

Abstract Submitted  
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**Large Thermopower of  $\delta$ -doped LaTiO<sub>3</sub>/SrTiO<sub>3</sub> Interfaces and its Field Dependence**<sup>1</sup> R.C. BUDHANI, Indian Institute of Technology, Kanpur & National Physical Laboratory, New Delhi, SHUBHANKAR DAS, P.C. JOSHI, A. RASTOGI, Z. HOSSAIN, Indian Institute of Technology, Kanpur — We will present the magneto-thermopower ( $S(T, H)$ ) of interfacial delta doped LaTiO<sub>3</sub>/SrTiO<sub>3</sub> heterostructure by an iso-structural antiferromagnetic perovskite LaCrO<sub>3</sub>. The thermoelectric power of 2-dimensional electron gas (2DEG) of pure LaTiO<sub>3</sub>/SrTiO<sub>3</sub> at 300 K is  $\approx 118 \mu\text{V}/\text{K}$ , but increases dramatically to  $337 \mu\text{V}/\text{K}$  on inserting 5 uc LaCrO<sub>3</sub> at the interface. The negative sign of the thermoelectric power confirms the electron as major carriers in these interfaces. A linear temperature dependence of  $S(T)$  has been observed in the temperature range 100 K to 300 K which is in agreement with the theory of diffusion thermopower of 2DEG. The  $S(T)$  shows a distinct enhancement at temperature  $<100$  K, where a Kondo-type minimum has been observed in sheet resistance. We attribute this maximum in  $S(T)$  to Kondo scattering of conduction electron by localized impurity spin at the interface. The  $S$  in this temperature range is suppressed significantly ( $\leq 20\%$ ) by moderate magnetic field ( $\leq 13$  T) applied either perpendicular or parallel to the film surface. The isotropic nature of the suppression of  $S$  by magnetic field further strengthen the Kondo based interpretation of  $S(T, H)$ .

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