ADVANCES IN REPRESENTATION THEORY OF ALGEBRAS: GEOMETRY AND HOMOLOGY

SUMMARY AND OBJECTIVES

The conference "Advances in Representation Theory of Algebras: Geometry and Homology" will be the sixth ARTA edition. The main objective is to put experts together in order to communicate and to disseminate the growing results in representation theory of finite dimensional algebras and related topics. The previous editions were held at CIMAT in Guanajuato, Mexico (2012 and 2015), Nicolaus Copernicus University, Torún, Poland (2013), LACIM in Montréal, Québec, Canada, (2014) and Universidad de Mar del Plata, Argentina (2016).

The conference will present the most recent advances from the following points of view: the classification up to Morita and derived equivalence, the Auslander-Reiten structure, the homological properties related to global dimension and cohomology, the geometry of the representations of these algebras, the combinatorial aspects of these representations and the tilting theory.

The problems addressed during this conference will deal with the classification of crucial classes of algebras such as tame and/or selfinjective ones. They will also be concerned with homological invariants of algebras such as homological dimensions and the Hochschild cohomology. The developments of Auslander-Reiten theory will be considered in relationship with cluster-tilting theory and its applications. The questions will also deal with the interactions with Lie theory, invariant theory, triangulated categories, singularity theory and Cohen-Macaulay modules.

The talks during this event will be given by the leading experts and young researchers of the area. They are intended for the specialists of the above-mentioned topics, and for the confirmed mathematicians starting to work on these domains. Advanced PhD students or postdocs working on close areas will clearly take profit of the lectures and are welcome.

Kewords: structure of finite-dimensional algebras - structure of module categories - Auslander-Reiten components - homological methods in representation theory - homological conjectures - algebras of finite global dimension - selfinjective algebras - tame algebras - combinatorial aspects of representation theory - geometry of algebras and modules - homological invariants of algebras and modules - triangulated categories and tilting theory - relations of these topics with Lie theory, singularity theory, Cohen-Macaulay modules, quantum groups and other algebraic structures.