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Engineering SrTiO3/LaAlO3 heterostructures thicknessthrough a metallic capping layer electrodes FEDERICO IORI[1], Universite Paris Sud - CNRS — The possibility to achieve conducting and superconducting properties at the interface between two bulk insulator oxides as SrTiO3 (STO) and LaAlO3 (LAO) in 2004 [1] has wide opened the route toward the discovery and control of broad functional emerging properties in different oxides heterostructures. Nonetheless the STO/LAO system still present not clarified questions concerning the possibility to control the presence of the 2DEG at the interface. In this work we present our theoretical results supported by experimental measurementsconcerning the possibility to tune the critical thickness of the LAO topmost layer through the deposition of a metallic capping layer at the surface. Our ab initio Density Functional Theory calculations show how different metallic contact can lead to a reduction of the LAO critical thickness of 4 u.c. still preserving the 2D electronic gas at the interface. [1] Otomo and Hwang, Nature 427, 423 (2004)

[1]UNRAVEL Marie Curie project

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