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Search for highly excited states of 6Li isotope in 12C (pi-,tt)X stopped pion absorption reaction

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Search for highly excited states of 6Li lithium isotope was carried out in stopped pion absorption reaction by the carbon target 12C. The measurements were carried out at low energy pion channel of LANL with two-arm multilayer semiconductor spectrometer [1]. The missing mass resolution during the registration of a pair of tritons was $\leq$ 1 MeV.

In the correlation measurements of 12C (pi-,tt)X reaction we have found 6Li ground state and the levels with the excitation energy 2.2 MeV $< Ex <$ 5.6 MeV.The parameters of these states are in agreement with the world data within errors.

There are three excited states lying above the threshold 6Li $\rightarrow$ 5Li + n with Ex $<$ 19 MeV. The level wit Ex = 9.3 $\pm$ 0.3 MeV and the width Γ = 3.0 $\pm$ 0.5 MeV was found for the first time. There are also indications on the level structures in the area of 29 MeV $< Ex <$ 34 MeV.

The isobar-analog states of 6He were also found.

[1] M.G. Gornov et al., Nucl. Inst. and Meth. In Phys. Res. A, 2000, V. 446, P. 461.

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