



Mathematics and CS Seminar

From weakly interacting particles to a regularised Dean-Kawasaki model

Federico Cornalba (IST Austria)

Host: Julian Fischer

Dean-Kawasaki (DK) equations, a class of stochastic PDEs featuring a non-Lipschitz multiplicative noise in divergence form, provide a mesoscopic description of the dynamics of finitely many particles obeying Langevin dynamics. Well-posedness for DK equations is open with the exception of specific diffusive cases, where no regular (nonatomic) solutions exist. We derive and analyse a regularised DK equation based on a system of weakly interacting particles following underdamped McKean-Vlasov dynamics. The regularisation can be interpreted as considering particles of finite size rather than describing them by atomic measures. We detail open questions concerning modelling approximations and scaling optimality associated with the particle size (joint work with Tony Shardlow and Johannes Zimmer).

Thursday, February 20, 2020 04:00pm - 06:00pm

IST Austria Campus Heinzl Seminar Room / Office Bldg West (I21.EG.101)



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