *Universidad de Santiago de Chile*, Santiago, Chile.
2005 **Bachelor of Physics**, *Universidad de Santiago de Chile*, Santiago, Chile.

Doctoral Thesis

Title: *Mechanical behaviour of a thin layer of granular material under plane deformations*
Summary: When a granular system is submitted to a mechanical stress, this could present different behaviours depending on the amplitude of the stress and external parameters like humidity. Two experiments are reported showing a weakening of the granular media, in one case with dry grains under pure shear deformation and in other case a uniaxial stretching of a grain layer in a humid environment.

Grants

2006 **MECESUP USA 108**, *Doctoral internship*, Santiago, Chile.
2008 **ECOS-CONICYT C07E04**, *Doctoral internship*, ENS-Lyon, Francia.
2008 **FONDAP 11980002**, *Doctoral internship*, ENS-Lyon, Francia.
2013–2014 **BECAS CHILE**, *Post-doc grant*, Université Paris Sud XI, Francia.

Research interest

- Mechanics of granular media.
- Mechanical instabilities.
- Systems with friction.

Teaching and research experience

- 2016 **Post-doct position**, *Physics department*, Universidad de Chile.
Streaming in parametric instabilities: solitons, Faraday waves and floaters .
- 2015 **Part time professor**, Universidad Bernardo O'higgins.
Mechanics for engineers, Industrial engineering.
- 2015–2016 **Part time professor**, *Physics department*, Universidad de Santiago de Chile.
Mechanics for engineers.
- 2015 **Post-doct position**, ESPCI.
Self-amplification friction in assemblies.
- 2012–2014 **Post-doct position**, *LPS*, Université Paris Sud XI.
HPAM Adsorption on silica wafers and velocity measurements at the interface of a microchannel.
- 2007–2010 **Part time professor**, *Physics department*, Universidad de Santiago de Chile.
Physics Laboratory I for engineers.
- 2008 **Part time professor**, *Physics department*, Universidad de Santiago de Chile.
Physics I, Chemical engineering.
- 2011 **Part time professor**, *Physics department*, Universidad de Santiago de Chile.
Experimental techniques I, Physics engineering.

Internships

- 2008 January-April, École Normale Supérieure - Lyon,
Experimental set-up preparation and measurements, "Fractures in a wet granular system under uniaxial deformation",
Researcher in charge: Jean-Christophe Geminard
- 2008 October-November, École Normale Supérieure - Lyon,
Experimental set-up preparation and measurements, "Dynamics of a granular media under thermal cycle",
Researcher in charge: Jean-Christophe Geminard

ISI Publications

- **H. Alarcón**, *O. Ramos, L. Vanel, F. Vittoz, F. Melo and J.-C. Geminard*, *Softening Induced Instability of a Stretched Cohesive Granular Layer*, *Phys. Rev. Lett.* 105, 208001 (2010).
.
- **H. Alarcón**, *J.-C. Geminard and F. Melo*, *The Effect of Cohesion and Shear Modulus on the Instability of a Stretched Granular Layer*, *Phys. Rev. E* 86, 061303 (2012).
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- **H. Alarcón, J.-C. Geminard and F. Melo, Pattern formation of cohesionless granular material under pure shear**, in progress (2016).
- **H. Alarcón, J.-C. Geminard and F. Melo, Self-Amplification of Solid Friction in Interleaved Assemblies**, Phys. Rev. Lett. 116, 015502 accepted (2015).

languages

Spanish **Native**
 English **Pre-advanced**
 French **Pre-advanced**

Computer skills

OS: Linux, Windows
 Office: Latex, World, Excel, Powerpoint
 Programming: C++, Labview
 Analisis: Matlab, Igor, Mathematica
 Design: Gimp, Inkscape, SolidEdge, Solidworks

Loisirs

Music: Classic guitar, Electric guitar
 Photography: Landscapes, Science, Nature
 Sports: Tennis, Football, Climbing

References

- Dr. Francisco Melo, Universidad de Santiago de Chile (thesis advisor), francisco.melo@usach.cl
- Dr. Jean-Christophe Geminard, Ecole Normale Supérieure de Lyon, jean-christophe.geminard@ens-lyon.fr
- Dr. Frédéric Restagno, Université Paris Sud XI, frederic.restagno@u-psud.fr