**LMS SINGULARITY DAY**

**Liverpool**

**29 March 2016**

**room 211, Mathematics building**

***Programme***

1:00 -- 2:00 Lunch in the Vine Court (meeting in the Mathematics foyer at 1:00)

2:00 -- 3:00 Alexey Davydov (Moscow)

*Controllability of generic systems, its singularities and stability*

3:00 -- 4:00 Sabir Gussein-Zade (Moscow)

*Equivariant Poincaré series of filtrations and equivariant topology of plane*

*curve singularities*

4:00 -- 4:30 Tea

4:30 -- 5:30 José Seade (UNAM, Mexico)

*Discrete group actions on complex projective spaces*

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***Talk Abstracts***

**Alexey Davydov**

The talk is devoted to applications of singularity theory achievements to the analysis of controllability properties of generic control systems on two- and three-dimensional manifolds. Classifications of generic singularities will be presented and the stability of controllability will be demonstrated.

**Sabir Gussein-Zade**

It is known that the Alexander polynomial in several variables of an algebraic link determines the embedded topology of the corresponding plane curve singularity. The Alexander polynomial coincides with the Poincaré series of the multi-index filtration defined by the valuations corresponding to the branches of the curve. Thus the Poincaré series (of a natural filtration) determines the topology of a plane curve singularity. We shall discuss equivariant (with respect to a finite group action) analogue of these statements. There exist several concepts of an equivariant (with respect to a finite group action) version of the Poincaré series of a filtration. One of them is defined as a power series in several variables with the coefficients from a certain modification of the Burnside ring of the group. It was shown that (modulo simple exceptions) the equivariant Poincaré series determines the equivariant topology of the plane curve singularity.

The talk is based on joint works with A.Campillo and F.Delgado.

**José Seade**

Discrete group actions on the complex projective line are known as Kleinian groups and their study has been a classical subject for many Decades. These are for instance the paradigm of both, complex geometry and holomorphic dynamics. Discrete group actions on complex manifolds also play a key role in several other areas of mathematics, as for instance in singularity theory. In this talk we will focus on discrete group actions on the complex projective space CP^2.