

Conference on $K3$ Surfaces
Schiermonnikoog, 5-9 May 2014

Program

	Monday 5	Tuesday 6	Wednesday 7	Thursday 8	Friday 9
09:00 - 9:50	Pandharipande	Voisin	Alexeev	Hulek	Hassett
9:50 - 10:10	<i>B r e a k</i>				
10:10 - 11:00	Laza	Gritsenko	Shimida	Marian	Aprodu
11:00 - 11:20	<i>B r e a k</i>				
11:20 - 12:10	Liedtke	Verra	Schütt	Dolgachev	Bayer
12:10 - 16:30	<i>L u n c h B r e a k</i>				
16:30 - 17:20	Kondo	Huybrechts	<i>Free</i>	Sarti	<i>Departure</i>
17:20 - 17:30	<i>B r e a k</i>			Heckman	
17:30 - 18:20	Macri	Shepherd-Barron		Bakker	

Titles

Degenerations of $K3$ surfaces of degree 2

V. Alexeev

Ulrich bundles on $K3$ surfaces

M. Aprodu

Rational Lagrangian subvarieties of hyperkähler manifolds

B. Bakker

Derived automorphism groups of $K3$ surfaces of Picard rank 1

A. Bayer

Apollonian sphere packings and automorphisms of $K3$ and Enriques surfaces

I. Dolgachev

Kondo's problem on the moduli space of Enriques surfaces with level two structure.

V. Gritsenko

Rational points of K3 surfaces and derived equivalence

B. Hassett

On the Allcock ball quotient

G. Heckman

Extending the Prym map to toroidal compactifications of A_g

K. Hulek

Finite groups of derived equivalences of K3 surfaces (resp. of symplectic automorphisms of varieties $K3^{[n]}$) and the Conway group.

D. Huybrechts

The geometry of the moduli of low degree K3 surfaces

R. Laza

Abstract: For degree 2 K3 surfaces, I will discuss how 3 different approaches (GIT, period map, and KSBA) to the moduli space fit together. In principle, for other low degrees (esp. 4 and 6) a similar picture should hold, but much less is known.

Supersingular K3 surfaces are unirational

Ch. Liedtke

Abstract: We show that supersingular K3 surfaces are related by purely inseparable isogenies. As an application, we deduce that they are unirational, which confirms conjectures of Artin, Rudakov, Shafarevich, and Shioda. The main ingredient in the proof is to use the formal Brauer group of a Jacobian elliptically fibered K3 surface to construct a family of moving torsors under this fibration that eventually relates supersingular K3 surfaces of different Artin invariants by purely inseparable isogenies. If time permits, we will show how these moving torsors exhibit the moduli space of rigidified supersingular K3 crystals as an iterated projective bundle over a finite field.

Birational geometry of moduli spaces of sheaves on K3 surfaces

E. Macri

Abstract: I will present how one can use the derived category theory of K3 surfaces (in particular, Bridgeland stability conditions) to study the birational geometry of moduli spaces of stable sheaves. This is joint work with Arend Bayer.

Verlinde sheaves over the moduli space of polarized K3 surfaces

A. Marian

Counting curves on K3 surfaces: the Katz-Klemm-Vafa formula

R. Pandharipande

Abstract: I will explain our recent proof (with R. Thomas) of the KKV formula governing higher genus curve counting in arbitrary classes on K3 surfaces. The subject intertwines Gromov-Witten, Noether-Lefschetz, and Donaldson-Thomas theories. A tour of these ideas will be included in the talk.

Automorphisms of IHS manifolds and the order 23

A. Sarti

Springer fibers of loop groups and degenerating K3 surfaces

N. I. Shepherd-Barron

On the supersingular K3 surface in characteristic 5 with $\sigma_0 = 1$

I. Shimida

The maximal number of lines on smooth quartic surfaces

M. Schütt

Prym moduli spaces related to K3 surfaces

A. Verra

Some new results on modified diagonals

C. Voisin

Abstract: The modified diagonals were introduced by Gross-Schoen, studied by Colombo-van Geemen in the case of curves, and they have been reconsidered recently by O'Grady. I will explain the proof a conjecture by O'Grady concerning double covers, and its generalization to higher degree covers. I will also discuss the case of K3 surfaces and their Hilbert schemes: Using earlier results of Beauville and myself and recent results of Yin, I prove a conjecture of O'Grady on the vanishing of their modified diagonals.