

## **Abstract for the workshop**

The themes of the workshop are the Weak Lefschetz Property - WLP - and the Strong Lefschetz Property - SLP. The name of these properties, referring to Artinian algebras, is motivated by the Lefschetz theory for projective manifolds, initiated by S. Lefschetz, and well established by the late 1950's. In fact, Lefschetz properties of Artinian algebras are algebraic generalizations of the Hard Lefschetz property of the cohomology ring of a smooth projective complex variety. The investigation of the Lefschetz properties of Artinian algebras was started in the mid 1980's and nowadays is a very active area of research. Although there were limited developments on this topic in the 20th century, in the last years this topic has attracted increasing attention from mathematicians of different areas, such as commutative algebra, algebraic geometry, combinatorics, algebraic topology and representation theory. One of the main features of the WLP and the SLP is their ubiquity and the quite surprising and still not completely understood relations with other themes, including linear configurations, interpolation problems, vector bundle theory, plane partitions, splines, d-webs, differential geometry, coding theory, digital image processing, physics and the theory of statistical designs, among others.

The purpose of this workshop is to bring together researchers from a range of areas. Our objectives are to share different points of view; to stimulate collaborations and to promote career development; to facilitate the creation of new connections and synergies; and possibly to achieve even unexpected breakthroughs.