

Abstract Submitted
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The role of La displacement in Titanium d_{xy} ferromagnetism at the $\text{LaAlO}_3/\text{SrTiO}_3$ - double-exchange like mediation¹ SUNG-HYON RHIM, Univ of Ulsan, DORJ ODKHUU, Incheon National University, DONGBIN SHIM, NOEJUNG PARK, Ulsan National Institute of Science and Technology — In this talk, we argue that La site polar distortion is the key for magnetism without oxygen vacancy, whereby coupling between La d_{z^2} and O $2p_{x,y}$ offer a pathway for double-exchange like interaction to support Ti d_{xy} ferromagnetism. While ferromagnetism found in the n -type LAO/STO has been mainly attributed to oxygen vacancy near the interface, the mechanism we propose a possibility of ferromagnetism without any defect. We show that there is a phase separation between charge-order and half-metallicity that can be characterized by La displacement - this can be tailored through adsorption on the outer AlO_2 surface or electrostatic bias.

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Sung-Hyon Rhim
Univ of Ulsan

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