Contribution Title: THE   ATOMIC   PHOTOEFFECT   IN   NON-
                           RELATIVISTIC QED
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In this talk I present a mathematical analysis of the photoelectric effect for one-electron atoms in the framework of non-relativistic QED. Photo-ionization is treated as a scattering process, where in the remote past an atom in its ground state is targeted by one or several photons, while in the distant future the atom is ionized and the electron escapes to spacial infinity. The main result shows, that the ionization probability, to leading order in the fine-structure constant, α, is correctly given by formal time-dependent perturbation theory, and, moreover, that the dipole approximation produces an error of only sub-leading order in α. In this sense the dipole approximation is rigorously justified.