

# Ezequiel Ferrero

## Physics PhD

Postdoctoral researcher at  
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## Personal Details

Full Name Eduardo Ezequiel Ferrero  
Profession Physicist  
Date of birth February 6th 1981  
Place of birth Córdoba, Argentina  
Citizenship Argentinian

## Career

Jan 2017 - ... **Postdoc in Physics (contract)**, *Dipartimento di Fisica, Università degli Studi di Milano, Italia.*  
Topic Amorphous materials  
Supervisor Dr. Stefano Zapperi  
May 2013 **Postdoc in Physics (contract)**, *Laboratoire Interdisciplinaire de Physique, Université Grenoble-Alpes, Grenoble, France.*  
-Dec 2016  
Topic Amorphous solids  
Supervisor Dr. Jean-Louis Barrat  
Aug-Nov 2012 **Postdoc in Physics (sandwich fellowship)**, *LPTMS, Université Paris Sud, Orsay, France.*  
Topic Driven elastic interfaces in random media  
Supervisor Dr. Alberto Rosso  
Apr 2011 - Apr 2013 **Postdoc in Physics (fellowship)**, *Solid State Theory group, Centro Atómico Bariloche, Argentina.*  
Topic Disordered Elastic Systems  
Supervisors Dr. Alejandro B. Kolton, Dr. Sebastián Bustingorry  
Mar 2011 **Ph.D. in Physics (“Doctor en Física”)**, *Universidad Nacional de Córdoba, Argentina.*  
— PHD THESIS  
Title "Relaxational dynamics of the q-state bidimensional Potts model: a contribution to the description of first order phase transitions non-equilibrium properties".  
Advisor Prof. Dr. Sergio A. Cannas  
Dec 2005 **MS degree in Physics (“Licenciado en Física”)**, *Universidad Nacional de Córdoba, Argentina.*  
— MS. THESIS  
Title “Metastability in the q-state Potts model”  
Advisor Prof. Dr. Sergio A. Cannas

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## Scientific visits

Oct-Nov 2014 **KITP, University of California, Santa Barbara, USA**, Avalanches, Intermittency, and Nonlinear Response in Far-From-Equilibrium Solids, Three working weeks.

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## Fellowships/Scholarships/Awards

2015 **Best Poster Award**, *Programming and Tuning Massively Parallel Systems summer school (PUMPS)*, Barcelona, Spain.

2013 **Special Mention**, *in the frame of Juan José Giambiagi Prize 2013 to the best PhD Thesis in Physics defended in the country*, Argentinean Physics Society, Argentina.

2012 **Postdoctoral Fellowship**, *Bernardo Houssay Program*, MESR (France) - MINCyT (Argentina), Université Paris Sud, Orsay, France.

2011-2013 **Postdoctoral Fellowship**, *CONICET*, CAB, Bariloche, Argentina.

2009-2011 **Postgraduate Fellowship Type 2**, *CONICET*, UNC, Argentina.

2006-2009 **Postgraduate Fellowship Type 1**, *CONICET*, UNC, Argentina.

2005 **Graduate Thesis Scholarship**, *Córdoba's Governmental Science Agency*, UNC, Argentina, ConCiencias Program.

2004 **Exchange Scholarship**, *AUGM (Montevideo Universities Association)*, UFPR (Universidade Federal do Paraná), Brazil, ESCALA Program.

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## Participation in International Schools

Jul 2015 **Barcelona, Spain**, *Programming and Tuning Massively Parallel Systems summer school (PUMPS)*.

Feb 2012 **Trieste, Italy**, *Advanced School on Scientific Software Development: Concept and Tools*.

Dec 2011 **Santiago, Chile**, *Summer School and Workshop "Fluctuations and Nonequilibrium Systems 2011"*.

Aug 2009 **Leuven, Belgium**, *International Summer School: "Fundamental Problems in Statistical Physics XII"*.

