Contribution ID : **35** Type : **Plenary/section talk**

Spectroscopy of helium isotope 6He

Wednesday, 4 October 2017 08:15 (15)

Spectroscopy of the heavy helium isotope He6 have been studied in reactions of stopped pion absorption by light nuclei. Experiment was performed at low energy pion channel of the LANL using two-arm semiconductor spectrometer. Search for nuclear states was performed in inclusive and correlative measurements of missing mass spectra. Excited states of the He6 were observed in two- and three body channels. A wide region of excitation energies studied in correlative measurements made possible to search for isobar-analog states and cluster resonances. Several high-excited states were observed for the first time. Some of these states are close to threshold energies. 6He excited state with Ex = 27.0(8) MeV observed in 10B(pion-,pt)X channel is an IAS candidate for 6H with Er $\sim$ 5.5 MeV.

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Session Classification : Nuclear physics - 1

Track Classification : Nuclear physics