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An identity involving symmetric polynomials and the geometry of Lagrangian Grassmannians. (English) Zbl 1444.14088

Summary: We first prove an identity involving symmetric polynomials. This identity leads us into exploring the geometry of Lagrangian Grassmannians. As an insight applications, we obtain a formula for the integral over the Lagrangian Grassmannian of a characteristic class of the tautological sub-bundle. Moreover, a relation to that over the ordinary Grassmannian and its application to the degree formula for the Lagrangian Grassmannian are given. Finally, we present further applications to the computation of Schubert structure constants and three-point, degree 1, genus 0 Gromov-Witten invariants of the Lagrangian Grassmannian. Some examples together with explicit computations are presented.

MSC:
14M15 Grassmannians, Schubert varieties, flag manifolds
14N35 Gromov-Witten invariants, quantum cohomology, Gopakumar-Vafa invariants, Donaldson-Thomas invariants (algebro-geometric aspects)
05E05 Symmetric functions and generalizations
55N91 Equivariant homology and cohomology in algebraic topology

Keywords:
equivariant cohomology; Gromov-Witten invariant; Lagrangian Grassmannian; interpolation; Schubert structure constant; symmetric polynomial; quantum cohomology

Full Text: DOI

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