Quantum cohomology of Grassmannians

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Abstract

The (small) quantum cohomology ring of a Grassmann variety encodes the enumerative geometry of rational curves in this variety. By using degeneracy loci formulas on quot schemes, Bertram has proved quantum Pieri and Giambelli formulas which give a complete description of the quantum cohomology ring. In this talk I will present elementary new proofs of these results which rely only on the definition of Gromov-Witten invariants and standard facts about the usual cohomology of Grassmannians. I will also report on work in progress with Andrew Kresch and Harry Tamvakis towards obtaining a quantum Littlewood-Richardson rule for the genus zero Gromov-Witten invariants on Grassmannians.