Background cohomology of non-compact Kähler manifolds

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Thursday, June 3, 2010

007 Kemeny Hall, 4:00 pm
(Tea 3:30 pm 300 Kemeny Hall)

Abstract

Dolbeault cohomology of holomorphic vector bundles over compact Kähler manifolds have many nice properties (such as Kodaira vanishing theorem, holomorphic Morse inequalities, Guillemin-Sternberg "quantization commutes with reduction" property) which in general don't hold for non-compact manifolds. In the talk I will present a new normalization construction of cohomology of equivariant vector bundles over a non-compact Kahler manifold endowed with an action of a compact Lie group G. The new cohomology, which is called the "background cohomology", has many properties of Dolbeault cohomology of a compact manifold. It is also related to the index theory for non-compact G-manifolds, which was developed several years ago by P.-E. Paradan and myself.

This talk should be accessible to graduate students.