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**Speaker:** Timothy Nguyen  
Michigan State University

Thursday, May 5, 2016

2:00 PM

258 Hurley Hall

**Title:** Quantum Yang-Mills Theory in Two Dimensions: Exact vs Perturbative

**Abstract:**

The conventional perturbative approach and the nonperturbative lattice approach are the two standard yet very distinct formulations of quantum gauge theories. Since in dimension two, Yang-Mills theory has a rigorous continuum limit of the lattice formulation, it makes sense to ask whether the two approaches are consistent (i.e. do perturbative computations yield asymptotic expansions for the nonperturbative ones?). In this talk, we discuss work in progress for answering this fundamental yet unaddressed question, which draws from a wide range of mathematics and topics in quantum field theory including stochastic analysis, the Batalin-Vilkovisky approach to quantization, and the homotopy invariance properties of iterated integrals in the evaluation of Wilson loops.