

For a Wigner–Weisskopf model of an atom we study the survival probability of a bound state when the energy level of the atom varies smoothly and adiabatically in time. The initial state corresponds to a discrete eigenvalue which dives into the continuous spectrum and re-emerges from it as the energy level is varied in time and finally returns to its initial value. Our main result is that for a large class of couplings, the survival probability of this bound state vanishes in the adiabatic limit. The methods used in the proof are quite robust and there is hope that they extend to certain Schrödinger and Dirac operators. This talk is based on joint work with H. Cornean, A. Jensen and Gh. Nenciu.