

**Stony Brook University
The Graduate School**

Doctoral Defense Announcement

Abstract

Topological Quantum Field Theory in Dimension Four

By

Jin-Cheng Guu

The focus of my dissertation is on topological quantum field theories in dimension 4, with a specific emphasis on the Crane-Yetter model. This model is a generalization of the Witten-Reshetikhin-Turaev model, which is conjecturally equivalent to the quantum Chern-Simons. In my talk, I will explore recent developments in this field and discuss my own contributions, which include higher invariants for surfaces, an application to tensor categories, and demonstrating the equivalence between the Crane-Yetter model and the Turaev shadow model.

Date: May 8, 2023

Time: 11:00-12:00

Place: Math Tower, P131

Program: Mathematics

Dissertation Advisor: Alexander Kirillov