

Representation Theory of W-algebras

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Abstract — The W-algebras are a special kind of vertex algebras, which can be viewed as a generalization of the Virasoro algebra. In this talk we discuss their representation theory. As a consequence we establish the conjecture of Frenkel, Kac and Wakimoto about the existence of the modular invariant representations of W-algebras. In fact, we determine the character of each irreducible highest weight representation of W-algebras (in terms of Kazhdan-Lusztig polynomials). We also present some results on the generalized W-algebras and the superconformal algebras.
