

# Eyring-Kramers law for the underdamped Langevin process

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## Abstract

The Eyring-Kramers (EK) law describes the asymptotic of the mean transition time between basins of a potential function when the temperature is low. The EK law was obtained first for the overdamped Langevin process and was recently extended to non-reversible elliptic diffusion processes. However, the scheme of proof relies on Potential theory tools which are ill-defined when considering non-elliptic diffusion process. In this presentation, we will talk about a recent work in collaboration with S. Lee and I. Seo (Seoul National University) where we extend the EK law for the underdamped Langevin process, which is a non-elliptic and non-reversible diffusion process, by implementing a novel approach which circumvents the previous technicalities.