ODTU-Bilkent Algebraic Geometry

Kapranov's higher-dimensional Langlands reciprocity principle for GL(n)

By

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Abstract: Abelian class field theory, which describes (including the arithmetic of) all abelian extensions of local and global fields using algebraic and analytic objects related to the ground field via Artin reciprocity laws has undergone two generalizations. The first one, which is still largely conjectural, is the non-abelian class field theory of Langlands, is an extreme generalization of the abelian class field theory, describes the whole absolute Galois groups of local and global fields using automorphic objects related to the ground field via the celebrated Langlands reciprocity principles, (and more generally via functoriality principles). The second generalization is the higher-dimensional class field theory of Kato and Parshin, which describes (including the arithmetic of) all abelian extensions of higher-dimensional local fields and higher-dimensional global fields (function fields of schemes of finite type over $\mathbb{Z}$) using this time K-groups of objects related to the ground field via Kato-Parshin reciprocity laws.
So it is a very natural question to ask the possibility to construct higher-dimensional Langlands reciprocity principle. In this direction, as an answer to this question, Kapranov proposed a conjectural framework for higher-dimensional Langlands reciprocity principle for GL(n). In this talk, we plan to sketch this conjectural framework of Kapranov (where we plan to focus on the local case only).

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Place: Zoom

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