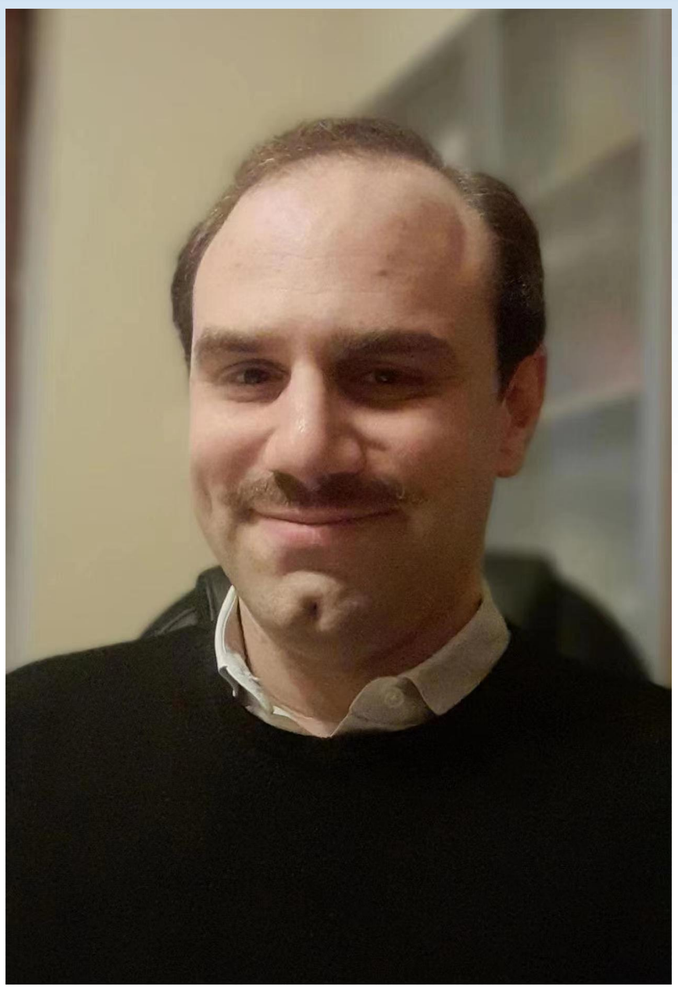
Stochastic Webinar

A differential characterization of exponential quantum field theory on the plane

Francesco De Vecchi University of Pisa



Francesco De Vecchi got his Ph.D. in Mathematics at the University of Milan in 2018, under the supervision of Prof. Stefania Ugolini. From 2018 to 2022, he was a postdoctoral researcher at Hausdorff Center for Mathematics and at the University of Bonn in the research group of Prof. Massimiliano Gubinelli. In 2022, he became assistant professor at the University of Pavia. He studies stochastic differential equations in finite and infinite dimension, with particular interest in their applications to quantum mechanics and quantum field theory.

Abstract: Characterizing a probability measure through an integration by parts formula is a classical problem in stochastic analysis. It finds applications in (Euclidean) quantum field theory, being related to the solutions of the equations of motion for the correlation functions of the quantum field. We approach this problem in the particular case of quantum field theory with exponential interaction on $\mathbb{R}^2$, studying a Fokker-Planck-Kolmogorov equation associated to a stochastic quantization equation for such a model. We prove that, under some conditions on the support of the measure, the solution to this Fokker-Planck-Kolmogorov equation exists and is unique, providing a complete characterization of the exponential measure by an integration by parts formula. The talk is based on a joint work with Massimiliano Gubinelli and Mattia Turra.

讲座时间：

2023. 4. 19 周三 下午17:00-18:00

会议地点：ZOOM会议室会议ID：354 143 7366 密码：123456

主办单位：

中科院数学与系统科学研究院应用数学所

北京理工大学数学与统计学院