On the asymptotics for $*$-graded Capelli identities

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The finite dimensional simple $*$-superalgebras over an algebraically closed field of characteristic zero have been classified in [3]. The main goal of this talk is to show a characterization of the $T^*_{\mathbb{Z}_2}$-ideal of $*$-graded polynomial identities of any such algebra by considering the growth of the corresponding variety.

We prove that the $*$-graded codimensions of the finite dimensional simple $*$-superalgebras are asymptotically equal to the $*$-graded codimensions of the $T^*_{\mathbb{Z}_2}$-ideal generated by a set of $*$-graded Capelli polynomials.

Similar results have been found for simple finite dimensional algebras in [4], for simple finite dimensional superalgebras in [1] and for simple finite dimensional algebra with involution in [2].

This talk is based on a joint work with A. Valenti.

References

[1] F. Benanti, *Asymptotics for Graded Capelli Polynomials*, Algebra Repres. Theory **18** (2015), 221–233.

[2] F. Benanti and A. Valenti, *Asymptotics for Capelli Polynomials with Involution*, arXiv:1911.04193.

[3] A. Giambruno, R.B. dos Santos and A.C. Vieira, *Identities of $*$-superalgebras and almost polynomial growth*, Linear Multilinear Algebra **64** (2016), 484–501.

[4] A. Giambruno and M. Zaicev, *Asymptotics for the Standard and the Capelli Identities*, Israel J. Math. **135** (2003), 125–145.