Dec 2008 **San Carlos de Bariloche, Argentina**, *Santa Fe Institute (SFI) Complex Systems Summer School: "Foundations and Frontiers of Complex Systems"*.

Aug 2008 **Les Houches, France**, *Les Houches Summer School "Long-Range Interacting Systems"*.

Feb 2007 **Bento Goncalves, Brasil**, *2nd Latin American School and conference in Statistical Physics and Interdisciplinary Applications*.

Dec 2006 **Mar del Plata, Argentina**, *Pan American Scientific Institute (PASI) Summer School: "Disorder and Complexity"*.

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## Teaching experience

2017 **Teaching Assistant**, *Università degli Studi di Milano*, Milan, Italy, Subject: "Introduction to Statistical Physics".

2012 **Honorary teacher**, *Instituto Balseiro*, Bariloche, Argentina, Subject: "Introduction to numerical computing in graphics processors".

2008-2011 **Teaching Associate**, *Facultad de Ciencias Químicas, Universidad Nacional de Córdoba*, Subjects: "Mathematics I and II".

2004-2006 **Undergraduate Teaching Assistant**, *Facultad de Matemática, Astronomía y Física, Universidad Nacional de Córdoba*, Subjects: "Algebra II", "Thermodynamics and Statistical Mechanics I and II".

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## Congress/schools/workshops Organization

- 2016 **Grenoble, France**, *Dynamical phase transitions in driven systems: contrasting depinning and yielding*, Organizer.
- 2014 **Grenoble, France**, *Driven Disordered Systems 2014*, Organizer.
- 2011 **Córdoba, Argentina**, *First Argentinean School on GPGPU Computing for Scientific Applications*, Organizer.

## Publications

### Published research articles

15. “*Spatiotemporal Patterns in Ultraslow Domain Wall Creep Dynamics*”.  
E.E. Ferrero, L. Foini, T. Giamarchi, A.B. Kolton, A. Rosso.  
*Physical Review Letters*, **118**, 147208 (2017).
14. “*Inertia and universality of avalanche statistics: The case of slowly deformed amorphous solids*”.  
K. Karimi, E.E. Ferrero, J.-L. Barrat.  
*Physical Review E*, **95**, 013003 (2017).
13. “*Driving rate dependence of avalanche statistics and shapes at the yielding transition*”.  
C. Liu, E.E. Ferrero, F. Puosi, J.-L. Barrat, K. Martens.  
*Physical Review Letters*, **116**, 065501 (2016).
12. “*Edwards thermodynamics for a driven athermal system with dry friction*”.  
G. Gradenigo, E.E. Ferrero, E. Bertin, J.-L. Barrat.  
*Physical Review Letters*, **115**, 140601 (2015).
11. “*Relaxation in yield stress systems through elastically interacting activated events*”.  
E.E. Ferrero, K. Martens, J.-L. Barrat.  
*Physical Review Letters*, **113**, 248301 (2014).
10. “*Parallel kinetic Monte Carlo simulation of Coulomb glasses*”.  
E.E. Ferrero, A.B. Kolton, M. Palassini.  
*AIP Conference Proceedings*, **1610**, 71 (2014).
9. “*Uniqueness of the thermodynamic limit for driven disordered elastic interfaces*”.  
A.B. Kolton, S. Bustingorry, E.E. Ferrero and A. Rosso.  
*Journal of Statistical Mechanics: Theory and Experiment (JSTAT)*, **P12004** (2013).
8. “*Numerical Approaches on Driven Elastic Interfaces in Random Media*”.  
E.E. Ferrero, S. Bustingorry, A.B. Kolton, A. Rosso.  
*Comptes Rendus Physique*, **14**, 641 (2013).
7. “*Non-steady relaxation and critical exponents at the depinning transition*”.  
E.E. Ferrero, S. Bustingorry, A.B. Kolton.  
*Physical Review E*, **87**, 032122 (2013).
6. “*Dynamical heterogeneities as fingerprints of a backbone structure in Potts models*”.  
E.E. Ferrero, F. Romá, S. Bustingorry, P.M. Gleiser.  
*Physical Review E*, **86**, 031121 (2012).
5. “*q-state Potts model metastability study using optimized GPU-based Monte Carlo algorithms*”.  
E.E. Ferrero, J.P. De Francesco, N. Wolovick and S.A. Cannas.  
*Computer Physics Communications*, **183**, 1578 (2012).
4. “*Short-time dynamics of finite-size mean-field systems*”.  
C. Anteneodo, E.E. Ferrero and S.A. Cannas.  
*Journal of Statistical Mechanics: Theory and Experiment (JSTAT)*, **P07026** (2010).
3. “*Non-equilibrium Characterization of Spinodal Points using Short Time Dynamics*”.  
E.S. Loscar, E.E. Ferrero, T.S. Grigera and S.A. Cannas.  
*Journal of Chemical Physics*, **131**, 024120 (2009)

