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Fiche détaillée

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Compact Kähler 3-manifolds without non-trivial subvarieties

Frédéric Campana¹, Jean-Pierre Demailly², Misha Verbitsky³
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We prove that any compact Kähler 3-dimensional manifold which has no non-trivial complex subvarieties is a torus. This is a very special case of a general conjecture on the structure of 'simple manifolds', central in the bimeromorphic classification of compact Kähler manifolds. The proof follows from the Brunella pseudo-effectivity theorem, combined with fundamental results of Siu and of the second author on the Lelong numbers of closed positive (1,1)-currents, and with a version of the hard Lefschetz theorem for pseudo-effective line bundles, due to Takegoshi and Demailly-Peternell-Schneider. In a similar vein, we show that a normal compact and Kähler 3-dimensional analytic space with terminal singularities and nef canonical bundle is a cyclic quotient of a simple non-projective torus if it carries no effective divisor. This is a crucial step to complete the bimeromorphic classification of compact Kähler 3-folds

1 : Institut Elie Cartan Nancy (IECN)

CNRS : UMR7502 – INRIA – Université Henri Poincaré - Nancy I – Université Nancy II – Institut National Polytechnique de Lorraine (INPL)

2 : Institut Fourier (IF)

CNRS : UMR5582 – Université Joseph Fourier - Grenoble I

3 : Laboratory of algebraic geometry and its applications (LAGA/SU-HSE)

Faculty of Mathematics, Higher School of Economics

Équipe de recherche : Institut Elie Cartan Nancy

Laboratory of algebraic geometry and its applications, Faculty of Mathematics, Higher School of Economics

Domaine : Mathématiques/Géométrie algébrique

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Mots Clés : compact kähler manifold – complex 3-manifold – simple variety – algebraic dimension – complex torus – Albanese map – closed positive current – pseudo-effective line bundle – nef line bundle – multiplier ideal sheaf – hard Lefschetz theorem

Liste des fichiers attachés à ce document :



PDF

simple_threefolds.pdf (162.8 KB)



PS

simple_threefolds.ps (605.1 KB)

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Contributeur : Jean-Pierre Demailly <jean-pierre.demailly@ujf-grenoble.fr>

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