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Group gradings on associative algebras

Abstract. Let A be an algebra over a field F and let G be a group. Then A is said to be a G -graded algebra if A is decomposed into direct sum of subspaces A_g (g is an element of G) such that any product $A_g A_h$ lies in the subspace A_{gh} . Group gradings on most important finite dimensional algebras will be discussed. In particular, all G -gradings on full matrix algebra will be described and all graded simple finite dimensional algebras will be classified.