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# Derivation of confined non-local diffusion equations

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## Abstract

The confinement of non-local diffusion processes raises a lot of questions and has received a growing interest in recent years from both the points of view of stochastic analysis and partial differential equations. In this talk I will present an original approach of this problem which consists in considering confined non-local diffusion equations as the anomalous diffusion limits of kinetic equations set on a spatially bounded domain. We will focus mainly on the fractional Vlasov-Fokker-Planck equation in a smooth convex domain with the specular reflection boundary condition and investigate the long time/small mean-free-path asymptotic behaviour of the solution in order to recover, as a limit, a confined version of the fractional heat equation.

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