Ben-Zvi, David; Nadler, David; Preygel, Anatoly

A spectral incarnation of affine character sheaves. (English) Zbl 1439.20004

Summary: We present a Langlands dual realization of the putative category of affine character sheaves. Namely, we calculate the categorical center and trace (also known as the Drinfeld center and trace, or categorical Hochschild cohomology and homology) of the affine Hecke category starting from its spectral presentation. The resulting categories comprise coherent sheaves on the commuting stack of local systems on the two-torus satisfying prescribed support conditions, in particular singular support conditions, which appear in recent advances in the geometric Langlands program. The key technical tools in our arguments are a new descent theory for coherent sheaves or $\mathcal{D}$-modules with prescribed singular support and the theory of integral transforms for coherent sheaves developed in the companion paper by the author et al. [“Integral transforms for coherent sheaves”, J. Eur. Math. Soc. (JEMS) 19, No. 12, 3763-3812 (2017; Zbl 1402.14020)].

MSC:
20C08 Hecke algebras and their representations
14D24 Geometric Langlands program (algebro-geometric aspects)

Keywords:
geometric Langlands program; affine Hecke algebra; character sheaves

Full Text: DOI arXiv

References:


This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.