
LJUDMILA KAMENOVA, Stony Brook University

Hyperbolicity in hyperkaehler geometry

The Kobayashi pseudometric on a complex manifold M is the maximal pseudometric such that any holomorphic map from the Poincare disk to M is distance-decreasing. Kobayashi conjectured that this pseudometric vanishes on Calabi-Yau manifolds, and in particular, Calabi-Yau manifolds are Kobayashi non-hyperbolic. Using ergodicity of complex structures, together with S. Lu and M. Verbitsky we prove this conjecture for all K3 surfaces and for most classes of hyperkaehler manifolds. In the talk I will also give the algebraic version of hyperbolicity. Together with M. Verbitsky we prove that projective hyperkaehler manifolds with Picard rank at least two are algebraically non-hyperbolic.