INJECTIVE LINEARIZATION OF DOMINATED POLYNOMIALS

PILAR RUEDA
UNIVERSIDAD DE VALENCIA

Polynomials come naturally in many branches of Mathematics and are particularly useful when trying to approximate, for instance, holomorphic, continuous or integrable functions. In particular, 1-homogeneous polynomials are linear operators and this is why many people think naively that linear properties can be transferred to polynomials just by means of some induction procedure. Far from being true, we will show the difficulty that arises when dealing with dominated polynomials. Different notions of summing polynomials were introduced as an attempt to generalize the well-known theory of summing linear operators to a non linear context. We will show how to get factorization results through both, L_p spaces and Lorentz spaces, for suitable subclasses of dominated polynomials. An study of these subclasses shows that these polynomials have as injective linearizations the (q, p)-summing operators, and this injective duality will provide connections with integral polynomials and a polynomial version of Pisier's factorization theorem. Some other applications involving cotype of Banach spaces and concavity in Banach lattices are given.

The talk is based in several joint works with G. Botelho, M. Mastylo, D. Pellegrino and E. A. Sánchez Pérez.