

# Stochastic quantisation of gauge fields

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## Abstract

Stochastic quantisation is a method introduced in the physics literature by Nelson and Parisi-Wu in order to quantise Euclidean field theories. Its basic principle is to view quantum theories as invariant measures of a Langevin dynamic. In this talk, I will review some recent progress of this method from the side of mathematics, including what it can teach us about the rigorous construction of quantum gauge theories. I will in particular describe how one can construct a nice state space for the 3-dimensional quantum Yang-Mills theory and an associated Markov process for which the Yang-Mills measure is conjecturally invariant. The talk is based on joint work with Ajay Chandra, Martin Hairer, and Hao Shen.