

## Oxide based heterostructures for spintronics

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The role of oxides in electronics has continuously increased over the past few years. The field of spintronics is no exception [1] This is due to the large diversity of their physical properties and the potentiality to modulate them. This is even further enlarged by the possibility to obtain new properties at the interface. At Unité Mixte CNRS/Thales, part of our activity is devoted to evaluate the potential of oxides in the framework of spintronics. To illustrate this activity, I will present results obtained on multiferroic based heterostructures [2] in which it is possible to either exploit the multifunctional character of the compound or take advantage of the presence of a magnetoelectric coupling between the ferroelectric and magnetic orders. I will also present recent results on the conduction at the interface between two insulating materials SrTiO<sub>3</sub> and LaAlO<sub>3</sub> and the experiments we have performed in order to determine the extension and the carrier density of this electron gas [3].

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