

Quantum cohomology of Grassmannians and affine algebras

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Abstract

We discuss a new approach to the quantum cohomology ring of a Grassmannian. This ring is also isomorphic to the Verlinde algebra. We present a formula for the quantum product of Schubert classes (3-point Gromov-Witten invariants), or, equivalently, for the fusion product in $sl(k)$. The main combinatorial tool is a cylindric analogue of Young tableaux. The formula immediately implies several new identities and symmetries for the Gromov-Witten invariants of a Grassmannian.