New method of analytic continuation of elastic-scattering data to the negative - energy region, and asymptotic normalization coefficients for ^{17}O and ^{13}C

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A new method is proposed for extrapolation of elastic-scattering data to the negative-energy region for a short-range interaction [1]. The method is based on the analytic approximation of the modulus-squared of the partial-wave scattering amplitude and can serve as an alternative to the traditional one based on continuation of the effective-range function. The new method has been applied to determine the asymptotic normalization coefficients for the ^{17}O and ^{13}C nuclei in the n+^{16}O and n+^{12}C channels, respectively. The asymptotic normalization coefficients obtained by the new method are compared with the ones obtained in the effective-range function approach.

[1] L.D. Blokhintsev, A.S. Kadyrov, A.M. Mukhamedzhanov, and D.A. Savin, Phys. Rev. C **100**, 024627 (2019).