Green, Mark L.

The period map for hypersurface sections of high degree of an arbitrary variety. (English)
Zbl 0588.14004
Compos. Math. 55, 135-156 (1985).

The local Torelli problem is the question of deciding when the Hodge structure separates points in the local moduli space of a projective variety. Assuming the local moduli space is smooth, Griffith's criterion shows that the local Torelli problem is equivalent to a multiplicative problem in cohomology which could be affirmatively answered in many examples, e.g. smooth projective hypersurfaces. In the paper under review the author shows that the local Torelli problem also holds for sufficiently ample smooth divisors on a smooth complete algebraic variety. More difficult is the weak global Torelli problem, i.e. the question of deciding when the period map is generically injective. The basic idea to get a hand on this problem is due to Griffith and roughly says it suffices to check that the infinitesimal variation of Hodge structure is generically injective. Using this concept *R. Donagi* [Compos. Math. 50, 325–353 (1983; Zbl 0598.14007)] recently succeeded in settling the case of almost all smooth projective hypersurfaces. The author can generalize Donagi's methods to prove a weak global Torelli theorem or sufficiently ample divisors on a smooth complete algebraic variety with very ample canonical divisor.

Reviewer: U.Karras

MSC:

14C30 Transcendental methods, Hodge theory (algebro-geometric aspects)
14C20 Divisors, linear systems, invertible sheaves
14D20 Algebraic moduli problems, moduli of vector bundles

Keywords:

local Torelli problem; Hodge structure; local moduli space; weak global Torelli problem; period map; infinitesimal variation of Hodge structure; ample divisors

Full Text: Numdam EuDML

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