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Ground-state nuclear moments of neutron-rich p - and sd -shell nuclei HIDEKI UENO, RIKEN, AKIHIRO YOSHIMI, TOMOHITO HASEYAMA, HIROSHI WATANABE, DAISUKE KAMEDA, Tokyo Institute of Technology, GO KIJIMA, KOICHIRO ASAHI, HISANORI MIYOSHI, KENZI SHIMADA, GO KATO, DAISUKE NAGAE, SHOKEN EMORI, MASATO TSUKUI — We have been conducting a series of experiments at RIKEN for the measurement the nuclear moments in the light unstable nuclei based on the β -NMR method with the spin-polarized radioactive-isotope beams. So far the measurements have been carried out in the region of neutron-rich p -shell nuclei. The obtained experimental nuclear moments have been shown quite effective in discussing the effect of neutron excess on their nuclear structure, where we discussed the deviation of magnetic moments from the Schmidt value and the isospin dependence of the effective charges. To extend the observation into the neutron-rich sd -shell region, the ground-state magnetic moments of ^{30}Al and ^{32}Al were measured. Important issue in this region is to understand what causes the manifestation of the “island of inversion”. Microscopic studies of such nuclei close to the “island of inversion”, as well as those inside it, would offer a clue to this question. The obtained μ moments, $|\mu_{\text{exp}}(^{30}\text{Al})| = 3.010(7) \mu_{\text{N}}$ and $|\mu_{\text{exp}}(^{32}\text{Al})| = 1.959(9) \mu_{\text{N}}$, are in agreement with shell model calculations within the sd valence space, although a reduction in the energy-gap between the sd and pf states is predicted for ^{32}Al in recent theoretical studies. Recent progress in this region will be presented.

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