Maximal Subgroup Growth of Some Groups

Abstract: Let $m_n(G)$ denote the number of maximal subgroups of a finitely generated group $G$ of index $n$. How do the algebraic/structural properties of $G$ control the growth rate of $m_n(G)$? Others have researched the broad picture and described what it means for $m_n(G)$ to be bounded above by a polynomial in $n$. However, there are only a few groups whose degree of growth is known. If we restrict to particularly nice classes of groups however, then asymptotic formulas (or bounds) can be given. We will focus on metabelian groups, especially those that are abelian by cyclic. Beyond this, current progress on virtually abelian groups and Baumslag-Solitar groups may also be mentioned.

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