QUANTUM ERGODICITY: OLD AND NEW RESULTS

by

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The quantum ergodicity theorem is a classical result on the distribution of Laplace eigenfunctions on negatively curved manifolds. In a first lecture, I will describe the context in which this theorem appears, its statement and some conjectures related to it. In a second lecture, I will discuss some background materials related to microlocal analysis. In a third lecture, I will build on the tools of the second lecture and give a proof of the quantum ergodicity theorem. In a fourth lecture, I will discuss some recent advances due to Anantharaman, Bourgain, Dyatlov, Lindenstrauss, Hassell, Nonnenmacher and Jin.