



復旦大學
FUDAN UNIVERSITY

Applied Math
Ph.D. Seminar

Computation of First Passage of Markov Additive Processes

Speaker: Junxin Zhang (Fudan University)

Time: 2025-03-20, 16:10 to 17:00

Location: Rm 1801, Guanghai East Tower

Advisor: Jungong Xue (Fudan University)

Abstract: In this talk, the computation of the matrix pair describing the first passage time of a Markov additive process is considered. This pair of matrices is characterized as a solution to an integral matrix equation, for which we develop an iterative method. At each step, it requires computing the extremal solution to a mixed linear-quadratic matrix equation, which is accomplished by a quadratically convergent algorithm. When all the jumps are of phase-type distribution, the integral matrix equation can be transformed into a single mixed linear-quadratic matrix equation, and thus the pair of matrices can be computed with quadratic convergence.