2. “Long-term ordering kinetics of the two-dimensional  $q$ -state Potts model”.  
E.E. Ferrero, S.A. Cannas.  
*Physical Review E* **76**, 031108 (2007).
1. “Phase separation of the Potts model in the square lattice”.  
M. Ibáñez de Berganza, E.E. Ferrero, S.A. Cannas, V. Loreto, A. Petri.  
*The European Physical Journal: Special Topics*, **143**, 273 (2007).

## Oral contributions

### At International Conferences/Workshop/Schools

- October 2016 **Dijon, France**, *8th Multiscale Materials Modeling international conference*, **conference**, “Avalanche statistics when approaching (or leaving) the yielding transition of amorphous solids”.
- July 2016 **Lyon, France**, *STATPHYS26*, **conference**, “Spatio-temporal patterns in ultra-slow creep dynamics of magnetic interfaces”.
- June 2016 **Aussois, France**, *Statphys26 satellite meeting: Statistical Physics of Materials*, **workshop**, “Avalanche statistics at the yielding transition of amorphous solids - driving rate dependence and inertial effects -”.
- June 2016 **Lyon, France**, *CECAM Workshop: The flow of amorphous solids, from atomistic simulations to Earth Science applications*, **workshop**, “Spatio-temporal patterns in ultra-slow domain wall creep dynamics”.
- Feb 2016 **Vienna, Austria**, *41st Conference of the Middle European Cooperation in Statistical Physics*, **conference**, “Driving rate dependence of avalanche statistics and shapes at the yielding transition”.
- Jul 2015 **Barcelona, Spain**, *Programming and Tuning Massively Parallel Systems summer school (PUMPS)*, **poster intro**, “A display of GPU implementations in Condensed Matter Physics: four distinctive cases”.
- Jun 2015 **Montpellier, France**, *ANR project meeting*, Laboratoire Charles Coulomb, Université Montpellier II, **mini workshop**.  
“On the rate dependence of avalanche statistics and shapes at the yielding transition”
- May 2015 **Montpellier, France**, *International Workshop on Dynamics in Viscous Liquids*, **conference**, “Relaxation in yield stress systems through elastically interacting activated events”.
- Mar 2015 **Buenos Aires, Argentina**, *Dynamics in soft and hard condensed matter*, **conference**, “Avalanches and relaxation in mesoscopic models of amorphous solids”.
- Dec 2014 **Grenoble, France**, *FAPRES ANR project kick-off meeting*, **mini workshop**, “Relaxation in yield stress systems through elastically interacting activated events”.
- Apr 2014 **Grenoble, France**, *The CIMENT cluster users’ day*, **mini workshop**, “Mesoscopic simulations of amorphous systems using GPU-based algorithms”.
- Feb 2012 **Trieste, Italy**, *Advanced School on Scientific Software Development: Concept and Tools*, **school talk**, “GPU-implementation of the Langevin Dynamics for Driven Elastic Interfaces in Random media”.
- Aug 2009 **Leuven, Belgium**, *International Summer School: “Fundamental Problems in Statistical Physics XII”*, **poster intro**, “Non-equilibrium Characterization of Spinodal Points using Short Time Dynamics”.
- Dec 2008 **San Carlos de Bariloche, Argentina**, *SFI Complex Systems Summer School: “Foundations and Frontiers of Complex Systems”*, **poster intro**, “Network effects on game dynamics”.
- Aug 2008 **Les Houches, France**, *Les Houches Summer School “Long-Range Interacting Systems”*, **school talk**, “Long-term ordering kinetics of the two-dimensional  $q$ -state Potts model”.

