

Abstract Submitted
for the MAR16 Meeting of
The American Physical Society

Electric field effect on magneto-thermopower in oxide interface $\text{LaAlO}_3/\text{SrTiO}_3$ TOMOYA ASABA, GANG LI, Univ of Michigan - Ann Arbor, PASCAL WITTLICH, JOCHEN MANNHART, Max Planck Institute for Solid State Research, LU LI, Univ of Michigan - Ann Arbor — Oxide interface $\text{LaAlO}_3/\text{SrTiO}_3$ has been attracting huge interest as it shows 2-dimensional electron liquid behavior, negative compressibility and coexistence of magnetism and superconductivity. In this study we measured the magneto-thermoelectric effect and report the observation of the quantum oscillation in the thermopower. Backing gating through SrTiO_3 tunes the carrier density and the oscillation pattern in the thermoelectric signal. At low carrier density, the oscillation frequency decreases when more electrons are populated, which directly indicates the negative capacitance. At high carrier density regime, both of magneto-thermopower and Nernst effect show the nonlinear behavior which suggests a Lifshitz transition. These results point to the unique multiband electronic structure of oxide interface.

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Date submitted: 06 Nov 2015

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