THE UNIVERSITY OF HONG KONG

Institute of Mathematical Research

Department of Mathematics

Special Session in Algebraic Geometry

November 29, 2002 (Friday)

Room 517, Meng Wah Complex, HKU

3:10 – 4:10pm **Professor Ngaiming Mok**
HKU

Automorphisms on moduli spaces of minimal rational curves on Fano manifolds

Tea Break

4:30 – 5:30pm **Professor Sheng-Li Tan**
East China Normal University, Shanghai & IMS, CUHK

Behaviour of multiple linear systems on an algebraic surface

All are welcome

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Automorphisms on moduli spaces of minimal rational curves on Fano manifolds

Abstract

We consider Fano manifold X of Picard number 1 and irreducible components M of the space of minimal rational curves. This includes in particular the case where X is a Fano hypersurface in $\mathbb{P}^n$ of degree $\leq n$ - 1 and M is a space of projective lines lying on X. It is a natural problem to understand the extent to which the geometry of X is captured by the geometry of M. In this vein, in a joint work with Jun-Muk Hwang we raise the question as to whether the canonical map $\mathrm{Aut}_o(X) \to \mathrm{Aut}_o(M)$ is an isomorphism. After providing examples showing that this may fail in general, we show that the map is indeed an isomorphism under the additional assumption that the subvariety of M consisiting of members passing through a general point $x \in X$ is irreducible and of dimension at least 2.

Sheng-Li Tan
East China Normal University, Shanghai & IMS, CUHK

Behaviour of multiple linear systems on an algebraic surface

Abstract

I will talk about the behaviour of the map Φ_n defined by a linear system $|nD|$ for large n, here D is an arbitrary divisor on an algebraic surface X. More precisely, we will give effective solutions to the following problems: An explicit computation of the dimension of $|nD|$ for large n (Riemann-Roch problem). When is the linear system $|nD|$ base point free, birationally very ample and k-very ample? When is the image of Φ_n projectively normal? We will see that the behaviour of Φ_n depends heavily on the curves C_i with $DC_i = 0$.