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Michael R. Bush* (bush@math.umass.edu), Dept. of Mathematics and Statistics, University of Massachusetts, Amherst, MA 01003-9305, and **Laurent Bartholdi** (laurent.bartholdi@epfl.ch), EPFL, Institut de Mathématiques B, CH-1015, Lausanne, Switzerland. *Maximal unramified 3-extensions and $SL_2(\mathbb{Z}_3)$.*

The Galois group of the maximal unramified p -extension of a number field is hard to compute. In the cases where it is known to be finite the derived length is small (≤ 3). We will exhibit a family of 3-groups of unbounded derived length that potentially may arise as such Galois groups along with some numerical evidence that this is the case. The construction makes use of an explicit presentation for a pro-3 Sylow subgroup of $SL_2(\mathbb{Z}_3)$. (Received February 16, 2006)