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Brian Benson and **Grant Lakeland*** (gslakeland@eiu.edu), Dept. of Mathematics and Computer Science, Eastern Illinois University, 600 Lincoln Avenue, Charleston, IL 61920, and **Holger Then**. *Cheeger constants and first eigenvalues for hyperbolic reflection groups*. Preliminary report.

We compute two geometric invariants, the Cheeger constant and first Laplace—Beltrami eigenvalue λ_1 , for some specific Fuchsian groups. The groups in question are (the orientation-preserving subgroups of) maximal arithmetic hyperbolic reflection groups, which are not all congruence subgroups. Belolipetsky asked for a practical lower bound on λ_1 for these groups, such as would be provided if they were congruence. We find that some of the non-congruence examples have small values for these invariants, and in particular, that the lower bound on the first eigenvalue for congruence subgroups does not apply to all these groups. This work is joint with Brian Benson and Holger Then. (Received January 27, 2019)