1023-37-41 **Steve Zelditch*** (zelditch@math.jhu.edu), Department of Mathematics, Johns Hopkins University, Baltimore, MD 21218, and **Nalini Anantharaman**. *Patterson-Sullivan distributions are asymptotic to Wigner distributions on hyperbolic manifolds: An exact conjugacy between classical and quantum mechanics.* Preliminary report.

This is a report on joint work with Nalini Anantharaman. Quantum chaos is largely concerned with Wigner distributions $W_{ij}(a) = \langle Op(a)\phi_i, \phi_j\rangle$ where ϕ_j is an orthonormal basis of eigenfunctions on a manifold with ergodic geodesic flow. It turns out that on a hyperbolic surface, such distributions are asymptotic to certain invariant distributions PS_{ij} for the geodesic flow which we call Patterson-Sullivan distributions. There is an explicit intertwining operator taking PS_{ij} to W_{ij}, which induces a conjugacy between classical mechanics (translation by the geodesic flow) and quantum mechanics (conjugation by the wave group). Thus, problems in quantum chaos on hyperbolic surfaces become problems in classical dynamics. (Received July 11, 2006)