

BACKGROUND COHOMOLOGY OF NON-COMPACT KÄHLER MANIFOLDS

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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 Kähler 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.