Projection constants for Banach spaces of polynomials

Mieczysław Mastyło (Adam Mickiewicz University, Poznań, Poland)

We will discuss results on a fundamental constant in Banach space theory—the projection constant. The relative projection constant $\boldsymbol{\lambda}(X, Y)$ of a subspace X of a Banach space Y is the smallest norm among all projections from Y onto X, and the projection constant $\boldsymbol{\lambda}(X)$ is the supremum of all relative projection constants of X taken over all possible superspaces Y. We outline several abstract ideas that shed light on projection constants of Banach spaces of multivariate polynomials. We focus on Banach spaces of polynomials, including polynomials on compact topological groups, analytic polynomials on polydiscs, Dirichlet polynomials on the complex plane, polynomials on Euclidean spheres, and polynomials on Boolean cubes.

The talk is based on joint recent works with A. Defant, D. Galicer, M. Mansilla, and S. Muro.