

CANONICAL LOCAL TO GLOBAL EXTENSIONS OF TOPOLOGICAL FIELD THEORIES

Speaker: Adela (YiYu) Zhang
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Time: Wed, Jan. 14, 14:00-15:00

Venue: Room 106, SCMS

Abstract: An E_1 -Frobenius algebra in a symmetric monoidal infinity-category is a dualizable E_1 algebra A together with an S^1 -cyclic trace that exhibits a self duality of A . Examples include the cochain complex of any closed oriented manifold. By work of Barkan and Steinebrunner, every E_1 -Frobenius algebra in C defines a 2-d open TFT with values in C , which are symmetric monoidal functors from the open bordism category on disks to C . In joint work with Barkan and Steinebrunner, we show that any open TFT F extends canonically to an open-closed TFT whose value at the circle is the THH of the E_1 -Frobenius algebra associated to F . As a corollary, we obtain an action of the moduli spaces of surfaces on the THH of E_1 -Frobenius algebras. This provides a space level refinement of previous work of Costello (over \mathbb{Q}) and Wahl (over \mathbb{Z}). Analogously, in work with Andrea Bianchi, we prove the existence of canonical local to global extensions of TFTs associated with E_∞ -Frobenius algebras and determine the space of universal natural operations on their factorization homology.

Adela (YiYu) Zhang is a Marie Curie postdoctoral fellow at the Centre for Geometry and Topology, University of Copenhagen. She received her Ph.D. at MIT in 2023 under the supervision of Haynes Miller and Jeremy Hahn. She is broadly interested in stable homotopy theory and homotopic methods in geometric topology.