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$\Lambda(1405)$**-induced non-mesonic decay in kaonic nuclei** TAKAYASU SEKIHARA, Department of Physics, Kyoto University, JUNKO YAMAGATA-SEKIHARA, DAISUKE JIDO, YOSHIKO KANADA-EN'YO, Yukawa Institute for Theoretical Physics, Kyoto University — The non-mesonic decay of kaonic nuclei is studied under the $\Lambda(1405)$-doorway picture, in which the $\bar{K}$ absorption to the nuclei takes place through the $\Lambda(1405)$ resonance, owing to the presence of the $\Lambda(1405)$ just below the $\bar{K}N$ threshold. For the study of the $\Lambda(1405)$-doorway non-mesonic decay of kaonic nuclei, we calculate the $\Lambda(1405)N \to YN$ transition in uniform nuclear matter using one-meson exchange model. In the present calculation we find that the non-mesonic decay ratio $\Gamma_{\Lambda N}/\Gamma_{\Sigma^0 N}$ depends strongly on the ratio of the couplings $\Lambda(1405)$-$\bar{K}N$ and $\Lambda(1405)$-$\pi\Sigma$. Especially a larger $\Lambda(1405)$-$\bar{K}N$ coupling leads to enhancement of the decay to ΛN. Using the chiral unitary approach for description of the $\bar{K}N$ amplitudes, we obtain $\Gamma_{\Lambda N}/\Gamma_{\Sigma^0 N} \approx 1.2$ almost independently of the nucleon density, and find the total two-nucleon absorption of the $\bar{K}$ in uniform nuclear matter to be 22 MeV at the normal density. We also show the two-nucleon absorption stpectrum of the (K^-, N) reaction in our approach.

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