



WPI

DEPARTMENT OF MATHEMATICAL SCIENCES

Financial Mathematics Seminar

Ruoyo Wu

Iowa State University

Graphon mean field systems: large population and long time limits

ABSTRACT: We consider heterogeneously interacting diffusive particle systems and their large population limit. The interaction is of mean field type with random weights characterized by an underlying graphon. The limit is given by a graphon particle system consisting of independent but heterogeneous nonlinear diffusions whose probability distributions are fully coupled. A law of large numbers result is established as the system size increases and the underlying graphons converge. Under suitable additional assumptions, we show the exponential ergodicity for the system, establish the uniform in time law of large numbers, and introduce the uniform in time Euler approximation. The precise rate of convergence of the Euler approximation is provided. Based on joint works with Erhan Bayraktar and Suman Chakraborty.

Thursday, March 11, 2021

2:00PM-2:50PM

For Zoom info contact Qingshuo Song

qsong@wpi.edu