

Abstract

We investigate how an intense linearly polarized laser field affects the alpha decay of helium-like polonium-212. The change in decay rate and half-life of the alpha particle are studied using the time-varying electric field of the electronic cloud driven by the laser. With time-dependent WKB approximation, this behavior of the alpha particle emerges from the solution of TDSE. Although there is relatively little change in half-lives, the indirect impact of the laser field increases the rate of alpha decay linearly. We also show that in this case, the shielding of the electron is not effective but the motion of the electronic cloud plays its role.