



Department of Mathematics
Institute of Mathematical Sciences
The Chinese University of Hong Kong

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Hong Kong Geometry Colloquium

Saturday, 22 February 2003
LT1, Lady Shaw Building, CUHK

Finite covering over abelian surfaces

Professor Jungkai Chen
Department of Mathematics
National Chung Cheng University
Institute of Mathematical Sciences

Abstract: Let (A, L) be a polarized abelian surface and $\phi_L : A \rightarrow \hat{A}$ the isogeny induced by the polarization L . We study finite covering over (A, L) which descends to a covering over \hat{A} . As an application, we construct examples of surfaces with $p_g = q = 2$.

Time: 10:00 a.m. - 11:00 a.m.

Tea Break 11:00 a.m. - 11:20 a.m.

Minimal models, derived categories and stacks

Professor Yujiro Kawamata
Department of Mathematics
University of Tokyo
Institute of Mathematical Sciences

Abstract: I will discuss the relationship between the theory of minimal models and the derived equivalence, and the generalization to stacks.

Time: 11:20 a.m. - 12:20 p.m.



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Fano varieties: Hodge type, slopes and rational points

Professor Hélène Esnault
Fachbereich Mathematik und Informatik
University Essen
Department of Mathematics, CUHK

Abstract: Smooth Fano varieties are smooth, geometrically projective varieties for which the inverse of the dualizing sheaf is ample. Over the field of the complex numbers, the Hodge type of a smooth Fano variety is ≥ 1 , while over the finite field F_q , the eigenvalues of the Frobenius action on ℓ -adic étale cohomology are divisible by q , and on rigid cohomology the slopes are ≥ 1 . The reason for this is that the Chow group of 0-cycles satisfies base change. This, for example, implies that a smooth projective Fano variety over a finite field has a rational point. We discuss those properties also for singular Fano varieties which are hypersurfaces, for which we are also able to show the divisibility property (the latter is joint work with Spencer Bloch and Marc Levine).

Time: 3:00 p.m. - 4:00 p.m.

Tea Break 4:00 p.m. - 4:20 p.m.

Families of minimal models of Kodaira dimension zero

Professor Eckart Viehweg
Fachbereich Mathematik und Informatik
University Essen
Department of Mathematics, CUHK

Abstract: Let $f : V \rightarrow U$ be a family of smooth minimal models of Kodaira dimension zero, induced by a morphism $\varphi : U \rightarrow M_h$ to the moduli stack of polarized manifolds. Then the variation of f coincides with the dimension of $\varphi(U)$. This observation allows to extend some of the results obtained for subvarieties of the moduli stack of canonically polarized manifolds to the one of polarized minimal models of Kodaira dimension zero. In particular we will discuss boundedness and some (weak) criterion for rigidity. (joint work with Zuo Kang)

Time: 4:20 p.m. - 5:20 p.m.

All Interested Are Welcome