$$d + {}^{11}B \rightarrow \alpha_1 + {}^{9}Be_{2.43} \rightarrow \alpha_1 + \alpha_2 + {}^{5}He \rightarrow 3\alpha + n$$

is the most favoured one.

The decay structure of low-lying levels in ^{9}Be is discussed with regard to the n + ^{8}Be and α + ^{5}He clustering; while the 2.43 MeV state decays preferably to the α + ^{5}He$_{g.s.}$, 3.03 MeV state shows purely n + ^{8}Be$_{g.s.}$ decay structure. Decay properties of 4.70, 6.66 and 7.94 MeV levels are also studied.

4.3. Three-body break-up in the reaction d + ^{7}Li → α + α + n

J. HUDOMALJ, V. VALKOVIĆ and P. TOMAŠ, *Institute »Ruđer Bošković«, Zagreb*

The reaction d + ^{7}Li → α + α + n has been studied at deuteron bombarding energy E_d = 180 keV, with a target of natural lithium fluoride. The electronic set-up used is a standard slow-fast coincidence arrangement which enables a simultaneous measurement of α − α and α − n coincidence.

The experimental results show an evidence of a sequential decay mechanism of the reaction, through the ^{8}Be first excited state (2.9 MeV) and the ground state of ^{5}He. The coincidence spectra have been analyzed with the Breit-Wigner resonant term and the $\varrho^{1}(E_{rel})$ density of states function of Phillips-Griffy-Biedenharn. However, in both cases the shape of the spectra can be reproduced only approximately. In order to approve the agreement between the experimental and theoretical curves, a contribution of the direct three-body break-up has to be included, with lower limit of 5%.

4.4. The effect of the quasifree scattering process on the shape of kinematically incomplete spectra at forward angles in the deuteron breakup*

Ž. BAJZER and G. PAIĆ, *Institute »Ruđer Bošković«, Zagreb*

In the deuteron breakup the quasifree scattering (QFS) process appears alongside the final state interaction process (FSI) even at low incident energies. In the measurement of the D(n, p) 2n reaction at forward angles with single counter, the proton spectra should include both the effects of n−p and of n−n QFS. The n−n QFS effect on the spectra is limited to very low proton energies. The n−p QFS effect at small proton angles of detection overlaps kinematically with the location of the enhancement due to the FSI.

We present a preliminary calculation of the proton spectrum which has been performed taking into account only the n−p QFS in the D(n, p) 2n reaction for $\Theta = 0°$. A simple impulse approximation has been used at this stage. The result shows a marked maximum at high proton energies. The importance of the QFS effect for the extraction of the n−n scattering length is discussed.

---

* Work published in Fizika 4(1972) 113—120.