

Domination of blocks, fusion systems and hyperfocal subgroups

Tiberiu Coconet

Babeş-Bolyai University

tiberiu.coconet@math.ubbcluj.ro

We investigate the connections between some properties of blocks and of their dominating blocks. We find conditions to verify that a block is inertial if and only if its dominating block is inertial. In some situations the equality of the factor fusion systems associated with a block and with its Brauer correspondent block give information about the hyperfocal subgroups.

References

- [1] CRAVEN, D., *The theory of fusion systems*, vol.1, Cambridge University Press, 2011.
- [2] CRAVEN, D., *Control of fusion and solubility in fusion system*, J. Algebra, **323** (2010), 2429–2448.
- [3] EATON, C. W. and LIVESEY, M., *Donovan’s conjecture and blocks with abelian defect groups*, Proc. Amer. Math. Soc., **147** (2019), 963–970.
- [4] FEIT, W., *The representation theory of finite groups*, North-Holland Publishing Company, Cambridge, Amsterdam New York Oxford, 1982.
- [5] LINCKELMANN, M., *The block theory of finite group algebras*, Volume1, London Mathematical Society Student Texts, Cambridge, 2018.
- [6] NAGAO, H. and TSUSHIMA, Y., *Representations of Finite Groups*, Academic Press, London, 1989.
- [7] THÉVENAZ, J., *G-Algebras and Modular Representation Theory*, Clarendon Press, Oxford 1995.
- [8] WATANABE, A., *On nilpotent blocks of finite groups*, J. Algebra, **163** (1990), 128–134.
- [9] WATANABE, A., *On blocks of finite groups with central hyperfocal subgroups*, J. Algebra **368** (2012) 358–375.
- [10] YUN, F., *Hyperfocal subalgebras of blocks and computation of characters*, J. Algebra **322** (2009) 3681–3692.