

## Spin injection and spin-charge conversion in $\text{LaAlO}_3/\text{SrTiO}_3$

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The perovskite oxides family provides materials to efficiently generate and control spin polarized currents using respectively half-metallic ferromagnets such as mixed-valence manganites or ferroelectrics and multiferroics. More recently channel materials to transport spin information have also emerged. These include the  $\text{LaAlO}_3/\text{SrTiO}_3$  two-dimensional electron system (2DES) which, in addition, possesses a gate-tunable spin-orbit coupling. A limitation of this system is however the minimum  $\text{LaAlO}_3$  thickness of 4 uc required for 2DES formation. In this presentation we will show that this thickness can be reduced if the  $\text{LaAlO}_3$  is capped by appropriate metals. We will also present different approaches to inject spins in these engineered  $\text{LaAlO}_3/\text{SrTiO}_3$  2DES and introduce detection schemes taking advantage of efficient spin-charge conversion via interfacial spin-orbit effects.

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