

## Abstract

Quasi-stationary distributions (QSDs), representing transient states of a diffusion process admitting an extinction state, arise frequently in applications especially in chemical reactions and population dynamics, but there are only limited rigorous studies on the subject. This talk will present some new results on the existence, uniqueness, and convergence of QSDs along with their connections to the spectrum of the Fokker-Planck operator. Applications to cooperative, competitive, and predator-prey Lotka-Volterra systems will also be discussed.