



Dipartimento di Scienze Matematiche  
“G. L. Lagrange”  
Politecnico di Torino



## Colloquium

Il giorno giovedì 30 maggio, alle ore 14.30 in Aula Buzano, il Professor

**Martín Sombra**

dell'ICREA & Università di Barcellona, terrà la conferenza dal titolo

### *Solving polynomial equations*

**Abstract.** The resolution of polynomial equations has a long history, starting with the resolution of quadratic equations by the Babylonians, and of equations of degree 3 and 4 during the XVIth century. Since Abel and Galois in the early XIXth century, we know that general equations of degree 5 or higher cannot be solved using only arithmetic operations and radicals. Whereas this has marked a clear limit in this direction, it has not stopped research on the resolution of polynomial equations.

Current research focuses on the quantitative and on the computational aspects of systems of multivariate polynomial equations. We would like to answer questions like: How many solutions does a system of polynomial equations have? How big are they? How do they distribute in space? It is also natural to try to devise methods for its effective resolution. In this talk, I will try to present these developments as well as some their connections with domains like complexity theory, combinatorics and dynamical systems.

Dopo la conferenza sono previsti due seminari:

**Alessandra Bernardi** (Università di Torino). *Algebraic Geometry in Signal processing, Phylogenetic and Quantum Physics*

**Giovanni Petri** (ISI Foundation, Torino). *From networks to non-metrical persistent homology*