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Exotic t-structures and actions of quantum affine algebras. (English) Zbl 1471.14038
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Summary: We explain how quantum affine algebra actions can be used to systematically construct “exotic” t-structures. The main idea, roughly speaking, is to take advantage of the two different descriptions of quantum affine algebras, the Drinfeld-Jimbo and the Kac-Moody realizations.

Our main application is to obtain exotic t-structures on certain convolution varieties defined using the Beilinson-Drinfeld and affine Grassmannians. These varieties play an important role in the geometric Langlands program, knot homology constructions, K-theoretic geometric Satake and the coherent Satake category. As a special case we also recover the exotic t-structures of *R. Bezrukavnikov* and *I. Mirković* [*Ann. Math. (2)* 178, No. 3, 835–919 (2013; [Zbl 1293.17021](#))] on the (Grothendieck-)Springer resolution in type A.

MSC:

14F08 Derived categories of sheaves, dg categories, and related constructions Cited in 1 Document
in algebraic geometry

Keywords:

t-structures; coherent sheaves; quantum affine algebras

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