September 10th, 2018
KAP 414
2:00 P.M. – 3:00 P.M.

Renyuan Xu

(University of California, Berkeley)

"A Stochastic Game and Moving Free Boundary Problem"

Abstract: Stochastic control problems are closely related to free boundary problems, where both the underlying fully nonlinear PDEs and the boundaries separating the action and waiting regions are integral parts of the problems.

In this talk, we will propose a class of stochastic N-player games and show how the free boundary problems involve moving boundaries due to the additional game nature. We will provide explicit solutions in terms of Nash equilibria by solving a Skorokhod problem with moving boundaries.

We will use some special cases of the games in light of the classical finite fuel problem to compare game strategies in terms of pooling and sharing. We will also discuss the Nash equilibrium strategies in the framework of controlled ranked SDEs. This talk is based on ajoint work with Xin Guo (UC Berkeley) and Wenpin Tang (UCLA).