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USING A ΔE(SI)-E(CSI(TL)) TELESCOPE TO IDENTIFY LIGHT CHARGED PARTICLES

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In this work the analog, digital and combination (analog-digital) electronic readout methods of pulse analysis of ΔE-E telescope detectors were studied. The ΔE-E telescope, consisting of thin Si-detector (H = 100 um) as a ΔE detector and CsI(Tl) scintillator (H = 20 mm) activated with Tl 0.7% as an E detector was used. The analog method of pulse analysis was carried out by using a dual spectroscopic amplifier Ortec-855 at the different integration times (τ = 0.5÷3.0 us) and a VME module of the analog-to-digital converter Mesytec MADC-32. The digital method of pulse analysis was carried out using a pulse processor Mesytec MDPP-16 CsI.
In the report the electronic block schemes and two dimensional ΔE×E spectra obtained by the above mentioned methods were presented. The main attention was focused on the dynamic range of the detected particle identification.
The 1,2,3H, 4He light charged particles with high positive Qgg value of the 6Li+9Be reaction together with 6,7Li isotopes were registered by ΔE×E telescope at the broad energy range. It was shown that the combined and digital electronic readout methods of pulse analysis give the most effective particle identification at low-energy and high-energy ranges, respectively.
The measurements were carried out with 6Li beam at E = 10 MeV/nucleon of the U400 cyclotron at the FLNR JINR.

The speaker is a student or young scientist

Yes

Section

1. Experimental and theoretical studies of nuclear reactions

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