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Heiko Dietrich* (H.Dietrich@tu-bs.de), TU-Braunschweig, Institut Computational Mathematics, Pockelsstr. 14, 38106 Braunschweig, Germany, and **Bettina Eick**. *On the p -groups of maximal class (Preliminary report)*. Preliminary report.

A p -group of order p^n and nilpotency class c has maximal class if $c = n - 1$. Based on results by Blackburn, a first approach towards a classification of the p -groups of maximal class has been made by Leedham-Green and McKay. As a result it is known that the 2- and 3-groups of maximal class can be classified. However, a classification for $p > 3$ still seems to be a difficult problem.

In this talk we first recall the main results obtained so far towards a possible classification of p -groups of maximal class. Then we discuss the main open questions in this area and we introduce computational methods to investigate them. These methods are implemented in GAP. (Received January 05, 2007)