

THE YANG-MILLS MEASURE ON SURFACES VIA MORSE THEORY

Nguyen-Viet Dang

ABSTRACT

We report on joint work in progress with Guedes–Bonthonneau, Chhaibi, Rivière, To. On a Riemannian surface, we construct a Gibbs measure on the space of distributional connections, the “2 dimensional Yang Mills measure”. We rely on some Morse gradient flow to fix the gauge on the space of connections and we will discuss the analysis of cohomological equations with random driving force. We show how to recover the formulas for 2D Yang Mills theory as can be found in the works of Witten, Driver, Sengupta and Lévy. Finally, we explain how our measure relates to the symplectic volume of Atiyah–Bott–Goldman on the moduli space of flat connections.