

A correction to the non-resonant process for elastic channels in R-matrix analysis

Wednesday, 10 November 2021 15:00 (25 minutes)

I will propose a new method for describing the non-resonant process in the R-matrix theory, which is associated with additional background poles which are exclusively given to the incident particles. This method was applied to the simultaneous analysis of the ${}^6\text{Li}(p,p) {}^6\text{Li}$, ${}^6\text{Li}(p,\alpha) {}^3\text{He}$, ${}^3\text{He}(\alpha,\alpha) {}^3\text{He}$ and ${}^3\text{He}(\alpha,p) {}^6\text{Li}$ reaction cross-sections. It was found that the present approach was necessary to obtain a reasonable description of all the measured data simultaneously. I will also discuss the theoretical background for our recipe based on the physical aspects of the nuclear reactions, together with an outlook on the evaluation of ${}^{13}\text{C}(\alpha,n) {}^{16}\text{O}$ cross sections.

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