

Abstract Submitted  
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**Optical Investigation on Collective Dynamics of Charge-Orbital Density Wave in Layered Manganites** JUN FUJIOKA, Multiferroics Project, ERATO, JST, YOSHIAKI IDA, Department of Applied Physics, University of Tokyo, YOUTAROU TAKAHASHI, NORIAKI KIDA, Multiferroics Project, ERATO, JST, RYO SHIMANO, Department of Physics, University of Tokyo, YOSHINORI TOKURA, Department of Applied Physics, University of Tokyo — We have investigated the broad band optical spectra on the layered manganites  $R_{1-x}\text{Sr}_{1+x}\text{MnO}_4$  ( $R=\text{Nd}$  and  $\text{La}$ ) to reveal the collective charge/orbital density wave dynamics by means of the terahertz time domain spectroscopy [1]. The collective charge/orbital density wave excitation is observed around 9 meV in the charge/orbital stripe phase, when the nominal  $e_g$ -electron filling ( $1-x$ ) of Mn-ion is less than around 1/3. By contrast, such a collective mode almost vanishes at  $x=1/2$ , which is explained in terms of the enhanced Jahn-Teller interaction cooperative with the electron correlation effect.

[1] J. Fujioka *et al.*, Phys. Rev. B. **82**, 140409(R) (2010).

Jun Fujioka  
Multiferroics Project, ERATO, JST

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