

MEASUREMENT AND ANALYSIS OF THE $^{13}\text{C}(\alpha, \alpha^0)^{13}\text{C}$ REACTION CROSS-SECTION IN THE ENERGY RANGE OF 2.0 – 7.0 MeV

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The differential cross-sections of the $^{13}\text{C}(\alpha, \alpha^0)^{13}\text{C}$ reaction were measured at three angles (130°, 150° and 170°) in the energy range of 2.0-7.0 MeV. The thin layer of ^{13}C deposited to the beryllium backing was used as a target. The thickness and enrichment of the target were determined by the ion beam analysis methods. The effect of the carbon build-up was taken into account during the data analysis. The measurement results can be used for re-examination of evaluation of the $^{13}\text{C}(\alpha, n)^{16}\text{O}$ reaction cross-section using multi-channel R -matrix calculations.