

Fig. 1. CV/QSCV characteristics for ALD- $\text{Al}_2\text{O}_3/\text{Y}_2\text{O}_3/\text{GaAs}(001)\text{-}4\times 6$  MOSCAPs (a),(d) without UHV annealing, and (b),(e) with UHV annealing. (c),(f) show the characteristics for MBE-YAO/MBE- $\text{Y}_2\text{O}_3/\text{GaAs}(001)\text{-}4\times 6$  MOSCAPs.

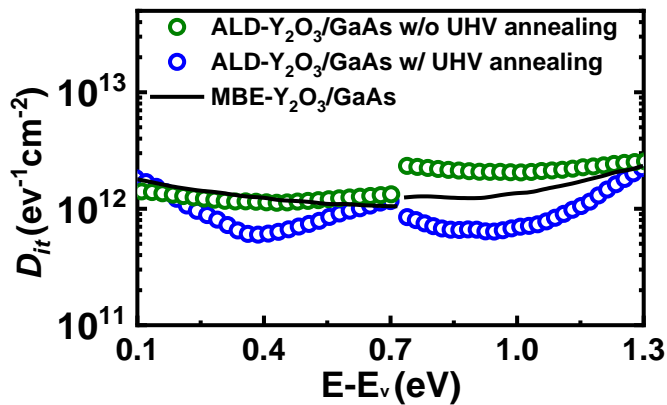


Fig. 2.  $D_{it}$  spectra for ALD- and MBE- $\text{Y}_2\text{O}_3$  on  $\text{GaAs}(001)\text{-}4\times 6$  as extracted from QSCV curves.

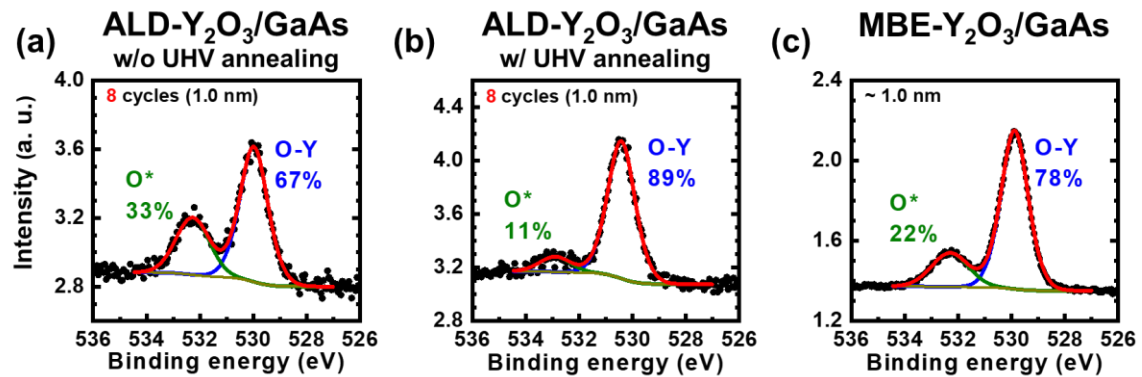


Fig. 3. XPS O 1s core-level spectra in normal emission for ALD- $\text{Y}_2\text{O}_3/\text{GaAs}(001)\text{-}4\times 6$  (a) without UHV annealing, and (b) with UHV annealing. (c) shows the spectrum for MBE- $\text{Y}_2\text{O}_3/\text{GaAs}(001)\text{-}4\times 6$  with a similar oxide thickness.