THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

GEOMETRY SEMINAR

Semi-positivity and abundance problem in Algebraic Geometry

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Abstract

It is a well known Theorem of Kodaira, that some power of a line bundle with a positive Chern class defines a projective embedding. In this talk we will discuss the following problems:

1. Suppose that a line bundle has a semi-positive Chern class on a projective algebraic variety. Is it true that some power of the line bundle defines a fibration of the projective manifold.
2. When can the boundary classes of the cohomologies of the Kähler cone be realized as semi-positive forms?

We will show that the second problem can be solved for CY manifold and it is related to a problem of Donaldson which states: Suppose that we fix two classes of cohomologies in the Kähler cone and realize one of the them as a imaginary part of a Kähler metric. What is the topological condition on the two classes of cohomologies that guarntees that we can find a Kähler metric in the other class of cohomolgy such that the fixed Kähler form is a harmonic form with respect to the second Kähler metric.

Date:	**March 18, 2009 (Wednesday)**
Time:	**4:00 – 5:00pm**
Place:	**Room 517, Meng Wah Complex, HKU**

All are welcome