## Abstract Submitted for the MAR09 Meeting of The American Physical Society

Direct Observation of Orbital Reorientation in  $MnV_2O_4$  by NMR JEONG HYUN SHIM, EUNA JO, JOOSEOP LEE, SOONCHIL LEE, Department of Physics, Korea Advanced Institute of Science and Technology, Daejeon 305-701, Korea, TAKEHITO SUZUKI, TAKURO KATSUFUJI, Department of Physics, Waseda University, Tokyo 169-8555, Japan — The effect of magnetostriction on the orbital states in  $MnV_2O_4$  was investigated by rotating the direction of magnetic field. The microscopic evidence of the orbital reorientation process, induced by the rotation, was found from the variation of  $V^{3+}$  NMR spectrum. Despite the magnetic field is rotated from z axis to y axis, NMR spectrum of 0° is almost identical to that of 90°, which reveals the reorientation of the orbital states of  $V^{3+}$  ions following deformation of lattice. It was also observed that the reorientation process takes place suddenly when the magnetic field made 45° with respect to the z axis. Such a sudden behavior implies that the orbital-lattice coupling is much stronger than the spin-orbital coupling in  $MnV_2O_4$ .

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