Supplementary Information for

Interfacial defects induced electronic property transformation at perovskite SrVO₃/SrTiO₃ and LaCrO₃/SrTiO₃ heterointerfaces

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Supplementary Figure S1. XRD spectra for the SVO thin film grown on STO substrate. The inset shows the enlarged area near STO (100) peak.
**Supplementary Figure S2.** XRD spectra for the LCO thin film grown on STO substrate.
Supplementary Figure S3

(a) SADP of the STO substrate viewed from [100] direction. (b) SADP taken at the SVO[100]/STO[100] interface. (c) Low-magnification TEM micrographs seen from [100] direction showing cross-sectional view of the SVO/STO interface.
**Supplementary Figure S4.** (a) SADP of the STO substrate viewed from [100] direction. (b) SADP taken at the LCO[100]/STO[100] interface. (c) Low-magnification TEM micrographs seen from [100] direction showing cross-sectional view of the LCO/STO interface.
Supplementary Figure S5. (a) Low-magnification TEM image of the SVO/STO interface. (b) Enlarged image around the interface, showing the existence of domain structure at the interface. (c) High resolution TEM image of the SVO/STO interface.
**Supplementary Figure S6.** High resolution TEM micrograph showing cross-sectional view at the LCO/STO interface.
Supplementary Figure S7. Experimental and the simulated HAADF-STEM images of SVO/STO (a-b) and LCO/STO (c-d) heterointerfaces. Green, yellow, violet, pink, and brown spheres represent Sr, V, Ti, La, and Cr atoms, respectively. The interface location is indicated by a dashed line.