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**Growth and Transport Studies of LaTiO<sub>3</sub> / KTaO<sub>3</sub> Heterostructures** K. ZOU, F.J. WALKER, C.H. AHN, Department of Applied Physics and Center for Research on Interface Structures & Phenomena, Yale University, New Haven CT 06511 — Perovskite oxide heterostructures provide a rich platform for exploring emergent electronic properties, such as 2D electron gases (2DEGs) at interfaces. In this talk, we present results on the growth of LaTiO<sub>3</sub> / KTaO<sub>3</sub> heterostructures by molecular beam epitaxy and subsequent measurements of transport properties. Although both oxide materials are insulating in the bulk, metallic conduction is observed from T = 2 - 300 K. We achieve a room temperature carrier mobility of  $\sim 25 \text{ cm}^2 / \text{Vs}$  at a carrier density of  $\sim 10^{14} / \text{cm}^2$ . By comparison, 2DEGs in LaTiO<sub>3</sub> / SrTiO<sub>3</sub> and LaAlO<sub>3</sub> / SrTiO<sub>3</sub> have lower carrier mobility, but the same carrier density. We attribute some of the increase in mobility to the smaller band effective mass of the Ta 4d electrons compared to the Ti 3d electrons.

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