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# HOW DO YOU EFFICIENTLY CHOP A HYPERBOLIC SURFACE IN TWO?

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The Cheeger constant of a Riemannian manifold measures how hard it is to cut out a large part of the manifold. If the Cheeger constant of a manifold is large, then, through Cheeger's inequality, this implies that Laplacian of the manifold has a large spectral gap. In this talk, I will discuss how large Cheeger constants of hyperbolic surfaces can be. In particular, I will discuss recent joint work with Thomas Budzinski and Nicolas Curien in which we prove that the Cheeger constant of a closed hyperbolic surface of large genus cannot be much larger than  $2/\pi$  (approximately 0.6366). This in particular proves that there is a uniform gap between the maximal possible Cheeger constant of a hyperbolic surface of large enough genus and the Cheeger constant of the hyperbolic plane (which is equal to 1).