Simone Franchini

Résumé (April, 2020)

1 Personal data:

Nationality:	Italian
Languages:	Italian (native), English (fluent)
Address:	Room 116, Department of Physics
	Sapienza Università di Roma
	Piazzale A. Moro 2, 00185 Roma, Italy

2 Positions:

- **Since 2016** Postdoctoral researcher in Theoretical Physics, Department of Physics, *Sapienza Università di Roma*

- **2015-2016** Postdoctoral researcher in Applied Mathematics, Mathematics Institute, *Goethe Universität Frankfurt am Main*

- **2011-2015** PhD fellow in Mathematical Physics, Department of Mathematics and Physics, *Università degli Studi Roma Tre*

- **2007-2011** MS student in Theoretical Physics, Department of Physics, *Sapienza Università di Roma*

- **2003-2007** BS student in Physics, Department of Physics, *Sapienza Università di Roma*

3 Academic degrees:

- **2015** PhD in Physics, *Università degli Studi Roma Tre*, Thesis: *Large deviations for Generalized Polya Urns with general urn function*, Advisor: Pietro Caputo, Referee: Hosam M. Mahmoud

- **2011** MS in Physics, *Sapienza Università di Roma*, Thesis: *Catene ideali con numero fissato di auto-intersezioni* (*Ideal chains with fixed self-intersection rate*), Advisor: Giorgio Parisi, Referee: Andrea Pelissetto

- **2007** BS in Physics, *Sapienza Università di Roma*, Thesis: *Autointersezioni nei cammini aleatori* (*Self-intersections in Random Walks*), Advisor: Vincenzo Marinari, Referee: Giorgio Parisi

4 Honors:

- **2003** *Olimpiadi di Fisica* (IPhO 2003 Italian Qualifiers), 1st place in Rome and Lazio area, invited contestant at the national final in Senigallia (AN)

5 Fellowships and grants:

- **2011** PhD scholarship (three years), Department of Mathematics and Physics, *Università degli Studi Roma Tre*

- **2005** Collaboration fellowship (one year), Department of Physics, *Sapienza Università di Roma*

- **2003** INdAM (*Istituto Nazionale di Alta Matematica*) national fellowship for undergraduate students in Mathematics (declined due to enrollment for the Bachelor in Physics)

6 **Research topics:**

- Large and moderate deviations for Hill-Lane-Sudderth type urn models

- Large deviation estimates in Random and Self-Avoiding Walks theory via urn methodology

- Rigorous foundations of the Replica Symmetry Breaking theory

- Kernel representation and its applications

7 **Referee activity:**

- *Journal of Physics A: Mathematical and Theoretical*

8 **Organization of workshops and conferences:**

- **2018** *Disordered Serendipity*, 19-22 September 2018, *Sapienza Università di Roma*, Local Organizing Committee

9 **Teaching experiences:**

- **2017-2018** Meccanica (Classical Mechanics, BS course), teaching assistant of Cesare Bini, Department of Physics, *Sapienza Università di Roma*

10 **Talks in workshops and conferences:**

- *Replica Symmetry Breaking without replicas*, based on [4] below, in *Phase transitions in discrete structures*, 25-29 July 2016, *Goethe Universität Frankfurt am Main*

11 List of publications, talks and preprints:

- Journal articles

  [1] *Ideal chains with fixed self-intersection rate*, S. Franchini, Phys. Rev. E **84** (2011)
  https://doi.org/10.1103/PhysRevE.84.051104
  https://arxiv.org/abs/1109.5744

  [2] *Large deviations for Generalized Polya Urns with arbitrary urn function*, S. Franchini, Stoc. Proc. Appl. **127** (2017)
  https://doi.org/10.1016/j.spa.2017.02.010
  https://arxiv.org/abs/1412.5762

  [3] *Random Polymers and Generalized Urn Processes*, S. Franchini, R. Balzan, Phys. Rev. E **98** (2018)
  https://journals.aps.org/pre/abstract/10.1103/PhysRevE.98.042502
  https://arxiv.org/abs/1807.03461

- Others

  [4] *Ma quanti sono gli ammalati di Covid-19 in Italia?*, S. Franchini, E. Marinari, G. Parisi, F. Ricci-Tersenghi, SCIRE (2020),
  https://www.scienzainrete.it/articolo/ma-quanti-sono-gli-ammalati-di-covid-19-italia/simone-franchini-enzo-marinari-giorgio

- Academic preprints

  [5] *Replica Symmetry Breaking without replicas*, S. Franchini, preprint (2019)
  https://arxiv.org/abs/1610.03941

  [6] *A simplified Parisi Ansatz* , S. Franchini, preprint (2019)
  https://arxiv.org/abs/1909.06594

  [7] *Energy of the Interacting Self-Avoiding Walk at the $\theta-point$* , S. Franchini, R. Balzan, preprint (2020)

  [8] *Free Energy of the Bipartite Sherrington-Kirckpatrick model*, L. Pan, S. Franchini, preprint (2020)

  [9] *Range of a Random Walk by urn methods*, S. Franchini, R. Balzan, preprint (2020)