Abstract

In this talk we consider non-classical random walks and investigate asymptotic behavior of the first-passage times over moving boundaries. First, we consider random walks with independent but not necessarily identically distributed increments. Assuming only that the increments satisfy the well-known Lindeberg condition, we investigate the asymptotic behavior of the first-passage times over moving boundaries. Furthermore, we prove that a properly rescaled random walk conditioned to stay above the boundary up to the time $n$, converges, as $n$ tends to infinity, towards the Brownian meander. Earlier such (non-logarithmic) asymptotic results were known only in the i.i.d. case for constant boundaries when the Wiener-Hopf factorization exists.

The talk is based on several works joint with Denis Denisov (University of Manchester, UK) and Vitali Wachtel (University of Augsburg, Germany).