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Hyperbolicity and uniformity of varieties of log general type. (English) Zbl 07487067

Summary: Projective varieties with ample cotangent bundle satisfy many notions of hyperbolicity, and one goal of this paper is to discuss generalizations to quasi-projective varieties. A major hurdle is that the naive generalization is false – the log cotangent bundle is never ample. Instead, we define a notion called almost ample that roughly asks that it is as positive as possible. We show that all subvarieties of a quasi-projective variety with almost ample log cotangent bundle are of log general type. In addition, if one assumes globally generated then we obtain that such varieties contain finitely many integral points. In another direction, we show that the Lang-Vojta conjecture implies the number of stably integral points on curves of log general type, and surfaces of log general type with almost ample log cotangent sheaf are uniformly bounded.

MSC:

14A21 Logarithmic algebraic geometry, log schemes
14E30 Minimal model program (Mori theory, extremal rays)
32Q45 Hyperbolic and Kobayashi hyperbolic manifolds

Full Text: DOI