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## SOME CONSIDERATIONS ON THE NONABELIAN TENSOR SQUARE OF CRYSTALLOGRAPHIC GROUPS

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The nonabelian tensor square  $G \otimes G$  of a polycyclic group  $G$  is a polycyclic group and its structure arouses interest in many contexts. The same assertion is still true for wider classes of solvable groups. This motivated us to work on two levels in the present paper: on a hand, we investigate the growth of the Hirsch length of  $G \otimes G$  by looking at that of  $G$ , on another hand, we study the nonabelian tensor product of pro- $p$  groups of finite coclass, which are a remarkable class of solvable groups without center, and then we do considerations on their Hirsch length. Among other results, restrictions on the Schur multiplier will be discussed.

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