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Sinusoidal and cycloidal F-type spin structures in multiferroic orthomanganites HOYOUNG JANG, J.-S. LEE[1], K.-T. KO, W.-S. NOH, POSTECH, T. Y. KOO, J.-Y. KIM, PAL, K.-B. LEE, J.-H. PARK[2], POSTECH, C. L. ZHANG, Rutgers Univ., SUNG BAEK KIM, POSTECH, S-W. CHEONG, Rutgers Univ. — We performed resonant x-ray scattering on F-type (0 q 0) reflections of $TbMnO_3$ and $Eu_{0.75}Y_{0.25}MnO_3$ at Mn L-edge, where modulation q are near 0.28 and 0.25, respectively. By using circularly and linearly polarized light, we could confirm that F-type spin structure in $TbMnO_3$ is c- axis sinusoid above ferroelectric T_C and bc-plane cycloid below T_C, while F-type spin structure in $Eu_{0.75}Y_{0.25}MnO_3$ is not cycloid but c-axis sinusoid down to base temperature. F-type spin structures in multiferroic orthomanganites can be explained as canted spin moment developed by Dzyaloshinskii-Moriya interaction and are also consistent in symmetric analysis.

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