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Stochastic analytic aspects of the two-dimensional delta-Bose gas

This talk will overview new developments of the functional analytic model of the two-dimensional delta-Bose gas on the stochastic description and the role in the martingale characterization of the two-dimensional stochastic heat equation at criticality. One interesting feature of the stochastic description is the construction of multiple independent two-dimensional Brownian motions conditioned to engage in pairwise contact interactions one after another. These conditioned Brownian motions satisfy particular SDEs with supercritical drifts, among several properties at the pathwise and expectation levels.