

BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

LECTURES ON DERIVED STACKS

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CCDS 365, Mar 6, 2024, 2:45-3:45pm & 4-5pm

Tea: 3:45pm in Room 365

Abstract:

Part 1: The derived stack of moduli of an A-infinity category

Let A be an A-infinity algebra, bounded below in degree (for example, a finite-dimensional differential graded algebra). I explain my construction (in joint work with Behrend) of the derived stack of deformations of A , and a new construction, very similar in form, for the derived stack of the idempotent completion of A . A derived stack may be represented as a simplicial derived scheme, and these two constructions associate to A the derived Maurer-Cartan locus of $H^*(K^*, A)$, where K^* is a suitable cosimplicial space.

Part 2: A symplectic form on the derived stack of perfect complexes

Toën and Vezzosi have constructed a symplectic form on the derived stack of perfect complexes by generalizing the construction of the Chern character. They do not give a formula for their form, since its existence is proved by obstruction theory (the cobordism hypothesis in dimension 1). An alternative approach to the Chern character is via the negative cyclic chain complex, which gives explicit formulas. We explain how this leads to a formula for the symplectic form.

See <http://math.bu.edu/research/geom/seminar.html> or contact Yu-Shen Lin (yslin@bu.edu) or Brian Williams (bwill22@bu.edu) for more information.