

Marcello Bernardara

Categorical representability and rationality

Abstract: This talk is aimed at introducing the notion of categorical representability and some examples and motivations that let us conjecture it to provide an obstruction to rationality. In particular, we will focus on some motivic motivation and on birational properties of geometrically rational surfaces, which were studied in a joint work with A.Auel. We will end by considering some threefold and fourfold examples under this perspective.

Alberto Canonaco

Uniqueness of dg enhancements

Abstract: It is known that all triangulated categories of some interest in algebra or algebraic geometry admit a dg (differential graded) enhancement, namely a pretriangulated dg category whose homotopy category is equivalent to the given triangulated category. On the hand, the question of when a dg enhancement is unique (up to quasi-equivalence of dg categories) has only received partial answers so far. In this talk I will report on a joint work with P. Stellari, where, extending previous results by Lunts and Orlov, we prove uniqueness of the dg enhancement for the derived category of an arbitrary Grothendieck category, and also for its subcategory of compact objects under some technical assumptions. This applies in particular to the derived category of quasi-coherent sheaves on every scheme (or stack), and to the category of perfect complexes under some mild conditions.

Antony Maciocia

Pseudo-Fourier-Mukai Transforms for Abelian Varieties: Classification and Applications

Abstract: We look at a slight generalisation of Fourier-Mukai transforms of non-principally polarized abelian varieties which complete the collection needed to study Bridgeland stability conditions. We will show how to classify them and consider a few applications to computing walls for Bridgeland stability.