1046-57-1765 **Rachel Roberts***, Department of Mathematics, Washington University, St Louis, MO 63130, and **John Shareshian**. *Non-right-orderable 3-manifold groups.*

We investigate the orderability of fundamental groups of 3-manifolds. We restrict attention to groups of the form

$$G = \langle t, a, b | a^t = a^{\phi_*}, b^t = b^{\phi_*}, t^p[a,b]^q = 1 \rangle,$$

where ϕ_* is any automorphism of the rank two free group $F = F(a,b)$ such that

- $[a,b]^{\phi_*} = [a,b]$, and
- the automorphism $\phi_\sharp$ of the abelianization $F/[F,F] \cong \mathbb{Z} \oplus \mathbb{Z}$ induced by ϕ_* lies in $SL_2(\mathbb{Z})$, with $|\mathrm{Trace}(\phi_\sharp)| > 2$.

In other words, ϕ_* is induced by an orientation preserving pseudo-Anosov homeomorphism ϕ of a once punctured torus. We show that if either $\mathrm{Trace}(\phi_\sharp) < -2$ and $\frac{p}{q} \in [1, \infty]$ or $\mathrm{Trace}(\phi_\sharp) > 2$ and $(p,q) = (1,0)$ then $G(\phi, p, q)$ is not right orderable.

There is some overlap between this work and the work of Dąbkowski, Przytycki and Togha. (Received September 16, 2008)