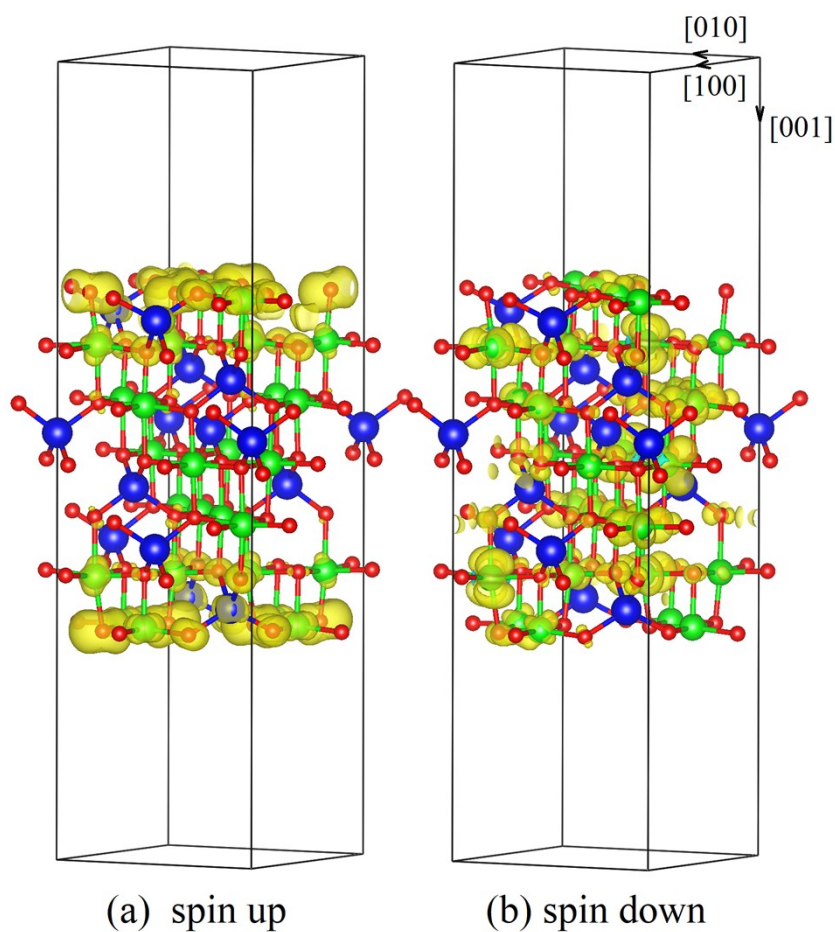


Supplementary Material



The charge density map of the eight bands just below the Fermi level for a clean $\text{Fe}_3\text{O}_4(100)$ surface calculated using GGA+U for (a) spin-up and (b) spin-down. The spin-up charge density is dominated by contributions from surface Fe(B), O1 and O2 atoms. The spin-down charge density is mainly contributed to by Fe(B) atoms at deeper layers and only slightly by surface Fe(B) atoms. The isosurface is plotted with $0.002 \text{ e}/\text{\AA}^3$.