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FINITE GROUPS IN WHICH ALL MAXIMAL SUBGROUPS ARE π-CLOSED. I

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Finite simple nonabelian groups G that are not π-closed for some set of primes π but have π-closed maximal subgroups (property $(*)$ for (G, π)) are studied. We give a list $\mathcal{L}$ of finite simple groups that contains any group G with the above property (for some π). It is proved that $2 \notin \pi$ for any pair (G, π) with property $(*)$ (Theorem 1). In addition, we specify for any sporadic simple group G from $\mathcal{L}$ all sets of primes π such that the pair (G, π) has property $(*)$ (Theorem 2). The proof uses the author's results on the control of prime spectra of finite simple groups.

Keywords: finite group, simple group, π-closed group, maximal subgroup, control of prime spectrum of a group.

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