Polynomial identities and graded algebras

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We consider G-graded algebras and their corresponding graded identities. In the lecture, I'll present generalizations of some fundamental results in PI theory (originally proved by Kemer for $G = \{e\}$) in the context of G-graded algebras where G is an arbitrary finite group. The same statements for H-comodule algebras (where H is an arbitrary semisimple Hopf algebra) are open.