Turull, Alexandre
Endoisomorphisms and character triple isomorphisms. (English) Zbl 1380.20010

From the summary: “This paper concerns aspects of Clifford theory of finite groups. In earlier papers, Turull proved that if two finite groups yielded the same element of the Brauer-Clifford group, then there was an endoisomorphism from one group to the other, and furthermore, that associated with each endoisomorphism there was an essentially unique correspondence of modules over many different fields from one group to the other. The paper adapts the definition of character triple isomorphism so that it involves ordinary and Brauer characters, and it preserves fields of definition, Schur indices, decomposition numbers, and blocks. It is proved that each endoisomorphism yields exactly one character triple isomorphism. Character triple isomorphisms can be composed, restricted, produced by direct sums, extension of fields, and these operations have their parallel for the endoisomorphisms. One goal of the paper is to provide tools for the study of the character theory of finite groups in an accessible way suitable for applications.”

In this paper, the author exposes new theoretical means (with a detailed introduction and his objectives) in order to reach his goals in a very impressive and beautiful way: it is a welcome addition to the existing developed theory. Let us give the titles of the sections in order to get some ideas what it is all about:

1) Introduction; 2) Conventions on fields; 3) Further conventions, definitions and notation; 4) Characters triple isomorphisms; 5) Modular character triple isomorphisms; 6) \(p\)-compatible character triples; 7) Endoisomorphisms in characteristic zero; 8) Endoisomorphisms in characteristic \(p\); 9) Endoisomorphisms over \(p\)-adic fields; 1) Glauberman correspondents.

Let us close this little survey with the remark that the earlier papers due to the author (being meant in the summary) are to be found in [Adv. Math. 217, No. 5, 2170–2205 (2008; Zbl 1149.20010); J. Algebra 394, 7–50 (2013; Zbl 1343.20013); ibid. 394, 79–91 (2013; Zbl 1344.20014); ibid. 398, 469–480 (2014; Zbl 1342.20010)].

Reviewer: Robert W. van der Waall (Amsterdam)

MSC:

20C15 Ordinary representations and characters
20C20 Modular representations and characters

Keywords:
Clifford theory; finite groups; representations; character correspondence; Brauer-Clifford group; Schur index; ordinary characters; Brauer characters; endoisomorphisms; blocks; decomposition numbers

Full Text: DOI

References:


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