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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.