

The geometry of holomorphic and algebraic curves in
complex algebraic varieties

April 30 – May 4, 2007

Structure of jet differential rings and holomorphic Morse inequalities

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Abstract

The talk will focus on the study of jet differentials from an algebro-analytic viewpoint. The ultimate goal would be to show that every variety of general type has enough global jet differentials, as a method to investigate the Green-Griffiths-Lang conjecture. One possible strategy is to compute “probabilistic Morse inequalities” for certain (singular or non singular) hermitian line bundles related to jet spaces. This technique somehow supersedes Riemann-Roch calculations and vanishing theorems in situations where the latter do not occur. We will explain the setting in which such formulas can be made explicit, and some more algebraic pieces still missing in the puzzle.