

## CURRICULUM VITAE

### Personal data

Alessandro Sarracino, Born in Naples, Italy, December 22, 1981.

Work address: Dipartimento di Fisica - Università Sapienza,  
p.le Aldo Moro 2, 00181, Roma, Italy

e-mail: [alessandro.sarracino@roma1.infn.it](mailto:alessandro.sarracino@roma1.infn.it)

### Academic and scientific career

**Since December 2009:** Research fellowship (from the GRANULARCHAOS project funded by MIUR) at the CNR-ISC and Department of Physics, University “Sapienza”, Roma, Italy.

**February 2009–November 2009:** Research fellowship (from PRIN) at the Department of Mathematics and Informatics, University of Salerno, Italy.

**January 2009:** Ph.D. in Physics from the University of Salerno, Italy, with a Thesis on “Nonlinear fluctuation-dissipation relations: analytical derivation and numerical applications”.  
Thesis Advisor Professor Marco Zannetti.

**October 2005:** Laurea Degree in Physics from the University Federico II of Naples, Italy, with a Thesis on “Segregation and dynamic instabilities in granular mixtures”, with the mark 110/110 *cum laude*.  
Thesis Advisor Professor Antonio Coniglio.

**July 2000:** Maturità classica (school leaving examination) in the Liceo Classico A.Genovesi of Naples, Italy, with the mark 100/100.

### Fields of research

- Out-of-equilibrium statistical mechanics: breakdown of time-reversibility and detailed balance in Markov processes; entropy production; generalized fluctuation-dissipation relations; ratchet effect; applications to Ising systems, spin glasses and granular systems.
- Fluctuation-dissipation relations out of equilibrium: field-free algorithms for the measurement of the response function with applications to coarsening systems and spin glasses; growing length-scales in disordered systems.

- Non-equilibrium fluctuating hydrodynamics: dynamics of a tracer particle in a granular bath; theoretical, numerical and experimental study of structure factors in driven granular fluids.

## Publications

- “Non-equilibrium length in granular fluids: From experiment to fluctuating hydrodynamics”  
G. Gradenigo, A. Sarracino, D. Villamaina and A. Puglisi  
Europhysics Letters 96, 14004 (2011)
- “Fluctuating hydrodynamics and correlation lengths in a driven granular fluid”  
G. Gradenigo, A. Sarracino, D. Villamaina and A. Puglisi  
J. Stat. Mech. P08017 (2011)
- “Estimate of temperature and its uncertainty in small systems”  
M. Falcioni, D. Villamaina, A. Vulpiani, A. Puglisi and A. Sarracino  
Am. J. Phys. 79, 777 (2011)
- “On anomalous diffusion and the out of equilibrium response function in one-dimensional models”  
D. Villamaina, A. Sarracino, G. gradenigo, A. Puglisi and A. Vulpiani  
J. Stat. Mech. L01002 (2011)
- “The ratchet effect in an ageing glass”  
G. gradenigo, A. Sarracino, D. Villamaina, T. S. Grigera and A. Puglisi  
J. Stat. Mech. L12002 (2010)
- “Irreversible dynamics of a massive intruder in dense granular fluids”  
A. Sarracino, D. Villamaina, G. Gradenigo and A. Puglisi  
Europhysics Letters 92, 34001 (2010)
- “Identification of the critical temperature from non-equilibrium time-dependent quantities”  
E. Lippiello and A. Sarracino  
Europhysics Letters 90, 60001 (2010)
- “Granular Brownian motion”  
A. Sarracino, D. Villamaina, G. Costantini and A. Puglisi  
J. Stat. Mech. P04012 (2010)
- “Fluctuations of two-time quantities and non-linear response functions”  
F. Corberi, E. Lippiello, A. Sarracino and M. Zannetti  
J. Stat. Mech. P04003 (2010)

- “Fluctuation-dissipation relations and field-free algorithms for the computation of response functions”  
F. Corberi, E. Lippiello, A. Sarracino and M. Zannetti  
Phys. Rev. E 81, 011124 (2010)
- “Nonlinear response and fluctuation dissipation relations”  
E. Lippiello, F. Corberi, A. Sarracino and Marco Zannetti  
Phys. Rev. E 78, 041120 (2008)
- “Nonlinear susceptibilities and the measurement of a cooperative length”  
E. Lippiello, F. Corberi, A. Sarracino and M. Zannetti  
Phys. Rev. B 77, 212201 (2008)
- “Species segregation and dynamical instability of horizontally vibrated granular mixtures”  
M. Pica Ciamarra, A. Sarracino, M. Nicodemi and A. Coniglio  
In Traffic and Granular Flow 2005, Schadschneider, A.; Pschel, T.; Khne, R.; Schreckenberg, M.; Wolf, D.E. (Eds.) (2007)

### Participation in Workshops and Schools

- October 2011: “Foundations and Applications of Non-Equilibrium Statistical Mechanics”, Stockholm, Sweden.
- September 2011: Talk (contributed) at the “ZCAM conference on Granular and Active Fluids”, Zaragoza, Spain.
- March 2011: Poster at “Workshop on Dynamics in Viscous Liquids III”, Roma, Italia.
- September 2010: Poster at “Anomalous Transport: from Billiards to Nanosystems”, Sperlonga, Italia.
- July 2010: Talk (contributed) at the “XXIV IUPAP International Conference on Statistical Physics”, Cairns, Australia.
- June 2010: Talk (invited) at the “XV Convegno di Fisica Statistica”, Parma, Italy.
- September 2009: Poster at the International Summer School “Fundamental Problems in Statistical Physics XII”, Leuven, Belgium.
- August -September 2007: “Les Houches Predoctoral School in Statistical Physics”
- September 2006: “IV Workshop on non equilibrium phenomena in supercooled fluids, glasses and amorphous materials”, Pisa, Italy.

Known languages: Italian, English, French.

### **Teaching Experience**

**February 2009-July 2009:** Assistance in the course of “Physics” for the 1st year graduating students, in the Department Mathematics and Informatics of the University of Salerno.

**Spring 2008:** Twelve hours of integrative lessons of Physics held in the University of Salerno for the 1st year graduating students.