

Search for isobar-analog states of superheavy hydrogen isotopes 5-7H

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Search for isobar-analog states of superheavy hydrogen isotopes 5-7H was performed among the high-excited states of helium isotopes 5-7He. The excited spectra were measured in stopped pion absorption by light nuclei. The experiment was performed at low energy pion channel of LANL with two-arm multilayer semiconductor spectrometer. The method of research is based on precise measurements of energies of charged particles emitted after pion absorption by nuclei. The important advantage of this method is the possibility of studying a wide range of excitation energies up to $E_x = 40$ MeV. Excited states of 5-7He were observed in three-body reaction channels on the 9Be and 10,11B nuclei. Several excited levels were found only in our measurements. 6He excited state with $E_x = 27.0(8)$ MeV observed in 10B(π^- ,pt)X channel is an isobar-analog candidate for 6H with $E_x \sim 5.5$ MeV. 7He excited state with $E_x = 24.8(4)$ MeV observed in 10B(π^- ,pd)X, 11B(π^- ,pt)X and 11B(π^- ,dd)X channels is an isobar-analog candidate for 7H with $E_x \sim 3$ MeV.

Presentation type

Section talk (10+5 min)

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