

Equivariant TQFT as a tool for classifying topological quantum computing schemes

Eric Samperton

Purdue University

Current developments suggest that topological quantum computers based on $(2+1)$ -dimensional Reshetikhin-Turaev TQFTs are “weak” precisely when the modular fusion categories they’re based on are sufficiently close to being “abelian.” I’ll make this precise and, while doing so, highlight the role that equivariant TQFTs play as both a technical tool and a source of intuition. Portions of this talk will be based on recent works with Nicolas Bridges, Colleen Delaney and Clément Maria.

In Special Session 29 on Interactions of Equivariant Bordism and Low Dimensional Topology at the Mathematical Congress of the Americas 2025.