ROTATIONALLY-RESOLVED HIGH-RESOLUTION LASER SPECTROSCOPY AND MAGNETIC EFFECT OF THE $B \leftarrow X$ TRANSITION OF NO_3 RADICAL

K. TADA, W. KASHIHARA, S. KASAHARA, *Graduate School of Science, Kobe University, Kobe 657-8501, Japan*; M. BABA, *Graduate School of Science, Kyoto University, Kyoto 606-8502, Japan*; T. ISHIWATA, *Graduate School of Information Sciences, Hiroshima City University, Hiroshima 731-3194, Japan*; and E. HIROTA, *The Graduate University for Advanced Studies, Kanagawa 240-0193, Japan*.

Nitrate radical (NO_3) acts the important roles in various chemical reactions as an oxidant in the night atmosphere. From the spectroscopic viewpoint, NO_3 is one of the great models for understanding the intramolecular interactions in polyatomic radical species. In this study, rotationally-resolved high-resolution fluorescence excitation spectra of the 662 nm band in jet-cooled NO_3 have been recorded. This 662 nm band has been reported as the 0 - 0 band of the $B\ ^2E' \leftarrow X\ ^2A_2'$ transition. The observed region was 15070 - 15145 cm^{-1}. Typical linewidth of the observed rotational lines was about 20 MHz. The absolute wavenumbers of the observed rotational lines were calibrated in the accuracy of 0.0001 cm^{-1}. There are more than 3000 rotational lines in the observed region. The rotational assignment was difficult because the rotational lines seemed to have less regularity. To assign the observed rotational lines clearly, magnetic effect up to 360 G of the intense rotational lines was also observed. From the analysis of the Zeeman splitting, a part of the rotational lines was successfully assigned. Additionally, the magnetic g-factors of the ground state and the excited states were determined.