THE HONG KONG UNIVERSITY OF SCIENCE & TECHNOLOGY

Department of Mathematics

MATHEMATICS COLLOQUIUM

Forty years of quantum topology

By

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<u>Abstract</u>

Quantum topology is the study of knots and 3-manifolds using ideas inspired by quantum field theory. It was sparked by the 1984 discovery by Vaughan Jones of what is now called the Jones polynomial – a powerful invariant of knots and links – and was then cemented as a field by work of Atiyah, Segal, and Witten in the late 80's, which cast the Jones polynomial in the framework of the Chern-Simons QFT. Quantum topology has been the driving force for countless newly discovered structures in algebra, geometry, and topology in the past 40 years, including the development of the notion of higher categories and the cobordism hypothesis.

In this colloquium, I will give a gentle historical overview of many key structures in quantum topology, and I will briefly touch on some of my own work, which has given an answer to the question of how to extend the Jones polynomial to apply to knots and links in arbitrary 3-manifolds.

Date : 1 March 2024 (Fri)
Time : 3:00pm – 4:00pm
Venue : Lecture Theater F (Lifts 25/26)

All Are Welcome!