

Malle, Gunter

Almost irreducible tensor squares. (English) Zbl 0931.20009
Commun. Algebra 27, No. 3, 1033-1051 (1999).

Let G be a covering group of a finite almost simple group. The author determines faithful irreducible complex characters χ of G for which $\chi \otimes \chi^* - 1$ is irreducible, where χ^* is the character of the dual of the $\mathbb{C}G$ -module which affords χ . This gives a classification of the quasisimple absolutely irreducible subgroups of $\mathrm{GL}_n(q)$ of order prime to q which act irreducibly on the Lie algebra of type A_{n-1} via the adjoint representation. The proof uses Lusztig's description of the degrees of irreducible characters of reductive groups and the determination of Brauer trees by Fong and Srinivasan to handle the case of groups of Lie type.

Reviewer: [A.Khammash \(Makkah\)](#)

MSC:

[20C15](#) Ordinary representations and characters
[20C33](#) Representations of finite groups of Lie type
[20G05](#) Representation theory for linear algebraic groups
[20G40](#) Linear algebraic groups over finite fields

Cited in **16** Documents

Keywords:

[covering groups](#); [finite almost simple groups](#); [faithful irreducible complex characters](#); [adjoint representations](#); [reductive groups](#); [Brauer trees](#); [groups of Lie type](#)

Full Text: [DOI](#)

References:

- [1] DOI: [10.1007/BF01444619](#) · [Zbl 0820.20057](#) · [doi:10.1007/BF01444619](#)
- [2] Carter R.W., Finite groups of Lie type: Conjugacy classes and complex characters (1985) · [Zbl 0567.20023](#)
- [3] Conway J.H., Atlas of finite groups (1985)
- [4] Deriziotis D.I., *Trans. Amer. Math. Soc* 303 pp 39– (1987)
- [5] Digne F., *LMS Student Texts* 21 (1991)
- [6] DOI: [10.1007/BF01163168](#) · [Zbl 0545.20006](#) · [doi:10.1007/BF01163168](#)
- [7] DOI: [10.1016/0021-8693\(90\)90172-K](#) · [Zbl 0704.20011](#) · [doi:10.1016/0021-8693\(90\)90172-K](#)
- [8] DOI: [10.1080/00927879208824499](#) · [Zbl 0770.20020](#) · [doi:10.1080/00927879208824499](#)
- [9] DOI: [10.1080/00927879108824175](#) · [Zbl 0798.20010](#) · [doi:10.1080/00927879108824175](#)
- [10] James G.D., *The representation theory of the symmetric group* (1981)
- [11] Kleidman P.B., *LMS lecture notes* 129 (1990)
- [12] DOI: [10.1007/BF01263536](#) · [Zbl 0832.20029](#) · [doi:10.1007/BF01263536](#)
- [13] Ramanujan S., *A proof of Bertrand's postulate* (1962)
- [14] *Lehrstuhl D für Mathematik* (1994)
- [15] DOI: [10.1515/crll.1911.139.155](#) · [Zbl 42.0154.02](#) · [doi:10.1515/crll.1911.139.155](#)
- [16] DOI: [10.1080/00927879608825690](#) · [Zbl 0901.20031](#) · [doi:10.1080/00927879608825690](#)

This reference list is based on information provided by the publisher or from digital mathematics libraries. Its items are heuristically matched to zbMATH identifiers and may contain data conversion errors. It attempts to reflect the references listed in the original paper as accurately as possible without claiming the completeness or perfect precision of the matching.