

NORDAN 2016: Several Complex Variables

Positivity and Duality on Compact Complex Manifolds

Dan Popovici

Paul Sabatier University, Toulouse, France

Given a compact complex manifold X of dimension n , we shall explain how the duality between Demailly's pseudoeffective cone of Bott-Chern cohomology classes of closed positive $(1, 1)$ -currents and our Gauduchon cone of Aeppli cohomology classes of $(n - 1)^{st}$ powers of Gauduchon metrics can be used, together with a natural way of estimating from below the integral of a quantity involving the solution of a Monge-Ampère equation provided by Yau's theorem, to completely prove the qualitative part and give a partial affirmative answer to the quantitative part of Demailly's Transcendental Morse Inequalities Conjecture for differences of two nef classes. If time permits, we shall explain how a complete solution to this conjecture would contribute to tackling the conjecture we have proposed in the non-Kähler context predicting that every $\partial\bar{\partial}$ -manifold should carry a balanced metric.