

## LEARNING MEAN FIELD MODELS FROM DATA

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I will present recent results on parametric and non-parametric inference of mean field (McKean) SDEs and of the corresponding McKean-Vlasov PDE from data. We consider two measurement models: (1) observing trajectories of the underlying interacting particle systems; (2) noisy measurements of the solution to the McKean-Vlasov PDE. I will present a spectral theoretic (eigenfunction martingale estimation) method (for the first measurement model) and a nonparametric Bayesian inference methodology that applies to the second measurement model. In both cases, the analysis of the resulting method is based on a stability estimate for solutions to the McKean-Vlasov PDE.