

# CONTINUED FRACTIONS AND THE GEOMETRY OF HYPERBOLIC 3-MANIFOLDS

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## Abstract

It is well-known that all negatively curved Riemann surfaces are quotients of the upper half plane by Fuchsian groups (discrete subgroups of  $PSL(2, \mathbb{R})$ ), and likewise that factoring upper half space by Kleinian groups (discrete subgroups of  $PSL(2, \mathbb{C})$ ) yields hyperbolic 3-manifolds. Over the last several years many investigators have discovered certain families of words in the generators of these groups with important properties. For example there are the *good words* of Gehring and Martin, and the *killer words* of Gabai, Meyerhoff and N-Thurston. We survey these families of words and discuss in detail the relation between palindromes, continued fractions and geometry.