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Nuclear Moments of the Neutron-Deficient Lanthanum Isotopes by Collinear Laser Spectroscopy H. IIMURA, M. KOIZUMI, M. MIYABE, M. OBA, T. SHIBATA, N. SHINOHARA, Japan Atomic Energy Research Institute, Y. ISHIDA, Institute of Physical and Chemical Research (RIKEN), T. HORIGUCHI, Hiroshima International University, H.A. SCHUESSLER, Texas A&M University
— The hyperfine-structure-splitting constants and isotope shifts of the $6s^2\ ^1S_0$-$5d6p\ ^3D_1$ (λ=538 nm) and $5d^2\ ^3P_2$-$5d6p\ ^1D_2$ (λ=548 nm) transitions of singly charged lanthanum ion have been measured by collinear laser-ion-beam spectroscopy for the neutron-deficient isotopes ^{135}La, ^{137}La, and ^{138}La. The magnetic moments and quadrupole moments of the ground states of these isotopes have been determined from the measurements. The ratio of the magnetic dipole coupling constants A(138)/A(139) of the level $5d6p\ ^3D_1$ has shown a -0.35(23)% hyperfine anomaly with respect to the NMR ratio of the nuclear g factors. These moments and the changes in the mean-square nuclear charge radii determined from the isotope shifts are compared with theoretical predictions. Work to measure more neutron-deficient lanthanum isotopes is in progress by our laser spectroscopy collaboration at the ISAC facility at TRIUMF.

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