ON BLOCKS AND CLIFFORD EXTENSIONS

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Abstract. We give a short proof of a result of E.C. Dade, as stated in [1, Theorem 9] on Clifford extensions for blocks of group algebras (see also [2, Corollary 12.6], avoiding the machinery developed in [2], but making use of the Brauer homomorphism. Moreover, we do not assume that the ground field k is algebraically closed.

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Key words. Group algebra, blocks, group graded algebra, Brauer homomorphism, Brauer correspondence.

REFERENCES

- DADE, E.C., A Clifford Theory for Blocks, Representation Theory of Finite Groups and Related Topics, Proc. Sympos. Pure Math., 21, Univ. Wisconsin, Madison, Wisconsin 1970, pp. 33–36.
- [2] DADE, E.C., Block extensions, Illinois J. Math., 17 (1973), 198–272.
- [3] MARCUS, A., Representation Theory of Group Graded Algebras, Nova Science Publishers, Commack, New York, 1999.
- [4] PUIG, L., Blocks of Finite Groups. The Hyperfocal Subalgebra of a Block, Springer, Berlin, 2002.
- [5] KESSAR, R., Introduction to Block Theory, Group Representation Theory, EPFL Press, Lausanne, 2007, pp. 47–77.
- [6] SCHIMD, P., Clifford theory of simple modules, J. Algebra, 119 (1988), 185-212.
- [7] THÉVENAZ, J., G-Algebras and Modular Representation Theory, Clarendon Press, Oxford 1995.

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