1097-53-33 **Benjamin Linowitz*** (linowitz@umich.edu), 530 Church Street, Ann Arbor, MI 48109, and **John Voight**, 6188 Kemeny Hall, Hanover, NH 03755. *The arithmetic of quaternion orders and isospectral hyperbolic surfaces.*

A well-known construction associates to an order in a quaternion algebra (defined over a totally real number field) a hyperbolic surface. In 1980 Vigneras used this construction in order to prove the existence of hyperbolic surfaces which were isospectral (have the same spectrum with respect to the Laplace-Beltrami operator) but not isometric. Key to Vigneras' method was a characterization of the values contained in the spectrum of an arithmetic manifold as embedding numbers of certain rank two commutative orders into quaternion orders. In this talk we will review the embedding theory of quaternion orders and show how the notion of "selectivity" may be used to construct isospectral hyperbolic surfaces of extremely small volume. We will further show that our examples have minimal volume amongst all isospectral hyperbolic surfaces arising from maximal arithmetic Fuchsian groups. This is joint work with John Voight. (Received December 19, 2013)