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Possibility of nuclear deformation by anti-kaon in Thomas-Fermi model JUNKO YAMAGATA-SEKIHARA, Research Center for Nuclear Physics (RCNP), Osaka University, SATORU HIRENZAKI, Nara women's university — Meson-nucleus systems are valuable objects to obtain meson properties in a nuclear medium. Especially anti-kaonic system is very interesting since it could form a kaonic nuclear state with a large binding energy, which is expected to be large enough to change the nuclear structure. We report the possibility of nuclear deformation by the existence of anti-kaon. The nuclear deformation has been discussed in Refs. [1,2]. In our work, nuclear densities are obtained by the Thomas-Fermi model with anti-kaon, where nuclear and anti-kaon densities are obtained by the minimum energy condition in a self-consistent manner as in the standard Thomas-Fermi calculation. We could also calculate the density of the various meson-nuclear systems systematically for nuclei all over the nuclear chart for various strength of interaction. These results would be a guide to know the essential physics of the each system. For antikaonic nuclei, the depth of the potential is known to be still controversial. Thus, in this talk, we show the calculated results for two types of antikaon-nucleus optical potential with much different strength systematically.

[1] A. Dote et al., PRC70(04)044313, PLB590(04)51
[2] J. Mares, E. Friedman, A. Gal, NPA770(06)84

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