SHORT COMMUNICATIONS

1. DongSeon Hwang
   TITLE: Rational surfaces with ample canonical divisor

   ABSTRACT: It was recently proved that rational surfaces of Picard number one with quotient singularities can have at most 4 singular points.

   However, if the canonical divisor is ample, then very little is known about the classification except the examples by Kollár, Keel and McKernan, in which all the examples have exactly 2 singular points. In this talk, I am going to construct (discrete) families of such surfaces with m singular points for m = 1, 2, 3.

   This is a joint work with JongHae Keum.

2. Fabrizio Donzelli (Ottawa U.)

   TITLE: Flexible varieties, Makar-Limanov invariant and Derksen invariant.

   ABSTRACT: Let X be a complex affine variety.
   1. A point x is called flexible if TxX is spanned by vectors tangent to the orbits of C-actions through x. 2.The Makar-Limanov invariant is the ring of the regular functions that
   are invariant with respect to all C-actions on X. 3.The Derksen invariant is the ring generated by the regular functions
   that are invariant with respect to at least one non-trivial C-action.

   In this talk we describe some connections between the above definitions. The best results are obtained in the case when X is a surface.

3. Alok Maharana (IIT, Mumbai)

   Title: Complements of multi-sections on Hirzebruch surfaces.

   Abstract: Motivated from the surprising theorem of Danilov-Gizatullin that the isomorphism class of the complement of an ample section on a Hirzebruch surface depends only on the self-intersection of the section, we explore the isomorphism classes of the complements of multisections on Hirzebruch surfaces.

   TITLE: TBA

4. Ilya Karzhemanov (Courant I., NY and and CRM, Montreal)

   TITLE:Infinitely transitive groups, uniformization and a question of J.-L. Colliot-Thélène"

   ABSTRACT: I will speak about a question, formulated in the paper "Unirationality and existence of infinitely transitive models" (joint with F. Bogomolov and K. Kuyumzhiyan), on (stable birational) uniformization of unirational varieties.

   I will give a sketch on how to answer this question (negatively).

5. Karol Palka (Polish Academy of Science, Warsaw)

   TITLE: On planar cuspidal curves

   ABSTRACT: Let E be a complex planar curve homeomorphic to a projective line. Let (X,D) be a minimal embedded resolution of singularities. According to the Coolidge-Nagata conjecture E should be rectifiable, i.e. there should exist a birational automorphism of the projective plane which transforms E into a line. Recently we proved (see Corollary 5.5 http://arxiv.org/abs/1202.3491) that if E is not rectifiable then D has at most nine maximal twigs. In particular, this establishes the conjecture in case E has at least five singular points. We show how to complete the arguments to prove the conjecture in case of four singular points.

6. Jing Zhang (State U. of NY, Albany)

   TITLE: Algebraic Manifolds with Vanishing Hodge Cohomology

   ABSTRACT: Let Y be an algebraic manifold (i.e., an irreducible nonsingular algebraic variety defined over $\mathbb{C}$) of dimension $d \geq 1$ with $H^i(Y, \Omega^j_Y) = 0$ for all $j \geq 0$, $i > 0$, where Ω^j_Y is the sheaf of regular $j-$forms on Y and $\Omega^0_Y = \mathcal{O}_Y$. By Serre duality, we immediately see that Y is not complete. Let X a smooth completion of Y such that the boundary $X - Y$ is the support of an effective divisor D on X. We may assume that D is a divisor with simple normal crossings by blowing up the closed subset on the boundary $X - Y$ if it is necessary. We show that the Iitaka D-dimension $\kappa(D, X) \neq d - 1$. If d is even, then $\kappa(D, X)$ can be any even number between 0 and d. If d is odd, then $\kappa(D, X)$ can be any odd number between 1 and d. Moreover, If

$\kappa(D, X) = d - 2$, then the Kodaira dimension of X is $-\infty$ and if $d > 2$, then $q = h^1(X, \mathcal{O}_X)$ can be any positive integer.

7. Ying Zong (U. of Toronto)

   TITLE: Splitting of abelian varieties

   ABSTRACT: With V.Kumar Murty, we partially answer, in terms of monodromy, his question: given an absolutely simple abelian variety over a number field, does it reduce to simple abelian varieties at a set of places of positive Dirichlet density?

SCHEDULE

MO
14:15-14:35 DongSeon Hwang
14:35-14:55 Karol Palka
15:05-15:25 Jing Zhang
15:25-15:45 Ying Zong

WE
14:30-14:50 Fabrizzo Donzelli
14:50-15:10 Ilya Karshemanov
15:10-15:30 Alok Maharana