

Minimal surfaces, couplings, and generalizations

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Place **Campus Kirchberg, room B14**

We begin by explaining why stochastic analysis is a natural tool for the study of minimal submanifolds. In this spirit, we then introduce an extrinsic analogue, for minimal surfaces in \mathbb{R}^3 , of the mirror coupling of two Brownian motions and use it to prove geometric results. The first class of results we look at are strong halfspace-type theorems, in which the goal is to prove that pairs of minimal surfaces, under some conditions, must intersect. Second, we study harmonic functions on minimal surfaces. Time permitting, we then discuss the stochastic properties of more general minimal submanifolds and the connection to other geometric structures.