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In-plane anisotropy of the electronic structure for the charge/orbital ordered state in half-doped Mn-oxide Y.S. LEE, S. ONODA, Y. TOKUNAGA, J.P. HE, Y. KANEKO, ERATO-SSS, Japan, T. ARIMA, Tohoku University, Japan, N. NAGAOSA, Y. TOKURA, Univeristy of Tokyo, Japan
— We have investigated the in-plane anisotropy of the electronic response for the charge/orbital ordered phase in a half-doped Mn-oxide. Compared with the theoretical calculation the optical measurement with a single domain of $Eu_{1/2}Ca_{3/2}MnO_4$ reveals that the optical conductivity along the chain direction exhibits smaller optical gap and lower energy distribution of the spectral weight than along the stripe (interchain) direction. It is suggested that the electronic anisotropy reported here is attributed to the quasi-one-dimensional electron hopping which is subject to the zigzag chain-type e_g orbital ordering.

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