

Speaker: Martin R. Zirnbauer

Title: A Tale of Two Sigma Models

Abstract: How can non-Abelian fields avoid the fate of mass generation in two dimensions, where the Goldstone mechanism does not take effect? Motivated by this old question, we tell the tale of two 2D nonlinear sigma models at topological angle equal to π : the $O(3)$ model as an effective field theory of critical antiferromagnetic quantum spin chains, and the Pruisken model for the integer quantum Hall transition. We argue that both models are infrared massless by a mechanism not appreciated so far in the literature. The same mechanism is at work for phenomena of ergodicity breaking in space dimensions higher than two.