THE UNIVERSITY   OF HONG KONG

Institute of Mathematical Research
Department of Mathematics

Geometry Seminar

Bitangents of plane quartics and embeddings by gradients of odd theta functions

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Abstract

This talk is based on joint work with Riccardo Salvati Manni. We will start by discussing the classical problem of recovering a plane quartic from its bitangents. The problem was already studied by Aronhold in 1860s, but only recently it was proven that a plane quartic can be recovered uniquely from its bitangents (Caporaso, Sernesi - for a general quartic; Lehavi - for any quartic).

We will then explain how this problem can be reformulated in terms of gradients of odd theta functions or Gauss images of points of order 2 on the Jacobian, and thus generalized to curves of higher genus and to abelian varieties. We will then proceed to prove that the gradients of odd theta functions define a generically injective map from the appropriate toroidal compactification of the moduli space of abelian varieties to a Grassmannian. We will further discuss the relationship of this map with the theta constant map, and the resulting generalizations of Jacobi's derivative formula.

Date:	**August 10, 2004 (Tuesday)**
Time:	**4:00 – 5:00pm**
Place:	**Room 517, Meng Wah Complex**

All are welcome