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**Benjamin Linowitz\*** ([benjamin.linowitz@oberlin.edu](mailto:benjamin.linowitz@oberlin.edu)), 10 North Professor St, Department of Mathematics, Oberlin College, Oberlin, OH 44145. *Geodesics on hyperbolic surfaces, quaternion algebras, and the Chebotarev density theorem in short intervals.*

In this talk we will discuss some results at the crossroads of number theory (both algebraic and analytic) and hyperbolic geometry. Geometrically, we will discuss the extent to which arithmetic hyperbolic surfaces (e.g., Shimura curves) which are not commensurable may share arbitrarily large portions of their geodesic length spectra. This problem may be recast in terms of counting the number of quaternion algebras over a number field  $K$  admitting embeddings of a fixed set of quadratic extensions of  $K$ . Additionally, we will show how the Chebotarev density theorem may be used to address problems involving the geometry of geodesics on arithmetic hyperbolic surfaces. (Received June 01, 2017)