Polynomial ideals from a nonlinear viewpoint

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ABSTRACT

Classes of homogeneous polynomials between Banach spaces have been studied in the last three decades from the perspective of the so-called ideal property: if a polynomial P belongs to a class $\mathcal{Q}$, then the composition $u \circ P \circ v$ of P with *linear operators u* and v belongs to $\mathcal{Q}$ as well. In an attempt to explore the nonlinearity of the subject in a more consistent way, and taking into account recent results in the field, we propose the study of classes of homogeneous polynomials that are stable under the composition with homogeneous polynomials. Some important classes justify the study of the intermediate concept of classes of polynomials $\mathcal{Q}$ such that if P belongs to $\mathcal{Q}$, u is a linear operator and Q is a homogeneous polynomial, then $u \circ P \circ Q$ belongs to $\mathcal{Q}$. This talk is based on a joint work with Ewerton R. Torres.