

1054-55-210

Gabriel C. Drummond-Cole* (gabriel.c.drummond.cole@gmail.com), Mathematics Department, 365 Fifth Avenue, Room 4208, New York, NY 10016-4309. *Homotopy BV and Deligne-Mumford space*. Preliminary report.

There is a construction (due to Barannikov-Kontsevich-Manin) which begins with a differential BV algebra A satisfying a $d - \bar{d}$ lemma and produces a hypercommutative algebra structure (that is, an action of the homology of the genus zero Deligne-Mumford moduli space) on the homology of A . Building on a formality theorem of Terilla, we generalize this construction to a chain level version, and explain how the $d - \bar{d}$ lemma hypothesis is unnecessary if a version of noncommutative Hodge-to-de Rham degeneration is assumed. The tools used include the theory of homotopy operads; these tools put the relationship between dBV algebras and actions of the Deligne-Mumford operads space into perspective, and are related to a topological picture underlying the algebra. (Received September 15, 2009)