

Chari, Vyjayanthi; Pressley, Andrew

Integrable and Weyl modules for quantum affine \mathfrak{sl}_2 . (English) [Zbl 1034.17008](#)

Pressley, Andrew (ed.), Quantum groups and Lie theory. Lectures given at the Durham symposium on quantum groups, Durham, UK, July 19–29, 1999. Cambridge: Cambridge University Press (ISBN 0-521-01040-3/pbk). Lond. Math. Soc. Lect. Note Ser. 290, 48-62 (2001).

The authors study some maximal finite-dimensional quotients $W_q(\pi)$ of integrable modules $W_q(m)$ generated by extremal vectors of weight m over the quantum affine \mathfrak{sl}_2 . They show that all $W_q(\pi)$ have a classical limit and use this to prove that their dimensions are 2^m . It is also shown that all simple finite-dimensional modules arise as simple quotients of $W_q(\pi)$. The integrable modules $W_q(m)$ are realized as the spaces of invariants of an action of the Hecke algebra \mathcal{H}_m on the tensor product $(V \otimes \mathbb{C}(q)[t, t^{-1}])^{\otimes m}$, where V is a two-dimensional vector space over $\mathbb{C}(q)$. In the last section the authors formulate some conjectures on how the results of the present paper can be extended to the general case.

For the entire collection see [\[Zbl 0980.00028\]](#).

Reviewer: [Volodymyr Mazorchuk \(Uppsala\)](#)

MSC:

- [17B37](#) Quantum groups (quantized enveloping algebras) and related deformations
- [17B10](#) Representations of Lie algebras and Lie superalgebras, algebraic theory (weights)

Cited in **1** Review
Cited in **10** Documents

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quantum group; affine algebra; integrable module; Weyl module

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