1088-20-167 **Benjamin Fine*** (fine@fairfield.edu), **Martin Kreuzer** (martin.kreuzer@uni-passau.de) and **Gerhard Rosenberger** (gerhard.rosenberger@math.uni-hamburg.de). *CONSTRUCTIVE FAITHFUL REPRESENTATIONS INTO PSL(2,C) AND PSL(2,R).*

Abstract: Constructive linear representations can play a large role in the algorithmic theory of infinite groups. The groups $PSL(2, C)$ and $PSL(2, R)$ are especially important in this regard. The vast majority of the theory of discrete groups can be placed within these two groups. Fine and Rosenberger showed that any finitely generated fully residually free group has a faithful representation into $PSL(2, \mathbb{C})$ and further if the group is hyperbolic this representation can be effectively constructed from the JSJ decomposition of the group. Recall that a cyclically pinched one-relator groups is a free product with amalgamation of 2 free groups with infinite cyclic amalgamated subgroup given by $U = V$ where U and V are words in the free group factors. Here we show that if U and V are nonprimitive and not proper powers then the resulting cyclically pinched one-relator group has a faithful two-dimensional real representation, that is a faithful representation into $PSL(2, \mathbb{R})$. The same result extends to groups of F-type which are a natural generalization of Fuchsian groups.

These results are tied to older problems related to representations of surface groups and more generally Fuchsian groups into Lie Groups. (Received February 09, 2013)