

THE STUDY OF THE ^{12}C STATES FROM THE REACTION $^{11}\text{B}(^3\text{He},\text{d})^{12}\text{C}$

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The experiment was done to study $^{11}\text{B}(^3\text{He},\text{d})^{12}\text{C}$ reaction with energy $E(^3\text{He}) = 25$ MeV.

The aim of the experiment is to determine the properties of ^{12}C states at high excitation energies and in particular to verify which of the conflicting spin-parity assignments of the 13.35 MeV state (2^- or 4^-) is consistent with the data and optical model predictions.

The contradicting reports attribute either 2^- [1-4] or 4^- [5,6] for 13.35 MeV state in ^{12}C . Unambiguous determination of the spin parity of the 13.35 MeV state is necessary to define its possible contribution to the part of the spectrum that we have previously identified as a new level in ^{12}C with excitation energy of 13.75 MeV [7]. Initially, we have estimated this contribution as equal to the measured state 11.83 MeV ($J = 2^-$). This estimation assumed spin parity $J = 2^-$ of the 13.35 MeV state. However, from our experiment was settled spin-parity of the 13.35 state is 4^- .

References

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Primary author(s) : STARASTSIN, Viktor (National Research Center «Kurchatov Institute»)

Co-author(s) : Dr. DEMYANOVA, Alla; Mr. DANILOV, Andrey; Prof. OGLOBLIN, Alexey; DMITRIEV, Sergey; Mr. MASLOV, Vladimir; Dr. SOBOLEV, Yuri; Prof. GONCHAROV, Sergey; Dr. TRZASKA, Wladislaw; HEIKKINEN, Paule; Dr. GUROV, Yuri

Presenter(s) : STARASTSIN, Viktor (National Research Center «Kurchatov Institute»)

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