### As International Seminars

- 20 seminars given as a visitor in other labs or in our group meetings between 2012 and 2017

## At National Conferences/Workshop/Schools

- May 2011 **Córdoba, Argentina**, *First Argentinian School in GPGPU Computing for Scientific Applications*, **lecture**, “GPGPU applications of Monte Carlo in spin models”.
- Sep 2010 **Malargüe, Argentina**, *95a National Physics Meeting (RNF)*, **conference**, “Dynamics of the ferromagnetic  $q$ -state Potts model”.
- May 2007 **San Rafael, Argentina**, *V Regional Workshop on Statistical Physics and Condensed Matter Applications (TREFEMAC)*, **conference**, “Long term ordering dynamics of the  $q$ -state Potts model”.

## As National Seminars

- More than 8 local seminars given between 2009 and 2013

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## Posters

### At International Congress/Schools/Workshops

- More than 18 posters presented between 2005 and 2016

### At National Congress/Schools/Workshops

- More than 16 posters presented between 2005 and 2013

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## Refereing activity

- since 2015 **Referee**, *Cluster Computing (CLUS)*, regular articles, Springer.
- since 2015 **Referee**, *Computer Physics Communications (CPC)*, regular articles, Elsevier.
- 2015 **Evaluator**, *Asociación Física Argentina*, Giambiagi Prize 2015.
- 2014 **Referee**, *Cluster Computing*, HPCLatAm14 proceedings.
- 2012 **Evaluator**, *Universidad Nacional de San Luis*, Topics, advisors and project for a PhD Thesis in Computational Sciences.
- 2012 **Referee**, *Cluster Computing*, HPCLatAm12 proceedings.

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## Further academy-related activities

### Membership

- since 2011 Member of the GPGPU Computing Group – CAB
- since 2009 Member of the GPGPU Computing Group – FaMAF
- since 2002 Member of the Argentinean Physics Association

### Government

- 2008 – 2011 Member of the Córdoba Subsidiary of the Argentinean Physics Association Board of Directors
- 2008 – 2010 Councilor in the Board of Governors of FaMAF (graduate senate)
- 2002 – 2003 Councilor in the Board of Governors of FaMAF (student senate)
- 2001 – 2002 Councilor in the Board of Governors of FaMAF (student senate)

### Assistance

- 2011 Collaborator at Argentinean Physics Olympiad
- 2010 Collaborator at Argentinean Physics Olympiad
- 2007 Collaborator at XII Ibero-American Physics Olympiad
- 2006 Collaborator at Argentinean Physics Olympiad

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## Scientific Interests

- Magnetic Systems, Complex systems, Disordered Elastic Systems
- Amorphous Solids, Soft Matter, Metamaterials
- Computational Physics, GPU Computing, Machine Learning

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## Languages

Fluid Spanish, English, French  
Average Portuguese  
Basic Italian

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## Computer skills

OS Linux/Unix  
Programming C/C++, C for CUDA, Fortran, Python  
Utils bash, awk, sed  
Graphics Grace, Gnuplot  
Libraries RNGs, FFT, BLAS, Thrust, CUB  
DRMs SGE, OAR, SLURM  
Version CS GIT, SVN  
Documents L<sup>A</sup>T<sub>E</sub>X, Libre Office  
Code repo <https://bitbucket.org/ezeferro>

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**Notice:** This file contains hyperlinks.  
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