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**Susan Hermiller\*** ([hermiller@unl.edu](mailto:hermiller@unl.edu)), Department of Mathematics, University of Nebraska, Lincoln, NE 68588-0130. *Computation in fundamental groups of 3-manifolds.*

For all fundamental groups of compact 3-manifolds, the word problem is solvable; that is, for each 3-manifold group there is an algorithm which, upon input of a word in the generators, determines whether the word represents the identity. In the case that the 3-manifold has no Nil or Sol prime factors, the word problem is solvable in quadratic time. In this talk I will discuss solutions the word problem for 3-manifold groups using finite state automata (computers with a finite amount of memory), and methods to build these algorithms. Based on joint projects with M. Brittenham and T. Susse, and with D. Holt, S. Rees, and T. Susse. (Received August 03, 2020)