

Continuous Time Random Walk Limits in Bounded Domains

Ekan Nane

Auburn University, Auburn, AL, USA.

Abstract: In a continuous time random walk (CTRW), each random jump follows a random waiting time. CTRW scaling limits are time-changed processes that model anomalous diffusion. The outer process describes particle jumps, and the non-Markovian inner process (or time change) accounts for waiting times between jumps.

In this talk, I will consider the Cauchy problems for CTRW limit processes in bounded domains. We obtain fractional Cauchy problems or Cauchy problems involving the powers of the generator of the Markov processes. In some special cases we obtain the equivalence of these two types of Cauchy problems. I will also talk about some generalizations to tempered fractional diffusion and ultraslow diffusion.