

## Single spin-polarised Fermi surface in SrTiO<sub>3</sub> films

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The 2D electron gas (2DEG) formed at the surface of SrTiO<sub>3</sub>(001) has attracted great interest because of its fascinating physical properties and promise as a novel electronic platform, but up to now has eluded a stable way to tune its properties. Using angle-resolved photoemission spectroscopy with and without spin resolution we here show that the band filling can be controlled by growing thin SrTiO<sub>3</sub> films on SrTiO<sub>3</sub>(001) substrates with different Nb doping levels. This results in a single spin-polarised 2D Fermi surface in a superconducting system, which can be used as platform for Majorana physics. Based on our results it can furthermore be concluded that the 2DEG does not extend more than 3 unit cells into the film and that its properties are determined by the dielectric response of the system.

### Position

Postdoc

**Primary author:** BONINI GUEDES, Eduardo (Paul Scherrer Institut)

**Co-authors:** MUFF, Stefan (Paul Scherrer Institut); Dr FANCIULLI, Mauro (Ecole Polytechnique Federale de Lausanne); Dr WEBER, Andrew (Ecole Polytechnique Federale de Lausanne); Dr CAPUTO, Marco (Paul Scherrer Institut); Prof. WANG, Zhiming (Ningbo Institute of Materials Technology and Engineering); PLUMB, Nicholas (Paul Scherrer Institut); RADOVIC, Milan (Paul Scherrer Institut); DIL, Jan Hugo (Paul Scherrer Institut)

**Presenter:** BONINI GUEDES, Eduardo (Paul Scherrer Institut)

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