

Abstract Submitted
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Investigation on Periodic Oscillation in Orbital Electron Capture Decay in ^{140}Pr K. KISAMORI, Y. KUWADA, M. FUKUDA, Osaka University, D. NISHIMURA¹, Y. FUJITA, K. MAKISAKA, R. MATSUMIYA, K. MATSUTA, M. MIHARA, T. SUZUKI, A. TAKAGI, T. YAMAGUCHI, R. YOKOYAMA, Osaka University — According to recent experimental data at GSI, periodic oscillation have been observed in orbital electron capture(EC) of Hydrogen-like ion $^{140}\text{Pr}^{58+}$. They reported that this phenomenon can be explained by the neutrino mass difference. In order to test the existence of such a periodic oscillation in the decay of ^{140}Pr under the normal condition, we carried out an experiment to observe the EC decay of ^{140}Pr at the Van de Graaff accelerator facility in Osaka University. A 4.7-MeV proton beam was used to produce ^{140}Pr through the $^{140}\text{Ce}(p,n)^{140}\text{Pr}$ reaction. Observing K-X rays of Ce emitted just after the EC decay by using a Ge detector, a decay curve of ^{140}Pr was obtained. We could accumulate the time spectrum of the K-X rays with a good statistics under the low background condition. As a result, a finite-size component of the periodic oscillation could not be observed. We will discuss the experimental details and the result comparing with the GSI result.

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