

DERIVED REPRESENTATION SCHEMES AND DERIVED SCHUR ALGEBRAS

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Time: Fri, Oct. 23, 11:00-12:00

Venue: Gu Lecture Hall, SCMS

Abstract: For an associative algebra, its n -dimensional representations are represented by an affine scheme, called the representation scheme. About 15 years ago, Berest-Khachatryan-Ramados showed that the representation functor has a derived functor, and the n -dimensional derived representations of a DG algebra are represented by the so-called derived representation scheme. In particular, they showed that the classical trace map, now on the derived level, naturally maps the cyclic homology of the algebra to homology of its derived representation scheme. In this talk, we will discuss a “nonabelian” generalization of the above result. More precisely, we show that for a DG algebra, its “derived” multiplicative laws exist, and are represented by the “derived” Schur algebra; moreover, the derived functions on the derived Schur algebra, which we call the higher order cyclic complex of the algebra, are naturally mapped to the DG algebra of the derived representation schemes via the higher order trace map (Joint work with Xiaojun Chen)