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Search for $^{9,10}\text{He}$ heavy isotopes in stopped pion absorption reaction by ^{14}C

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Level structure of heavy helium isotope $^{9,10}\text{He}$ is studied in the reactions of stopped pion absorption $^{14}\text{C}(\pi^-, p^4\text{He})\text{X}$, $^{14}\text{C}(\pi^-, d^3\text{He})\text{X}$, $^{14}\text{C}(\pi^-, p^3\text{He})\text{X}$. The experiment was carried out at the LANL with a two-arm semiconductor spectrometer. The ground and excited states of ^9He have been observed. The $E_x \approx 11$ MeV state of ^9He has been observed for the first time. The indication of the existence of the $E_r \approx 7$ MeV resonant state of ^{10}He was obtained. Parameters of excited states have been compared with data of other experimental and theoretical works.

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