

1150-60-230

Ajay Chandra, Ilya Chevyrev, Martin Hairer and **Hao Shen*** (pkushenhao@gmail.com),
309 West Washington Avenue Apt 601, Madison, WI 53703. *Stochastic quantization of gauge theories.*

We discuss the construction of a stochastic dynamic associated to the (formal) Yang-Mills measure, in 2 or 3 spatial dimensions. The proof relies on Hairer's theory of regularity structures, together with some new insights on the interplay between gauge symmetry, regularization and renormalization. We also discuss the construction of the space of gauge orbits in 2D, and define the dynamical Wilson loop observables. Based on [Shen, arXiv:1801.04596] and ongoing joint work with Chandra, Chevyrev and Hairer. (Received July 10, 2019)