Abstract

The Grothendieck-Teichmuller group was identified by Kontsevich (motivated by work by Tamarkin), as the group of symmetries of deformation quantization. Based on this, Kontsevich conjectured that the GT group also acts on the “moduli space” of quantum field theories. My talk will supply support for this conjecture.

I shall begin by describing Weinstein’s symplectic category with objects given by symplectic manifolds, and morphisms given by lagrangian correspondences between the source and target. A field theory can be interpreted as a functor that factors through this category.

I shall proceed to describe a natural stabilization of the symplectic category that yields a category enriched over modules on a certain commutative ring spectrum. The stable symplectic category supports a canonical fiber functor F, whose Motivic Galois group, Aut(F), can be identified with the abelian quotient of the Grothendieck-Teichmuller group. If time permits, we will explore several related issues. This is joint work with Jack Morava.