Colloquium

UNIVERSITY OF NOTRE DAME
Department of Mathematics

Speaker: John Francis
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Monday, January 23, 2012
4:15 PM
117 Hayes-Healy Hall

Title: Factorization homology of topological manifolds

Abstract:

Factorization homology, or the topological chiral homology of Lurie, is a homology theory for manifolds conceived as a topological analogue of Beilinson & Drinfeld's algebraic theory of factorization algebras. I'll describe an axiomatic characterization of factorization homology, à la Eilenberg-Steenrod. The excision property of factorization homology allows one to see factorization homology as a simultaneous generalization of singular homology, the cohomology of mapping spaces, and Hochschild homology. Excision for factorization homology also facilitates a short proof of the nonabelian Poincaré duality of Salvatore and Lurie; this proof generalizes to give a nonabelian Poincaré duality for stratified manifolds, joint work with David Ayala & Hiro Tanaka. Finally, I'll outline work in progress with Kevin Costello, expressing quantum invariants of knots and 3-manifolds in terms of factorization homology.