Spectral signatures of breaking of ensemble equivalence

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Curriculum Vitae

Pierfrancesco Dionigi was born on the 7th of April 1994 in Pesaro, Italy. He grew up in Cattolica and obtained his diploma in Classical Studies from Liceo Giulio Cesare in Rimini in 2013, achieving full marks and honors.

Following high school, he pursued a Bachelor of Science in Physics in Bologna, which he completed with honors in 2016. His thesis on quantum field theories was supervised by Prof. Dr. Alexandr Kamenchtchik. In 2019 he earned his Master of Science in Theoretical Physics with honors, focusing on the spectra of random graphs under the supervision of Prof. Dr. Armando Bazzani.

In October 2019 Pierfrancesco relocated to Leiden, The Netherlands, to commence his Ph.D. in Probability under the joint supervision of Prof. Dr. Frank den Hollander (Leiden University), Prof. Dr. Diego Garlaschelli (Leiden University & IMT Lucca), and Prof. Dr. Michel Mandjes (Leiden University). This position was supported by NETWORKS, a research consortium funded by the Dutch Research Council (NWO) dedicated to studying complex networks and their practical applications. Over the four-year tenure, he focused on random graph models, maximal entropy networks, and spectral graph theory. His primary objective was to establish a connection between Random Matrix Theory results and Statistical Physics via a concept known as the Breaking of Ensemble Equivalence. This research resulted in three papers, two of which have been published and one of which is in preprint status.

During his Ph.D., Pierfrancesco taught two courses in mathematics for humanities and served as a Teaching Assistant in several courses. Additionally, he supervised two pairs of high school students as part of the pre-university college project and assisted in supervising a bachelor student. Apart from his teaching responsibilities, he actively participated in numerous conferences and summer schools, presenting his research through talks and posters. Notable mentions include his attendance at the PIMS-CRM 2022 summer school, Saint-Flour 2022 summer school, and his invitation as a speaker at the YEP 2023 conference.

In January 2024, Pierfrancesco joined the Alfréd Rényi Mathematical Institute in Budapest as part of the ERC Synergy grant DYNASNET led by Prof. Dr. László Lovász. Here, he will focus on Large Deviations, Stochastic Processes on Graphs, and Graph Limits.