



# GEMaC

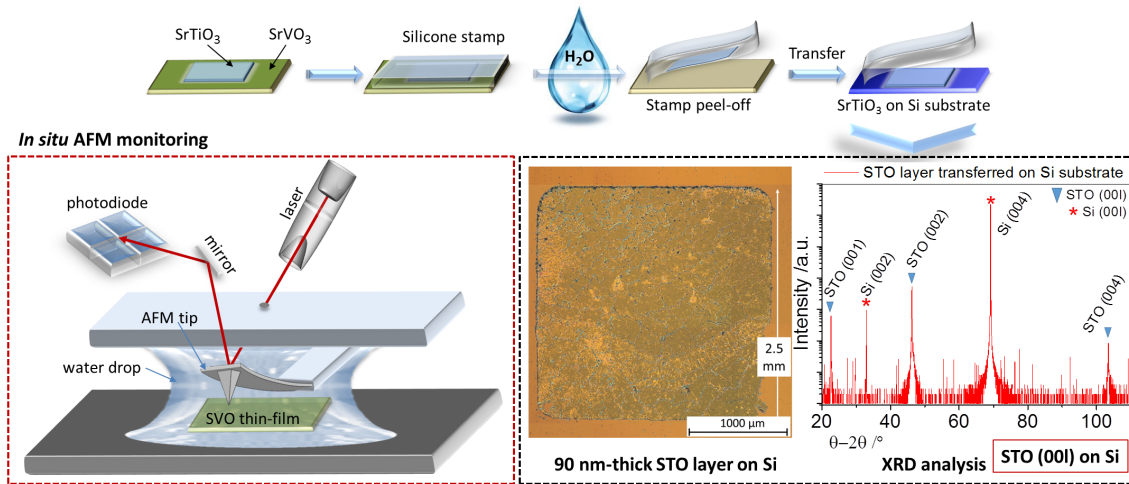
## Groupe d'Étude de la Matière Condensée

# A PROMISING WAY OF THE INTEGRATION OF SINGLE CRYSTALLINE OXIDES IN ELECTRONIC DEVICES

**GEMaC and ILV researchers and engineers demonstrate a simple and promising way to transfer epitaxial oxide layers onto silicon**

Ternary oxides with a perovskite  $ABO_3$  structure are extremely valuable for modern applications, particularly in the field of microelectronics. In order to preserve their physical properties as thin films, these materials require epitaxial growth, generally obtained on a  $SrTiO_3$  (STO) reference substrate of the perovskite family. However, these functional oxides suffer from the difficulty of integration in silicon-based technologies, which is essential for their future development. To transfer a single crystalline thin film from STO to Si, we propose here an innovative process involving the use of a water-soluble sacrificial layer of  $SrVO_3$  (SVO) between the film of interest and the STO substrate. The immersion of the structure in water and the dissolution of the SVO layer allows to detach an epitaxial layer from STO substrate. The transferred layer retains its initial morphology

and its crystalline quality allowing the production of a pseudo-substrate SrTiO<sub>3</sub>/Si and, in the long term, the transfer of all-oxide functional heterostructures.



*Transfer of  
the epitaxial  
film of SrTiO<sub>3</sub>  
onto Si using*

*a water-soluble sacrificial layer*

Read more:

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**"Transfer of Epitaxial SrTiO<sub>3</sub> Nanothick Layers Using Water-Soluble Sacrificial Perovskite Oxides"**

*ACS Appl. Mater. Interfaces* 12(7), 8466 (2020)