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Effect of oxygen deficiencies on charge ordering in $RFe_2O_{4-\delta}$ (R=Lu and Y) Y. HORIBE, Rutgers University, S. MORI, S. SHINOHARA, Y. MATSUO, Osaka Prefecture University, N. IKEDA, Okayama University, S-W. CHEONG, Rutgers University — Charge ordering (CO) of Fe^{2+} and Fe^{3+} on the triangular lattice in $RFe_2O_{4-\delta}$ (R=Lu and Y) is suggested to play an important role in the physical properties such as ferroelectricity. Herein, we report changes in the CO structures due to the oxygen deficiencies in $RFe_2O_{4-\delta}$ by transmission electron microscopy. At room temperature, characteristic superlattice reflections at (1/3 1/3 1/2)-type positions can be observed in the nearly stoichiometric $YFe_2O_{4-\delta}$, while the diffuse streaks along c*-axis can be seen clearly in the non-stoichiometric $YFe_2O_{4-\delta}$. It is suggested that the correlations between the Fe-O bilayers are suppressed due to the oxygen vacancies and therefore the two-dimensional charge ordering appears in the non stoichiometric samples at room temperature.

Yoichi Horibe
Rutgers University

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