

Research interests

In my research, I am mostly interested in mathematical statistical physics. In my PhD I studied a certain type of interacting particle systems called kinetically constrained models originally introduced in order to understand glassy materials; where my main focus was on their behavior in a disordered environment.

Education

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| 2016–2019 | PhD. in Mathematics. Paris Diderot University, under the supervision of Cristina Toninelli. |
| 2014–2016 | M.Sc. in Theoretical Physics. École Normale Supérieure, Paris. |
| 2010–2014 | B.Sc. in Mathematics and Physics. Technion, Haifa. |

Work and Research

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| 2017–2019 | Teaching assistant , <i>Paris Diderot University</i> . |
| 2016 | Research internship in statistical physics , <i>LPTENS</i> , under the supervision of Kay Wiese. |
| 2015 | Research internship in probability , <i>LPMA</i> , under the supervision of Giambattista Giacomin and Cristina Toninelli. |
| 2014 | Instructor in an experimental physics course , <i>Technion's physics department</i> . |
| 2013 | Section editor in "Netgar" , <i>Technion's mathematics department's journal</i> . |
| 2013 | North Rhine-Westphalia scholarship program , <i>University of Bielefeld</i> , research in experimental physics and nanotechnology. |
| 2012 | Kupcinet Getz summer school , <i>Weizmann Institute of Science</i> , research internship in probability under the supervision of Itai Ben-jamini. |

Publications

- Clément Cosco and Assaf Shapira. “Topologically induced metastability in periodic XY chain”. In: *arXiv preprint arXiv:2001.07950* (2020).
- Anatole Ertul and Assaf Shapira. “Self-diffusion coefficient in the Kob-Andersen model”. In: *arXiv preprint arXiv:2003.02531* (2020).
- Tyler Helmuth and Assaf Shapira. “Loop-erased random walk as a spin system observable”. In: *Journal of Statistical Physics* (2020).
- Fabio Martinelli, Assaf Shapira, and Cristina Toninelli. “Diffusive scaling of the Kob–Andersen model in \mathbb{Z}^d ”. In: *Annales de l’Institut Henri Poincaré, Probabilités et Statistiques* 56.3 (2020).
- Assaf Shapira. “A note on the Fredrickson-Andersen one spin facilitated model in stationarity”. In: *arXiv preprint arXiv:2005.13327* (2020).
- Assaf Shapira. “Hydrodynamic limit of the Kob-Andersen model”. In: *arXiv preprint arXiv:2003.08495* (2020).
- Assaf Shapira. “Kinetically constrained models with random constraints”. In: *Annals of Applied Probability* 30.2 (2020).
- Assaf Shapira and Kay Jörg Wiese. “An exact mapping between loop-erased random walks and an interacting field theory with two fermions and one boson”. In: *arXiv preprint arXiv:2006.07899* (2020).
- Assaf Shapira. “Metastable behavior of bootstrap percolation on Galton-Watson trees”. In: *ALEA* 16 (2019).
- Assaf Shapira and Erik Slivken. “Time scales of the Fredrickson-Andersen model on polluted \mathbb{Z}^2 and \mathbb{Z}^3 ”. In: *arXiv preprint arXiv:1906.09949* (2019).
- Lucas Benigni, Clément Cosco, Assaf Shapira, and Kay Jörg Wiese. “Hausdorff dimension of the record set of a fractional Brownian motion”. In: *Electronic Communications in Probability* 23 (2018).
- Giambattista Giacomini, Christophe Poquet, and Assaf Shapira. “Small noise and long time phase diffusion in stochastic limit cycle oscillators”. In: *Journal of Differential Equations* 264.2 (2018).
- Amichai Lampert and Assaf Shapira. “On maximizing the speed of a random walk in fixed environments”. In: *Electronic Communications in Probability* 18 (2013).

Awards

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| 2007 | Honorable mention , <i>Asian Physics Olympiad</i> , Shanghai, China. |
| 2007 | Silver Medal , <i>International Chemistry Olympiad</i> , Moscow, Russia. |
| 2007 | 3rd place , <i>National mathematics Tournament of Towns</i> . |



Languages

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| Hebrew | mother tongue |
| English | fluent |
| French | fluent |
| German | good knowledge |
| Italian | basic knowledge |