Supplementary Information for

Interfacial Defect Complex at the MgO/SrTiO$_3$ Heterojunction and its Electronic Impact

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FIG. S1. XRD pattern of MgO thin film grown on the SrTiO$_3$ substrate.
FIG. S2. Selected area diffraction patterns taken at (a) substrate and (b) interface, confirming the epitaxial orientation relations (001)MgO//(001)SrTiO$_3$ and [100]MgO//[100]SrTiO$_3$. (c) Low-magnification STEM image, revealing the flatness of the interface at the large scale.