Hermitian-Yang-Mills approach to the conjecture of Griffiths on the positivity of ample vector bundles

Jean-Pierre Demailly
Université Grenoble Alpes

Given a vector bundle of arbitrary rank with ample determinant line bundle on a projective manifold, we propose a new elliptic system of differential equations of Hermitian-Yang-Mills type for the curvature tensor. The system is designed so that solutions provide Hermitian metrics with positive curvature in the sense of Griffiths - and even in the dual Nakano sense. As a consequence, if an existence result could be obtained for every ample vector bundle, the Griffiths conjecture on the equivalence between ampleness and positivity of vector bundles would be settled.