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Precision Spectroscopy of Pionic Atom in (d,^{3}He) Reaction at RIKEN-RIBF SATOSHI ITOH, University of Tokyo, PIAF COLLABORATION — Spectroscopy of pionic atoms has been contributing to understanding of the origin of hadron masses. The hadron masses dynamically grow as the chiral symmetry is partially broken. The order of the symmetry breaking is parameterized by the magnitude of the quark condensate. The objective of our experiment is to evaluate the magnitude of the quark condensate through precise experimental determination of the in-medium isovector interaction strength between the pion and the nucleus. Previous results of the pionic atom spectroscopy yielded the first quantitative estimation of its reduction at the normal nuclear density to be about 33% compared to that in the vacuum. However, the value of 33% definitely needs more careful and precise evaluation. The next experiment will be performed at RIKEN-RIBF. In this experiment, we use the dispersion matching to minimize the effect of the incident beam momentum spread. After fulfilling the necessary technical issues, we will achieve about twice better resolution of $150-200$ keV compared to the previous. In this contribution, we introduce the next experiment and report the present status.

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