

Abstract Submitted
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Magnetic moments of neutron-rich nuclei ^{30}Al and ^{32}Al DAISUKE KAMEDA, HIDEKI UENO, KOICHIRO ASAHI, AKIHIRO YOSHIMI, TOMOHITO HASEYAMA, HIROSHI WATANABE, YOSHIO KOBAYASHI, GO KIJIMA, HISANORI MIYOSHI, KENZI SHIMADA, GO KATO, DAISUKE NAGAE, SHOKEN EMORI, MASAHI TO TSUKUI, RIKEN COLLABORATION, TOKYO INSTITUTE OF TECHNOLOGY COLLABORATION — The magnetic moments of the ground-state ^{30}Al and ^{32}Al have been measured by means of the β ray-detected nuclear magnetic resonance (β -NMR) technique with spin polarized radioactive nuclear beams produced from projectile fragmentation reactions. The fragmentation processes that involved large numbers of removed nucleons, 10 and 8, from the 95 MeV/u ^{40}Ar projectile were successfully utilized to produce the polarized ^{30}Al and ^{32}Al fragments. A single-crystal corundum sample was employed as a stopper of the projectile fragments. The stopper temperature was maintained below 100 K to preserve the spin polarizations during the β decays. The quadrupolar splitting in the crystal was avoided by employing the “magic angle” technique. The magnetic moments have been successfully obtained, as $|\mu(^{30}\text{Al})| = (3.010 \pm 0.007)\mu_N$ and $|\mu(^{32}\text{Al})| = (1.959 \pm 0.009)\mu_N$. Shell model calculations within the sd valence orbits using the USD interaction reproduced the both magnetic moments within 6 %. The border of the “island of inversion” will be discussed in comparison with the magnetic moments of $N = 19$ isotones.

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