

# Superalgebras with graded involution

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## Abstract

A polynomial  $f(x_1, \dots, x_n)$  in non commuting variables is an identity of an algebra  $A$  if it vanishes under all evaluations by elements in  $A$  and  $A$  is a PI-algebra if it satisfies a non trivial identity. In our case, we deal with associative algebras over a field  $F$  of characteristic zero and for an algebra  $A$ , we consider its sequence of codimensions  $\{c_n(A)\}_{n \geq 1}$ . This sequence was introduced by Regev in 1972 and it has been an efficient way to measure the growth of the identities satisfied by  $A$ .

The behavior of the codimension sequence has been extensively studied in the last years. In fact, when  $A$  is a PI-algebra, either the sequence  $c_n(A)$  grows exponentially or is polynomially bounded, *i.e.*, there exist constants  $a, k$  such that  $c_n(A) \leq an^k$ , for all  $n \geq 1$  and specific situations have been treated by several researchers in the area. In particular, we are interested in PI-algebras having polynomial growth and endowed with additional structures, such as graded algebras and algebras with involution.

In this talk I will present some recent results about the identities and the sequence of codimensions of graded algebras endowed with an involution which preserves the grading.

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