Contribution ID : **114** Type : **Oral talk**

Formation of the multi-neutron systems 2n and 3n in the reactions of stopped pion absorption

Wednesday, 23 October 2024 10:15 (15)

The formation of the multi-neutron systems 2n and 3n was studied in the reactions of stopped pion absorption by 9Be nuclei. Measurements were carried out at low energy pion channel of LANL using two-arm multilayer semiconductor spectrometer. The bound states of 2n and 3n have not been found. In the missing mass spectrum of the reaction 9Be(pi-, t4He), a peak was observed near the threshold, which is due to the formation of the s-wave virtual state of the dineutron. Indications of the existence of two states of the 3n with resonant parameters (Er ≈ 5 MeV, Γ < 3 MeV and Er ≈ 13 MeV, Γ < 3 MeV) were first obtained in the reactions 9Be(pi-, d4He) and 9Be(pi-, t3He). Comparison with theoretical and experimental results obtained by other authors was performed.

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Session Classification : Nuclear

Track Classification : Nuclear physics