Contribution ID: 171

Type: Oral

Description of the ${}^{3}H(d, n)^{4}He$ reaction at low energies within the microscopic multichannel cluster approach

Wednesday 2 July 2025 11:30 (20 minutes)

In the present work, the 3 H(*d*, *n*) 4 He fusion reaction being of interest for both fundamental and applied physics is studied at low energies. Dynamics of the reaction is described by using the microscopic multichannel cluster approach in the oscillator representation [1–3]. The total and partial cross sections for the studied reaction in terms of the astrophysical *S* factors are calculated. The $3/2^{+}$ state of the considered five-nucleon system is shown to play a dominating role in forming low-energy dependence of the total *S* factor. The calculated results are in good agreement with the experimental data.

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Session Classification: 2. Experimental and theoretical studies of nuclear reactions

Track Classification: Section 2. Experimental and theoretical studies of nuclear reactions.