

SECTION 4 — SIMPLE PARTICLE SYSTEMS

4.1. Study of three particle reactions on light nuclei induced by 14.4 MeV neutronsB. ANTOLKOVIĆ, *Institute »Ruder Bošković«, Zagreb*

Neutron induced breakup processes on some light elements have been studied in kinematically complete experiment. The correlation measurement has been performed by use of nuclear emulsions. In addition to the much higher yield which is allowed by the 4π detection geometry, the measurements performed by this technique include also events extended to the whole momentum space. This seems to be of great importance for the study of the reaction mechanism.

The experimental data of the correlation spectra of $n+{}^7\text{Li} \rightarrow n+\alpha+t$ and $n+{}^{10}\text{B} \rightarrow t+\alpha+\alpha$ are presented in Dalitz diagrams. The analysis of contributions of different reaction mechanisms has been performed and data on some particle unstable states extracted. The spectra have been fitted with the Phillips, Griffy and Biedenharn theory for the sequential decay via $t-\alpha$, $n-\alpha$ and $\alpha-\alpha$ two particle states. It has been found that in both reactions studied, the contribution of the simultaneous breakup process is less than 10% of the total reaction crosssection.

4.2. Four-body break-up $d + {}^{11}\text{B} \rightarrow 3\alpha + n$ and states in ${}^9\text{Be}^*$ D. RENDIĆ and V. VALKOVIĆ, *Institute »Ruder Bošković«, Zagreb*N. D. GABITZSCH, W. von WITSCH and G. C. PHILLIPS, *Rice University, Houston, USA*

The four-body break-up of $d+{}^{11}\text{B}$ system into $3\alpha+n$ has been studied in order to obtain information about the decay properties of the excited states in ${}^9\text{Be}$. Experiment was performed using the tandem Van de Graaff accelerator and existing TOF facilities at Rice University, Houston, Texas. $\alpha-\alpha$ and $\alpha-n$ coincidences have been measured simultaneously at two bombarding energies 10.425 and 12.0 MeV.

Measured spectra reveal the importance of sequential decay mechanisms in the reaction; the process of the type

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