

Titles and Abstracts

Gabriela Jeronimo

1/29/2026

Algorithmic equidimensional decomposition of affine varieties defined by sparse polynomials

The study of polynomial systems with specific structure has gained significant attention in the last decades. In particular, systems of sparse polynomials (namely, polynomials with nonzero coefficients only at prescribed sets of monomials) have become a central topic in the computer algebra framework. In this talk, we will discuss recent work on polynomial system solving in the sparse setting, with a special focus on a new symbolic probabilistic algorithm that, given a system of sparse polynomials, characterizes completely all the equidimensional components of the set of their common zeros. This is joint work with María Isabel Herrero (Universidad Torcuato Di Tella, Argentina) and Juan Sabia (Universidad de Buenos Aires and CONICET, Argentina).

Panagiotis Spanos

2/19/2026

Criticality in Spread-Out Percolation

In this talk we discuss a special model of percolation called spread-out percolation. Let G be a vertex-transitive graph equipped with the graph metric and let $r > 0$ be a range parameter. The spread-out lattice G_r is the graph with the same vertex set as G , where two vertices are connected by an edge whenever their distance in G is at most r .

In joint work with Tointon, we study the asymptotic behavior of the critical parameter for the existence of an infinite cluster as the range r tends to infinity, for vertex-transitive graphs of superlinear polynomial growth. The spread-out model was originally introduced for $\mathbb{Z}^d$ by Hara and Slade in the study of mean-field phenomena. We will discuss connections with critical exponents and branching random walks and present several open problems.