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Steve Zelditch* (zelditch@math.northwestern.edu). *Weyl laws, Grauert tubes and Laplace eigenfunctions.*

Let (M, g) be a real analytic Riemannian manifold. The pointwise Weyl laws give asymptotics and remainder estimates for sums over eigenvalues of squares $\phi_j(x)^2$ of Laplace eigenfunctions. The remainder can be expressed in terms of geodesics loops at x . Together with Sogge (2003) and Sogge-Toth (2011), we related maximal growth of L_p norms to measures of geodesic loops at x . In this talk, I consider analytic continuations of eigenfunctions to a Grauert tube of M and give pointwise Weyl laws in the complex domain. They are phase space local Weyl laws. The remainders turn out to depend only on whether the phase space point is a periodic point for the geodesic flow. I.e. the remainder is in terms of smoothly closed geodesics and not all loops. Inverting the Poisson (FBI) transform gives results on eigenfunction growth in the real domain. (Received January 13, 2013)