1000-53-25 **Floyd L. Williams*** (`williams@math.umass.edu`), Dept.Mathematics, Univ.Massachusetts, Amherst, MA 01003. *Patterson-Selberg zeta function for the BTZ black hole.*

The Banados,Teitelboim,Zanelli (BTZ) black hole,gamma X,is a three dimensional solution,with negative cosmological constant,of Einstein's vacuum equation.In some joint work with P.Perry,a Patterson-Selberg zeta function has been attached to it and special values of the log of zeta have been connected to its thermodynamics.We consider an associated theta function,that we relate to zeta,and a generalized Jacobi inversion formula for the spectrum of gamma X. (Received July 08, 2004)