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Central Polynomials versus Polynomial Identities

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A central polynomial for an algebra A is a polynomial in noncommuting variables taking central values under all evaluations in A. Polynomial identities are central polynomials taking only the zero value. A central polynomial is proper if it takes at least one nonzero value. The existence of proper central polynomials for $n \times n$ matrices was conjectured by Kaplansky in the 50's and proved in the early 70's independently by Formanek and Razmyslov. In this talk we want to compare the growth of the space of central polynomials to the growth of the space of polynomial identities for any finite dimensional algebra in characteristic zero.

References

[1] A. Giambruno and M. Zaicev, Central polynomials and growth functions, Israel J. Math. (to appear).