

RELATIONS BETWEEN CLASSICAL RESONANCES AND QUANTUM RESONANCES IN CONSTANT NEGATIVE CURVATURE

by

Colin Guillarmou

In this minicourse, we will define the notion of Ruelle resonance for the geodesic flow on a constant negatively curved manifold M . These are essentially eigenvalues of the vector field X generating the geodesic flow on the unit tangent bundle SM on certain functional spaces. We will show an explicit relation between these eigenvalues of X and the corresponding eigenfunctions with eigenvalues of some quantum operators, typically some Laplacians on certain bundles on M . We will also explain how quantum ergodicity is related to equidistributions of traces of spectral projectors (or Patterson-Sullivan distributions) of Ruelle resonances at high frequencies.

