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Steve Zelditch* (zelditch@math.northwestern.edu), Department of Mathematics
Northwestern Univer, 2033 Sheridan Road, Evanston, IL 60208-2370. *Global harmonic analysis of
eigenfunctions in the real and complex domain.* Preliminary report.

I will present some new asymptotics results on the eigenfunctions of the Laplace operator of a compact Riemannian manifold (M, g) as the eigenvalue tends to infinity. When (M, g) is real analytic, eigenfunctions can be analytically continued to the complexification of M (i.e. to Grauert tubes), and there are complex analogues of the standard problems in the real domain— local Weyl laws with remainder, zeros etc. and their relations to complex geodesics. I will discuss the new phenomena in the complex domain. (Received September 11, 2011)