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The observation of lattice distortion in TiOBr by using synchrotron X-rays diffraction MASAICHIRO MIZUMAKI, Japan Synchrotron Radiation Research Institute, TOMOYUKI SASAKI, Dept. of Physics, Aoyama-Gakuin University, KENICHI KATO, Japan Synchrotron Radiation Research Institute, YASUO WATANABE, YOSHIKI NISHIHATA, Dept. of Physics, Aoyama-Gakuin University, MASAKI TAKATA, Japan Synchrotron Radiation Research Institute, JUN AKIMITSU, Dept. of Physics, Aoyama-Gakuin University, JAPAN SYNCHROTRON RADIATION RESEARCH INSTITUTE COLLABORATION, DEPT. OF PHYSICS, AOYAMA-GAKUIN UNIVERSITY COLLABORATION — TiOBr has the same structure of TiOCl, and the physical properties of TiOBr were very similar to that of TiOCl. These systems attract attention as the new candidate of spin-Peierls transition accompanying orbital ordering. We performed the specific heat measurement, magnetization measurement and μSR measurement, and checked that it was the candidate of a spin-Peierls transition. However, lattice modification of TiOBr has not been observed directly before. Therefore, in this study, the X-rays diffraction measurement was performed at BL46XU of SPring-8, Japan. It succeeded in observation of the super-lattice spot by lattice modification of TiOBr, and succeeded also in observation of the temperature change. Furthermore, we investigate the superlattice structure.

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