Workshop on Noncommutative Algebraic Geometry and Related Topics:

August 6--10 2012, The University Manchester

All talks will be in the Frank Adams Room 1, on the first floor of the Alan Turing Building.

PRELIMINARY SCHEDULE:

Monday 6 August:

2.00--3.00	Amnon Yekuyieli (Ben Gurion University): Higher Descent
3:00--3:30	Coffee
3:30--4:30	Raf Bocklandt (Newcastle): Noncommutative projective geometry through the looking glass.

Tuesday 7 August:

9.00--10.00	Sue Sierra (Edinburgh): Supernoetherian algebras
10:10--11:10	Charlie Beil (Stoney Brook): Categorical equivalences from higgsing toric uperpotential algebras
11:10--11:30	Coffee
11:30--12:30	Gwyn Bellamy (Manchester and Glasgow): Mirabolic Harish-Chandra modules.

Wednesday 8 August :

9:00--10:00	Jorgensen (Newcastle): Triangulated categories generated by a spherical object. Elementary properties. Torsion pairs
10:00--10:30	Coffee
10:30--11:30	Chelsea Walton (MIT): Hopf actions on AS regular algebras
12:45--	Walk Bamford--Edale (if the weather cooperates!)

Thursday 9 August

9:00--10.00	Liran Shual (Ben Gurion University): Rigid complexes over adic rings via DG-algebras"
10:10--11:10	Ellen Kirkman (Wake Forest) TBA
11:10--11:30	Coffee
11:30--12:30	Dan Rogalski (UCSD): Twisted CY-algebras and Nakayama automorphisms
7:30pm	Conference Dinner; Number 4 Restaurant, Didsbury

Friday 10 August:

9.00--10.00	TBA

10:10--11:10 Kenny Brown (Glasgow) : Noncommutative unipotent groups

11:10--11:30 Coffee

11:30--12:30 Tom Lenagan (Edinburgh): Efficient recognition of totally nonnegative matrix cells

ATTENDEES

Charlie Beil (NY Stoney Brook)

Gwyn Bellamy (Manchester)

Raf Bockland (Newcastle)

Ken Brown (Glasgow)

Andrew Davies (Manchester)

Sian Fryer (Manchester)

Ellen Kirkman (Wake Forest)

Peter Jorgensen (Newcastle)

Tom Lenagan (Edinburgh)

Dan Rogalski (UCSD)

Liran Shaul (Ben Gurion)

Sue Sierra (Edinburgh)

Toby Stafford (Manchester)

Chelsea Walton (MIT)

Amnon Yekutieli (Ben Gurion)

Alex Young (UCSD and Washington)

Abstracts:

BEIL ``Categorical equivalences from higgsing toric superpotential algebras"

Abstract: Let A and A' be superpotential algebras of brane tiling quivers, with A' cancellative and A non-cancellative, and suppose A' is obtained from A by contracting, or 'higgsing', a set of arrows to vertices while preserving a certain associated commutative ring. A' is then a Calabi-Yau algebra and a noncommutative crepant resolution of its prime noetherian center, whereas A is not a finitely generated module over its center, and its center is not prime or noetherian. I will present a categorical equivalence that relates the representation theory of A with that of A'. I will also describe how the central geometries of A and A' are related.

JORGENSEN "Triangulated categories generated by a spherical object. Elementary properties. Torsion pairs"

Abstract: A d-spherical object has self-extensions only in degrees 0 and d, and each of these Ext groups is equal to the ground field. The triangulated category generated by such an object has a rich homological and combinatorial structure which has been investigated intensively in the past few years. The seminar explains some of the elementary properties of these categories and shows how to classify certain types of torsion pairs and related objects: t-structures, co-t-structures, and d-cluster tilting subcategories.

ROGALSKI "Twisted CY-algebras and Nakayama automorphisms"

Abstract: There are numerous results in the literature studying when a smash product of a Calabi-Yau algebra with a group (or more generally, a Hopf algebra) remains Calabi-Yau. We put this in a more general context, by studying how the Nakayama automorphism of a twisted-CY algebra changes under smash product. We also study how the Nakayama automorphism changes under graded twist. This is joint work with Manny Reyes and James Zhang.

SIERRA ``Supernoetherian algebras''

Abstract: A supernoetherian algebra is one with the amusing property that all subalgebras are noetherian. A central localisation of a (generic) Sklyanin algebra has this property, as does the twisted homogeneous coordinate ring of an elliptic curve and an infinite order automorphism. We sketch the proof, give some applications, and ask some questions.

YEKUTIELI ``Higher Descent''

Abstract: Classical descent is about gluing a global geometric object out of local information. Or conversely, it is about classifying global geometric objects using open coverings and cocycles. I will begin the lecture with a rather thorough discussion of how descent theory let's us classify twisted forms of a sheaf on a topological space (this is 1st nonabelian cohomology).