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Algebraic structures on Hochschild cohomology of an orbifold

In this talk, we study algebraic structures on the Hochschild cohomology of the convolution algebra over a proper etale groupoid G.

We show that the Gerstenhaber bracket defines a twisted Schouten–Nijenhuis bracket between multivector fields on the corresponding inertia orbifold $\hat{X}$ of $X = G_0/G$. This leads an interesting connection to symplectic reflection algebra.

We will define a de Rham model for the Chen–Ruan orbifold cohomology, and explain its relations to the ring structure on the Hochschild cohomology.

Joint work with G. Halbout, N. Neumaier, M. Pflaum, H. Posthuma and H. Tseng.