The IQARO (SpIn-orbitronic QuAntum bits in Reconfigurable 2D-Oxides) project hosts a series of monthly seminars to communicate the work being done as part of the project.
The seminars will feature presentations from IQARO partners from across all areas of the project, followed by a brief Q&A.

The next seminar will take place on **Friday, 11st of October at 10:00 a.m. (CET)**

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Stoichiometric control of electrical transport properties in $LaAlO_3$-$SrTiO_3$ interfaces

Abstract:
$SrTiO3$-based conducting interfaces, which exhibit coexistence of gate-tunable 2D superconductivity and strong Rashba spin-orbit coupling (RSOC), are candidates to host topological superconductive phases. Yet, superconductivity is usually in the dirty limit, which tends to suppress nonconventional pairing and therefore challenges these expectations. Here we report on $LaAlO_3$/$SrTiO_3$ interfaces with remarkably large mobility and mean free paths comparable to the superconducting coherence length, approaching the clean limit for superconductivity. By exploiting small variations of the La/Al chemical ratio we can fine-tune systematically the carrier density, mobility and the formation of the superconducting condensate. Interestingly, we find a region in the phase diagram where the critical temperature is not suppressed below the Lifshitz transition, at odds with predictions from Bardeen–Cooper–Schrieffer theory. These findings point out the relevance of achieving a clean-limit regime to enhance the observation of unconventional pairing mechanisms in these systems.

Zoom link:
https://us02web.zoom.us/j/81695922899?pwd=a1mj300N8ozg7Cq99HuBnxmrUoPSGH.1

Meeting ID: 816 9592 2899
Passcode: 680390

for more information about the project: www.iqaro.eu