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Explicit computation of second-order moments of importance sampling estimators for fractional Brownian motion

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We study a family of importance sampling estimators of the probability of level crossing when the crossing level is large or the intensity of the noise is small. We develop a method which gives explicitly the asymptotics of the second-order moment. Some of the results apply to fractional Brownian motion, some are more general. The main tools are refined versions of classical large-deviations results.

Keywords: Gaussian processes; importance sampling; large deviations; ruin probabilities