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The 2d continuous parabolic Anderson model

The discrete parabolic Anderson model (PAM) describes the evolution of a branching population in a random potential while the two-dimensional continuous PAM is a singular stochastic PDE that has to be solved with paracontrolled distributions or regularity structures. I will discuss the derivation of the continuous PAM as a universal scaling limit of interacting branching populations, as well as first aspects of its long time behavior.

Based on joint works with Wolfgang Koenig, Joerg Martin, Willem van Zuijlen.