

## Andrea Puglisi - Short CV (updated to January 22, 2020)

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### Fields of activity

- Experiments with granular fluids (non-equilibrium spatial structures, fluctuations-response relations, ratchet effects).
- Out-of-equilibrium statistical mechanics (theory): fluctuations, breakdown of time-reversibility, hydrodynamics and kinetic theory; applied to: active matter (microswimmers, bacteria, sperms), granular fluids, capillary physics and micro-fluidics.
- Data compression and information theory, applications to time-series analysis of dynamical systems and linguistics; modelling of self-organization of conventions in natural and artificial communicating systems.

### Academic and scientific career

since 1/8/2018: Senior Researcher ("Primo ricercatore", permanent) at CNR-ISC (Institute for Complex Systems at National Research Council), Rome

8/1/2014: Habilitation for both First and Second Grade Professorship ("Ordinario" and "Associato"), in Sector 02/A2 (Theoretical Physics of Fundamental Interactions)

11/12/2013: Habilitation for both First and Second Grade Professorship ("Ordinario" and "Associato"), in Sectors 02/B2 (Theoretical Physics of Matter)

16/7/2009 - 31/7/2018: Researcher (permanent) at the CNR-INFN-SMC, now CNR-ISC (Institute for Complex Systems at National Research Council), Rome

October 2008 - July 2009: Researcher and First Researcher (TD) at the CNR-INFN-SMC (Center for Statistical Mechanics and Complexity in the INFN institute of Italian Center for National Research), Rome

January 2008-September 2008: Research fellowship from CNISM, at the Physics Dept. of "Sapienza" University, Rome

January 2006-December 2007: Research fellowship (from EU projects and PRIN) at the Physics Dept. of "Sapienza" University, Rome

January 2004-December 2005: "Marie-Curie" individual fellowship granted at the Laboratoire de Physique Theorique of the University Paris-Sud (Orsay, Paris)

January 2002-December 2003: Research fellowship with the Statistical Mechanics and Complexity Center of INFN, Rome

1999-2001: Ph.D. in Physics at "Sapienza" University of Rome (discussed on February 2002)

1998: Laurea in Physics at "Sapienza" University of Rome (mark: 110/110 cum laude)

#### Grants

February 2019: participant of a PRIN 2017 project

September 2018: principal investigator of a Lazioinnova research grant (150kEuro for 2 years)

June 2018: participant of a MAECI Italia-Israel bilateral research grant

October 2011: participant in the Prin project

September 2008 - December 2014: principal investigator of a FIRB-IDEAS project (1.2MEuro for 5 years)

2008: winner of the ERC Starting Grant 2007 (above the "threshold of excellence", classified in the "reserve list", not funded for insufficient budget)

January - December 2006: Marie-Curie European Re-Integration Grant (~ 24000 E. for 1 year)

Publications (summary): Scholar: 4221 citations, h-index 37; ISI: 2797 citations, h-index 31, ~ 130 publications on international peer-reviewed journals (PNAS, Phys. Rep., Phys. Rev. Lett., PLOS One, Sci. Rep., Europhys. Lett., Phys. Rev. E, J. Stat. Mech., J. Stat. Phys., Physica D, etc.), exclusive authorship of 1 book ("Transport and fluctuations in granular fluids", edited in 2014 by Springer)

#### Organised international conferences

November 2019: "La genesi dei modelli: teoria, simulazioni e dati" (Rome, Accademia dei Lincei, Italy; ~ 100 participants)

September 2017: "Thermodynamics and Statistical Mechanics of Small Systems" (Rome, Italy; ~ 100 participants)

May 2015: "Statistical Mechanics of non-Hamiltonian systems" (Rome, Italy; ~ 40 participants)

September 2014: "Strolling on Chaos, Turbulence and Statistical Mechanics" (Rome, Italy; ~ 110 participants)

September 2013: "Large deviations and rare events in physics and biology" (Rome, Italy; ~ 90 participants)

July 2013: "Small system nonequilibrium fluctuations, dynamics and stochasticity, and anomalous behavior" (Beijing, China, at Kavli-China institute, ~ 100 participants)

June 2012: "Non-equilibrium fluctuation-response relations" (Giglio, Italy; ~ 50 participants)

June 2012: "Quasi-fluids and quasi-solids: the dynamics of active and granular matter" (Parma, Italy;  $\sim$  70 participants)

September 2010: "Anomalous Transport: from Billiards to Nanosystems" (Sperlonga, Italy;  $\sim$  50 participants)

Talks and presentations:  $\sim$  50 talks given at national and international conferences ( $\sim$  35 invited).

#### Other appointments

Appointed outstanding referee for APS in 2020

Referee for three Ph. D. thesis (at the University Roma Tre and at the Twente University)

Member (CNR delegate) in the commission for spaces in the Physics Department of Sapienza University

Evaluator for national scientific projects in Italy (FIRB, at MIUR)

Evaluator for national scientific projects in Belgium (FNRS)

Evaluator for national scientific projects in Chile and in Romania

Referee for scientific journals (PNAS, Phys. Rev. Lett, Phys. Rev. E, Europhys. Lett., JSTAT, J. Stat. Phys, others)

Reviewer for "Mathematical Reviews" (invited)

Distinguished Referee Europhysics Letters 2008

#### Teaching and supervision of students

I have been supervisor of 8 undergraduate thesis (dissertazione and tesi magistrale) and 4 Ph.D. students (Dario Villamaina, Alessandro Manacorda, Luca Cerino and Andrea Plati) at the Department of Physics of the Sapienza University of Rome (Italy), and 1 Ph. D. student (Paolo Visco) at the Paris-Sud University.

I have been supervisor for a 3-5 months stays of undergraduate students from the Ecole Normale Supérieure de Lyon (Camille Scalliet and Louis Combe).

From 2012 I teach a course for undergraduates on stochastic processes (Physics Department, Sapienza University)

2010-2012: Lectures on granular fluids for the Ph. D. course in physics (Univ. Sapienza)

2000 - 2002: Assistance to the Laboratory of Programming and Numerical Computation for the 1st year graduating students in Mathematics, in the Mathematics Department of the Sapienza University of Rome; Assistance to the Calculus Course for the 1st year graduating students (in Natural Sciences) in the Mathematics Department of the Sapienza University of Rome; Assistance in the course of "Probability calculus" for the 1st year graduating students, in the Mathematics Department of the Sapienza University of Rome; Twenty hours of basic mathematics lessons held in the Sapienza University of Rome, during the Preparation Courses for freshmen undergraduates.

Known languages: Italian, English, French