

# Financial Mathematics/Engineering Seminar Series

## Gradient estimate of HJB and its applications in Graphon Mean Field Game

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### Abstract

The Graphon Mean Field Game equations consist of a collection of parameterized Hamilton-Jacobi-Bellman equations, and a collection of parameterized Fokker-Planck-Kolmogorov equations coupled through a given graphon. In this talk, we will discuss the sensitivity of the gradient of HJB solutions with respect to the coefficients, which can be used for the solvability of Graphon Mean Field Game equation. It's based on the joint work with Peter Caines, Daniel Ho, Minyi Huang, and Jiamin Jian, see <https://arxiv.org/pdf/2009.12144.pdf>

### About the speaker

Qingshuo Song is currently an associate professor of Worcester Polytechnic Institute. His research interests include stochastic control theory, and its applications to mathematical finance and various engineering problems. Qingshuo received his BSc from Nankai University, MA and PhD from Wayne State University. Prior to joining Worcester Polytechnic Institute, he had been working with City University of Hong Kong (Associate Professor 2010-2018), University of Michigan (PostDoc 2009) and University of Southern California (PostDoc 2006-2009).

### Date

23 June 2021 (Wednesday)

### Time

9:00am Hong Kong SAR

### Zoom link

<https://polyu.hk/KazAb>

### Meeting ID

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### Passcode

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