Generalized Cohomological Field Theories in the Higher Order Formalism

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Abstract: In the classical Batalin—Vilkovisky formalism, the BV operator is a differential operator of order two with respect to a commutative product; in the differential graded setting, it is known that if the BV operator is homotopically trivial, then there is a genus zero level cohomological field theory induced on homology. In this talk, we will explore generalisations of (non-commutative) Batalin–Vilkovisky algebras for differential operators of arbitrary order, showing that homotopically trivial operators of higher order also lead to interesting algebraic structures on the homology. This is joint work with V. Dotsenko and S. Shadrin.