

2020 DECEMBER

## Hamilton-Jacobi Equations for Inference of Matrix Tensor Products

SPEAKER: Jiaming Xia, University of Pennsylvania

TIME: 3:00 - 4:00 pm, Monday, December 7, 2020

VENUE: Via Zoom (Members of NYU Shanghai Community can join from Room 611 at Pudong campus)

### ABSTRACT

We consider the high-dimensional limit of the free energy associated with the inference problem of finite-rank matrix tensor products. Following the recent approach by J.-C. Mourrat, we compare the limit with the solution to a certain Hamilton-Jacobi equation. In general, we obtain an upper bound for the limit. Under an additional assumption on the nonlinearity in the equation which is determined explicitly by the model, we identify the limit with the solution. Two notions of solutions, weak solutions and viscosity solutions, are considered. This is a joint work with Hong-Bin Chen.

### BIOGRAPHY

Jiaming Xia graduated from NYU Shanghai in 2017 with a B.S. in Honors Mathematics. She is currently a fourth-year PhD student at the University of Pennsylvania, supervised by Prof. Jian Ding and Prof. Robin Pemantle. Her main research interests are in probabilistic models of mathematical physics.



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