Abstract Submitted
for the MAR14 Meeting of
The American Physical Society

Correlation-induced phase transitions in (111) bilayers of perovskite transition-metal oxides[1] SATOSHI OKAMOTO, Oak Ridge National Lab, W. ZHU, University of Science and Technology of China, Y. NOMURA, R. ARITA, University of Tokyo, D. XIAO, Carnegie Mellon University, N. NAGAOSA, Center for Emergent Matter Science, RIKEN — We investigate the correlation-induced Mott, magnetic and topological phase transitions in (111) bilayers of perovskite transition-metal oxides $LaAuO_3$ and $SrIrO_3$ for which the previous density functional theory (DFT) calculations predicted topological insulating states. Using the dynamical-mean-field theory with DFT band structure and realistic Coulomb interactions, $LaAuO_3$ bilayer is shown to be far away from a Mott insulating regime, and a topological-insulating state is robust. On the other hand, $SrIrO_3$ bilayer is on the verge of an orbital-selective topological Mott transition. We also study the effect of magnetism in these systems.

[1]S.O. is supported by the U.S. Department of Energy, Basic Energy Sciences, Materials Sciences and Engineering Division. D.X. is supported by AFOSR Grant No. FA9550-12-1-0479.

Satoshi Okamoto
Oak Ridge National Lab

Date submitted: 12 Nov 2013 Electronic form version 1.4