Title: Comultiplications on cohomological Hall algebras and vertex algebras

Speakers: Gufang Zhao

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Abstract: In this talk we will explore a factorization structure of the cohmological Hall algebra (COHA) of a quiver, and the occurrence of the same structure from Beilinson-Drinfeld Grassmannians. In particular, in collaboration with Mirkovic and Yang, we identified a Drinfeld-type comultiplication on the COHA with the factorizable line bundle on the zastava space. I will discuss one aspect of a recent joint work with Rapcak, Soibelman, and Yang, which can be reviewed as a construction of a vertex algebra from the standard comultiplication on the double COHA of the Jordan quiver. The standard comultiplication differs from the Drinfeld comultiplication by an S-operator. The relevant vertex algebra is the VOA at the corner of Rapcak-Gaiotto.

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