

Financial Mathematics/Engineering Seminar Series

Approximate viscosity solutions of path-dependent PDEs and Dupire's vertical differentiability

Professor Bruno BOUCHARD

Université Paris-Dauphine - PSL, France

Abstract

We introduce a notion of approximate viscosity solution for a class of nonlinear path-dependent PDEs (PPDEs), and provide some existence, uniqueness, comparaison and stability results. In the case of Hamilton-Jacobi type equations, the approximate viscosity solution is naturally related to the associated optimal control problem. We then provide conditions under which the solution admits a Dupire's vertical derivative and study its regularity. An application to robust hedging under volatility uncertainty will be discussed.

About the speaker

Bruno Bouchard is Professor in the mathematic department Ceremade of Université Paris Dauphine - PSL. He as specialized in the theory of financial markets with frictions or uncertainty, in optimal control, and in numerical probability. He is Associate Editor of Finance and Stochastics, Mathematical Finance, and Journal of Optimization Theory and Application. Since 2016, he has been Vice-President in charge of Research at Université Paris Dauphine - PSL.

Date

26 May 2021 (Wed)
(HK Time)

Time

4:00pm – 5:00pm (HK
Time)

Zoom

<https://cityu.zoom.us/j/96649425323?pwd=Z05HYUMyZlIHZ3JlYRlTA5NmZMM2x6UT09>

Meeting ID:

966 4942 5323

Passcode:

591638