

$\bar{\partial}$ -equation on currents and laminations

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Abstract

The lecture is on some joint work with Bo. Berndtsson, concerning essentially L^2 -estimates for the $\bar{\partial}$ -equation with respect to a closed positive current in the case of currents of bi-degree (1,1) or with respect to a harmonic current of bidimension (1,1).

The question is to solve the equation

$$\bar{\partial}u \wedge T = f \wedge T.$$

One obtains a solution of the preceding equation with L^2 -estimates with respect to a current T , modulo the usual obstructions. The case where T is the current of integration over a hypersurface corresponds to the classical situation. One obtains a surprising extension of the theory of Kodaira-Nakano-Hörmander. This study is of course motivated by questions of holomorphic dynamics: foliations or endomorphisms of $\mathbb{C}\mathbb{P}^k$. We encounter in these subjects many objects which are laminated in the weak sense on which one would like to solve the $\bar{\partial}$ -equation.