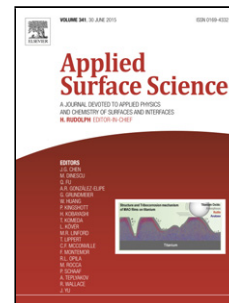


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Title: Energy-band alignment of $(\text{HfO}_2)_x(\text{Al}_2\text{O}_3)_{1-x}$ gate dielectrics deposited by atomic layer deposition on $\beta\text{-Ga}_2\text{O}_3$ (-201)

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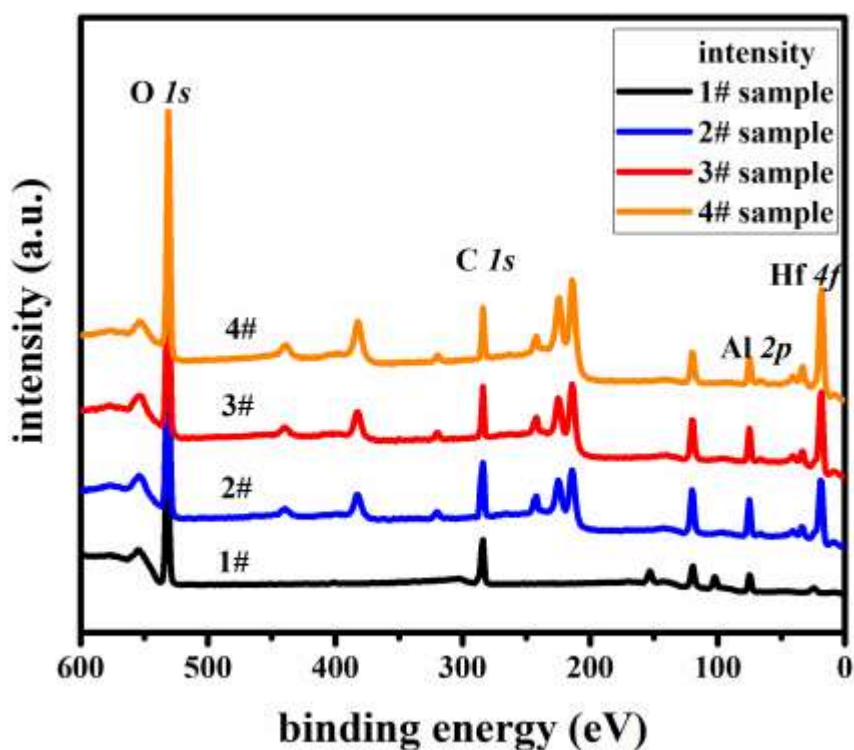
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Graphical Abstract



Highlights

- The conduction band offset between $(\text{HfO}_2)_x(\text{Al}_2\text{O}_3)_{1-x}$ and $\beta\text{-Ga}_2\text{O}_3$ are determined to be 1.42-1.53 eV.
- the value of E_g , ΔE_c , and ΔE_v for $(\text{HfO}_2)_x(\text{Al}_2\text{O}_3)_{1-x}/\beta\text{-Ga}_2\text{O}_3$ change linearly with x , which can be expressed by $6.98-1.27x$, $1.65-0.56x$, and $0.48-0.70x$, respectively.
- $\beta\text{-Ga}_2\text{O}_3$ MOS capacitor with $(\text{HfO}_2)_x(\text{Al}_2\text{O}_3)_{1-x}$ dielectric shows lower leakage current and higher critical electric field compared with which with Al_2O_3 dielectric.

Abstract

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