

## On weakly $s^*$ -permutable subgroups of finite groups

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**Abstract.** Let  $G$  be a finite group. A subgroup  $H$  of  $G$  is called weakly  $s^*$ -permutable in  $G$  provided that there exists a subnormal subgroup  $T$  of  $G$  containing  $H_{sG}$  such that  $G = HT$  and  $|H \cap T : H_{sG}|$  is a square-free integer, where  $H_{sG}$  is the largest  $s$ -permutable subgroup of  $G$  contained in  $H$ . In this paper, we characterize the solvability of  $G$  in terms of certain weakly  $s^*$ -permutable subgroups.

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