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Mean-field study of the radiative capture 12C(p,γ)13N and 13C(p,γ)14N reactions

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In this framework we study the effect of local optical potential on the radiative capture 12C(p,γ)13N and 13C(p,γ)14N reactions. The optical potential of nucleon-nucleus interaction is constructed by parameterization of Woods-Saxon potential and folding model using the effective nucleon-nucleon interaction CDM3Yn based on an extended Hartree-Fock calculation. The result indicates that the both potentials described effectively the (p,γ) reactions compared to the experimental data.

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