**Conference**

***Nikulin-65***

**5-6 December 2014, Liverpool**

*British Singularity Days meeting*

*celebrating Slava Nikulin's forthcoming 65th birthday*

Programme

*Friday, 5 December*

13:00-14:00, room 027 Ivan Cheltsov (Edinburgh)

*What are the worst singular points of plane curves of given degree?*

14:15-15:15, room G16 Slava Nikulin

*Classification of degenerations of Kahlerian K3 surfaces*

*with finite symplectic automorphism groups*

15:15-16:00, room 304 tea/coffee/bisquits

16:00-17:00, room G16 Colloquium: Pavel Tumarkin (Durham)

*Coxeter groups, quiver mutations and hyperbolic manifolds*

~18:00 Conference Dinner

*Saturday, 6 December*

10:00-11:00, room 029 Timothy Logvinenko (Cardiff)

*Spherical functors*

11:15-12:15, room TP117 Carlo Madonna (Madrid)

*Correspondence between K3 surfaces*

12:15-13:00, room TP117 Lunch

13:00-14:00, room TP117 Alexander Kuznetsov (Steklov Institute, Moscow)

*Quotients of noncommutative K3 surfaces by involutions*

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**ABSTRACTS**

**Cheltsov**

Recently I found a new local inequality that relates the intersection multiplicities of divisors on smooth surfaces and log canonical thresholds. In this talk I will show applications of this inequality. In particular, I will describe the five smallest log canonical thresholds of reduced plane curves of a given degree.

**Nikulin**

We use our recent results about Kahlerian K3 surfaces and Niemeier lattices to classify degenerations of Kahlerian K3 surfaces with finite symplectic automorphism groups. See my recent preprint arXiv:1403.6061 for more details.

**Tumarkin**

Mutations of quivers were introduced by Fomin and Zelevinsky at the beginning of 2000's in the context of cluster algebras. Since then, mutations appear (sometimes completely unexpectedly) in various domains of mathematics and physics. Using mutations of quivers, Barot and Marsh recently constructed a series of presentations of Coxeter groups. I will discuss a geometric interpretation of this result: it occurs that these presentations give rise to a construction of geometric manifolds with large symmetry groups, in particular to some hyperbolic manifolds of small volume with proper actions of Coxeter groups.

**Logvinenko**

Twists along a spherical object are certain autoequivalences of the derived category D(X) of an algebraic variety X. Roughly, they are mirror symmetry analogues of Dehn twists along Lagrangian spheres on a symplectic manifold. In this talk, we give a quick introduction to these and then explain their generalisation to a theory of spherical functors. A number of interesting examples come from geometry of K3 surfaces and we discuss those. Based on joint work with Rina Anno.

**Madonna**

In this talk I will survey the recent and old results concerning the study of algebraic correspondences between K3 surfaces (with special emphasis to the results obtained by Slava Nikulin). I will also survey some problems which are still open and some applications of these results that appeared in the recent literature.

**Kuznetsov**

In this talk I will discuss several examples of K3 type triangulated categories (which can be thought of as noncommutative K3 surfaces) and of their involutive autoequivalences (which can be thought of as noncommutative involutions). I will also discuss noncommutative quotients by these involutions.