PERSISTENCE OF HERMITE PROCESSES

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The persistence probability \( P(T) \) of a real-valued process is the probability that the process stays below a given value up to time \( T \). It is conjectured that \( P(T) = T^{-(1-H)+o(1)} \) for any \( H \)-self-similar process with stationary increments and continuous paths. Until recently, this had only been rigourously verified for Fractional Brownian Motion [2]. I will discuss the case where the processes under consideration are Hermite processes – close relatives of fractional Brownian motion, albeit in general non-Gaussian. As a tool, I will present a decorrelation inequality, which is reminiscent of Slepian’s lemma for Gaussian processes and may be of independent interest. The talk is largely based on the article [1].

References
