

Theoretical Study of the ${}^4\text{He}(\gamma, n){}^3\text{He}$ and ${}^4\text{He}(\gamma, p){}^3\text{H}$ reactions

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${}^4\text{He}$ photodisintegration has been the subject of a long standing debate. Many measurements of the exclusive and inclusive cross sections were made during the last five decades, and their results are very dispersed. Here we present an *ab-initio* calculation of the exclusive cross-sections of the 2-body breakup reactions ${}^4\text{He}(\gamma, n){}^3\text{He}$ and ${}^4\text{He}(\gamma, p){}^3\text{H}$, which were recently measured at the HI γ S facility ([1] and [2], respectively). To this end we utilize the Lorentz integral transform (LIT) [3] and the effective interaction hyperspherical harmonics (EIH) [4] methods. For the nuclear Hamiltonian we use modern realistic nucleon-nucleon interaction and three-nucleon force.

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