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Temperature-Dependent X-Ray Absorption Spectroscopy of Colossal Magnetoresistive Perovskites NORMAN MANNELLA, Advanced Light Source, LBNL, AXEL ROSENHAHN, MASAMITSU WATANABE, BRIAN SELL, AKIRA NAMBU, STAPHANIE RITCHEY, Material Science Division, LBNL, ELKE ARENHOLZ, ANTONY YOUNG[1], YASUHIDE TOMIOKA, Correlated Electron Research Center, Tsukuba, Japan, CHARLES FADLEY, Material Science Division, LBNL — We have measured the temperature dependence of the O K-edge pre-edge structure in the x-ray absorption spectra of the perovskites $La_{1-x}A_xMnO_3$, (A = Ca, Sr; x = 0.3, 0.4). Our measurements reveal a correlation between the disappearance of the splitting in the pre-edge region and the presence of Jahn-Teller distortions. The different magnitudes of the distortions for different compounds are proposed to explain some dissimilarity in the line shape of the spectra taken above the Curie temperature.

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