The quantum group structure of a conformal field theory (WZW)

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Abstract. We present explicit free field realizations of simple affine current algebras.

We examine differential operator realizations of simple Lie algebras using Gauss decompositions.

We quantize the realizations by translating into free fields, furthermore free field realizations of screening currents of both kinds are discussed.

In appendices we explain in some detail the quantum group structure of conformal field theory using screened vertex operators.

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Conclusion

We express the quantum group generators in terms of those of chiral algebra of a conformal field theory (WZW).

Vector spaces constructed in terms of the so-called screened vertex operators are the modules on which the quantum group of a conformal field theory acts, these modules are directly related to the highest weight modules of the chiral algebra.

We have presented a generalized Wakimoto free field generalization of affine Lie algebras by a Gauss decomposition. We have

discussed the screening currents of first and second kind.