

Algebra/Topology Seminar

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FINITE-TYPE INVARIANTS AND TAYLOR TOWERS FOR SPACES OF KNOTS AND LINKS

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1:15 p.m. in ES-143

ABSTRACT. Finite-type invariants (a.k.a. Vassiliev invariants) are an important class of knot invariants because they conjecturally distinguish any pair of knots. The Taylor tower for the space of knots is a sequence of spaces which comes from the functor calculus of Goodwillie and Weiss. This tower tries to approximate the space of knots, much like the Taylor series of a smooth function often approximates that function. In joint work with Budney, Conant, and Sinha, we established that the tower has an abelian group operation compatible with stacking of long knots. This allowed us to show that the tower yields additive finite-type invariants. We conjecture that every additive finite-type invariant over the integers factor through this tower. This work is related to recent joint work with F. Cohen, Komendarczyk, and Shonkwiler on long links.