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Algorithmic problems for toral relatively hyperbolic groups

We will present some algorithmic results (joint with A. Myasnikov) for these groups, in particular, the following:

Let G be a toral relatively hyperbolic group and H and K finitely generated relatively quasi-convex subgroups of G given by finite generating sets. Then one can effectively find a finite family \mathcal{J} of non-trivial intersections $J = H^g \cap K \neq 1$ such that any non-trivial intersection $H^{g_1} \cap K$ has form J^k for some $k \in K$ and $J \in \mathcal{J}$. One can effectively find the generators of the subgroups from \mathcal{J} .