BOSTON UNIVERSITY GEOMETRY AND PHYSICS SEMINAR

LIE THEORETIC PERSPECTIVE OF FORMAL NEIGHBORHOODS

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Math/Computer Science, Room 148
111 Cummington Street, Boston

Tea: 3:45pm in Room MCS 144

Abstract: Kapranov showed that the shifted tangent bundle of a complex manifold is a homotopy Lie algebra of which the binary bracket is given by the Atiyah class. This homotopy Lie algebra is the Koszul dual of the jet bundle, or equivalently, the structure sheaf of the formal neighborhood of the diagonal embedding $X \to X \times X$. This Lie theoretic interpretation explains the mystery of the appearance of certain formal power series in both Lie theory and the definition of the Todd class, which is a key ingredient of the Hirzebruch-Riemann-Roch formula. In this talk, I will generalize Kapranovs result to the case of an arbitrary closed embedding of complex manifold. There turns out to be a natural definition of Dolbeault complex of the formal neighborhood of such embedding, which I call the Dolbeault dga. The Koszul dual of this dga is a homotopy Lie algebra structure on the shifted normal bundle together with a homotopy anchor map, i.e., it is a homotopy Lie algebroid.

See `http://math.bu.edu/research/geom/seminar.html` or contact Ryan Grady *regrady@math.bu.edu* for more information.