



XIAMEN UNIVERSITY MALAYSIA

廈門大學 馬來西亞分校

Research Talk

CRANE-YETTER, VERLINDE FORMULA, AND THE Y -PRODUCT

March 6, 2023 (Monday), 3:30–4:30 pm Room A4#G03



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Research interests: Quantum topology, topological quantum field theory, skein theory, modular tensor categories, categorification, knot theory.

SPEAKER INTRODUCTION

Dr. Ying Hong Tham was graduated from Stony Brook University in 2021, and prior to that he get his Bachelor Sc. in Mathematics with Honors at Stanford University. Actually, Dr. Ying Hong Tham is a Postdoc at the University of Hamburg in Germany.

ABSTRACT

The Crane-Yetter invariant is a 4-dimensional Topological Quantum Field Theory that, in particular, computes the signature of 4-manifolds. It depends on a choice of a modular tensor category C . The Verlinde algebra associated to C can be recovered as the state space associated to the solid torus. We give a general topological construction, the Y -product, that yields the fusion and convolution product, and show that they are related by a 2-handle attachment, thus providing a '4-dimensional proof' of the Verlinde formula.