**British Singularity Day**

**Liverpool, 28 November 2013**

Programme

12:30-13:30 Lunch, Room 304

13:30-14:30 Room G16

Slava Sedykh (Moscow)

*On the topology of Lagrange singularities*

14:30-15:30 Room G16

Nicola Pagani (Liverpool)
*How many points parametrize bielliptic curves on a P^2 of plane quartics?*

15:00-15:30 Tea, Room 304

15:30-16:30 Room G16

Dmitri Zvonkine (Paris)

*Cohomological relations on Mbar\_{g,n} via 3-spin structures*

The LMS Scheme 3 grant 31230 will pay reasonable travel expenses for participants from within the UK. Graduate students are especially welcome. The meeting is also supported by the RCMM of the Department of Mathematical Sciences of the University of Liverpool.

**ABSTRACTS**

**Slava Sedykh**

We study the topology of adjacencies of multi-singularities in the image of a stable Lagrange mapping with singularities of types A and D. For example, if our Lagrange mapping is a mono-singularity of a type D, then the connected components of the manifold of multi-singularities of any given multi-A type are of two kinds: they are either contractible or homotopy equivalent to a circle. We calculate the number of connected components of each kind.

**Nicola Pagani**

Three quartic homogeneous polynomials in 3 complex variables span a projective plane S, whose points naturally parametrize smooth curves of genus 3.  The condition of admitting a double cover map to an elliptic curve has codimension 2; thus it makes sense to ask how many such points one can one find on S.  We answer this, and other similar questions, by computing the class of the bielliptic locus in \bar{M}\_3.  Taking inspiration from this example, we will discuss a modern approach to all such questions for moduli of curves. (Such an approach was systematically initiated by Mumford in the eighties.)  This is a joint work with Carel Faber.

**Dmitri Zvonkine**

We construct a family of relations between tautological cohomology classes on the moduli space Mbar\_{g,n}. This family contains all relations known to this day and is expected to be complete and optimal. The construction uses the Frobenius manifold of the A\_2 singularity and the 3-spin Witten class and the Givental-Teleman classification of semi-simple cohomological field theories.