Feigin, B.; Jimbo, M.; Mukhin, E.
Combinatorics of vertex operators and deformed \( W \)-algebra of type \( D(2, 1; \alpha) \). (English) 

Summary: We consider sets of screening operators with fermionic screening currents. We study sums of vertex operators which formally commute with the screening operators assuming that each vertex operator has rational contractions with all screening currents with only simple poles. We develop and use the method of \( q q \)-characters which are combinatorial objects described in terms of deformed Cartan matrix. We show that each \( q q \)-character gives rise to a sum of vertex operators commuting with screening operators and describe ways to understand the sum in the case it is infinite.

We discuss combinatorics of the \( q q \)-characters and their relation to the \( q \)-characters of representations of quantum groups.

We provide a number of explicit examples of the \( q q \)-characters with the emphasis on the case of \( D(2, 1; \alpha) \). We describe a relationship of the examples to various integrals of motion.

MSC:
17Bxx Lie algebras and Lie superalgebras
81Rxx Groups and algebras in quantum theory
81Txx Quantum field theory; related classical field theories

Keywords:
\( q q \)-characters; \( q \)-characters; vertex operators; screening operators

Full Text: DOI

References:


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\(((1, 1); (x)\) via the Weyl groupoid, RIMS Kôkyûroku Bessatsu, B8, 171-216 (2008) · Zbl 1175.17005


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