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Representation and Number Theory Seminar

Derived Fourier analysis and modularity of higher theta series

by

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Abstract:

Classical theta series are generating functions for counting vectors in a lattice. They turn out to have a miraculous symmetry property called modularity, which is proved by some simple (by modern standards) Fourier analysis. Kudla discovered analogs of theta series in arithmetic geometry, called arithmetic theta series, which are generating functions composed of algebraic cycles in moduli spaces. These are also expected to enjoy modularity, but this is unknown in most cases and has been very difficult in the known cases. In joint work with Zhiwei Yun and Wei Zhang, we give a proof of a modularity property for arithmetic theta series in the function field context, which works in total generality. The argument is built upon a sheaf-cycle correspondence generalizing the classical sheaf-function correspondence, plus a theory of Fourier analysis on derived vector spaces.

Date : 15 November 2022 (Tuesday)
Time : 9:00am – 10:00am (Hong Kong SAR)
Zoom link :
https://cuhk.zoom.us/j/97838822137?pwd=ZTVvSC9abmNjR3RCcS9FTzJNTVhXdz09
Meeting ID : 978 3882 2137
Passcode : sesame

All are Welcome