

## FINITE SIMPLE GROUPS THAT ARE NOT SPECTRUM CRITICAL

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Let  $G$  be a finite group. The *spectrum* of  $G$  is the set  $\omega(G)$  of orders of all its elements. The subset of prime elements of  $\omega(G)$  is called *prime spectrum* and is denoted by  $\pi(G)$ . A group  $G$  is called *spectrum critical* (*prime spectrum critical*) if, for any subgroups  $K$  and  $L$  of  $G$  such that  $K$  is a normal subgroup of  $L$ , the equality  $\omega(L/K) = \omega(G)$  ( $\pi(L/K) = \pi(G)$ , respectively) implies that  $L = G$  and  $K = 1$ . In the present paper, we describe all finite simple groups that are not spectrum critical. In addition, we show that a prime spectrum minimal group  $G$  is prime spectrum critical if and only if its Fitting subgroup  $F(G)$  is a Hall subgroup of  $G$ .

Keywords: finite group, simple group, spectrum, prime spectrum, spectrum critical group, prime spectrum critical group.

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