$\mathbb{Z}_2$-GRADED IDENTITIES OF THE GRASSMANN ALGEBRA IN POSITIVE CHARACTERISTIC

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The Grassmann algebra E arises naturally in many fields of physical and mathematical sciences. Mathematically speaking, it is the largest algebra that supports an alternating product on vectors, and can be easily defined in terms of other known objects such as tensors. The definition of the Grassmann algebra makes sense for spaces not just of geometric vectors, but of other vector-like objects such as vector fields or functions. The Grassmann algebra is also important in the theory of algebras with polynomial identities. For this purpose, we want to describe what follows: let F be an infinite field of characteristic $p > 2$ and let E be the Grassmann algebra generated by an infinite dimensional vector space V over F. In this talk we shall describe the T_2-ideal of the $\mathbb{Z}_2$-graded polynomial identities of the Grassmann algebra E for any $\mathbb{Z}_2$-grading such that V is homogeneous in the grading. In particular, we shall give a description of the T_2-ideal of the graded identities of E in the case there is a finite number of homogeneous elements of the linear basis of E belonging to one of the homogenous components of E.