Title: Coinvariants of one-dimensional lattice VOAs.

Let $\Gamma \subset \mathbb{R}^n$ be a lattice. The correspondent lattice Vertex Operator Algebra $\mathfrak{A}_\Gamma$ is the algebra generated by vertex operators $V(\alpha, z)$ with $\alpha \in \Gamma$. For example, if $\Gamma = \mathbb{Z} \subset \mathbb{R}$ then $\mathfrak{A}_\Gamma$ is isomorphic to the infinite-dimensional Clifford algebra. If Γ is the weight lattice for a semisimple Lie algebra $\mathfrak{g}$ then $\mathfrak{A}_\Gamma$ have the same representations as the affine Lie algebra $\widehat{\mathfrak{g}}$ at level one.

Notion of spaces of coinvariants is motivated by G.Segal's construction of modular functor. Namely, let $\mathfrak{g}$ be a semisimple Lie algebra and let C be a complex curve. Then the coordinate ring of the moduli space of holomorphic $\mathfrak{g}$-bundles on C can be described using spaces of coinvariants for the affine Lie algebra $\widehat{\mathfrak{g}}$. And to apply this construction to line bundles ($\mathfrak{g} = \mathfrak{g}l_1$) one should extend the Heisenberg Lie algebra $\widehat{\mathfrak{g}l_1}$ to one-dimensional lattice VOAs.

This talk is about spaces of coinvariants for one-dimensional lattice VOAs. Namely, two character formulas are proposed. First of them is a formula of widely used fermionic type. The other (bosonic) one is a q-analog of the Verlinde formula for dimensions. Along the way a fermionic formula for supernomial coefficients is obtained.

Talk is based on the paper

B. L. Feigin, S. A. Loktev, I. Yu. Tipunin, *Coinvariants for Lattice VOAs and q-Supernomial Coefficients*, math.QA/0107003