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Quiver varieties and t -analogs of q -characters of quantum affine algebras. (English)

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Summary: We consider a specialization of an untwisted quantum affine algebra of type ADE at a nonzero complex number, which may or may not be a root of unity. The Grothendieck ring of its finite dimensional representations has two bases, simple modules and standard modules. We identify entries of the transition matrix with special values of “computable” polynomials, similar to Kazhdan-Lusztig polynomials. At the same time we “compute” q -characters for all simple modules. The result is based on ”computations” of Betti numbers of graded/cyclic quiver varieties.

MSC:

17B37 Quantum groups (quantized enveloping algebras) and related deformations

33D80 Connections of basic hypergeometric functions with quantum groups, Chevalley groups, p -adic groups, Hecke algebras, and related topics

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