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Brian Benson* (bbenson@ucr.edu), **Grant S. Lakeland** and **Holger Then**. *Computing the Cheeger Constant of Hyperbolic Surfaces*. Preliminary report.

The Cheeger constant is a geometric invariant of a Riemannian manifold related to the isoperimetric problem. Cheeger and Buser gave the first proofs that the spectrum of the Laplacian is bounded by quadratics in the Cheeger constant from below and above, respectively. We will discuss how the marked length spectrum of a finite area hyperbolic surface may be used to compute the Cheeger constant of the surface. We will then mention an application to the study of hyperbolic reflection groups, which introduce additional challenges, questions, and possible directions for future work. (Received January 29, 2019)