SCMS Seminar

An Introduction to the Mathematics of Topological Quantum Computation

Speaker: Eric Rowell

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Time: 16:00-17:00, Friday, August 10th, 2018

Venue: Room 2201, East Guanghua Tower (Main), Fudan University

Abstract: Two-dimensional topological states of matter offer a route to quantum computation that would be topologically protected against the enemy of the quantum circuit model: decoherence. In this talk I will give a panorama of this subject from a mathematician's perspective. Specifically, we will look at some of the advantages and challenges of this model with an emphasis on the applications of different fields of mathematics, including low-dimensional topology, category theory, representation theory and number theory. I will discuss several foundational problems in computer science and condensed matter physics, their mathematical formulations and some recent results we have obtained.

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