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Title: The Goldman-Turaev Lie bialgebra of loops on a surface

Abstract: The Goldman-Turaev Lie bialgebra is a curious algebraic structure whose elements are homotopy classes of loops on an oriented surface, with a Lie bracket and co-bracket which "measure" intersections and self-intersections of loops. I will explain how the Goldman-Turaev operations are induced by tangle operations as "connecting homomorphisms", and how to use this fact to construct a universal quantum invariant for the Goldman-Turaev Lie bialgebra from the Kontsevich integral.

This talk is based on joint work with Dror Bar-Natan, Tamara Hogan, Jessica Liu, and Nancy Scherich.