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Anton Zeitlin* (anton.zeitlin@yale.edu), 10 Hillhouse Avenue, Yale University, 442 Dunham Lab, Department of Mathematics, New Haven, CT 06511, and **Igor Frenkel** (igor.frenkel@yale.edu). *Title: Braided Vertex Algebras, Semi-infinite Cohomology and Quantum Group.*

We construct the quantum group $SL_q(2)$ via semi-infinite cohomology of the Virasoro algebra, acting in the tensor product of two braided vertex operator algebras (VOA), such that the total central charge is equal to 26. The associative structure on cohomology, which reproduces the multiplication in quantum group, is given by the Lian-Zuckerman associative product. We explicitly construct four cohomology classes corresponding to the four generators of $SL_q(2)$ and check their relations. (Received January 20, 2009)