

**November 6, 2023**  
**2:00pm-3:00pm**  
**KAP 414**

**Prof. Mete Soner**  
**(Princeton University)**

Eikonal Equations on Wasserstein Spaces

**Abstract:** Mean-field or McKean-Vlasov type optimal control is closely related to the exciting program of mean-field games as initiated by Larry and Lions. Dynamic programming approach to these control problems result in nonlinear partial differential equations on the space of probability measures. These equations not only require the solution to be differentiable but impose further regularity on the derivatives which are being on the dual of the set of measures are also functions themselves. Despite these difficulties, several approaches to characterize the value function of the control problems as the unique appropriate weak solutions have been developed. In this talk, I will first introduce the mean field games through an interesting example of Kuramoto type synchronization. Then, I will extend this example to a general setting and prove uniqueness of for a class of equations that are analogous to classical Eikonal equations. This talk is based on joint works with Rene Carmona and Qinxin Yan of Princeton, and Quentin Cormier of INRIA.

**Zoom Link:** USC Math Finance Colloquium

Time: November 6, 2023 02:00 PM Pacific Time (US and Canada)

Join Zoom Meeting

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