September 23, 2024
2:00pm-3:00pm
KAP 414

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Asymptotics in prediction problems

Abstract: Prediction with expert advice is one of the fundamental problems in online learning and sequential decision making with an exploration-exploitation trade-off. The problem is often analyzed in adversarial settings and has wide-ranging applications, including risk management, security training, and betting markets.

In this talk, we will explore the long time behavior of prediction problems using PDEs. In the first part, we consider a scenario where both the adversary and the forecaster have full observation of what happens. In this case, the asymptotic behavior is described by a nonlinear degenerate parabolic equation. Subsequently, we address a situation where the forecaster only has access to partial information, leading to a PDE defined on Wasserstein space. We will also discuss a comparison principle relevant to this latter equation.

Zoom Link: USC Math Finance Colloquium

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