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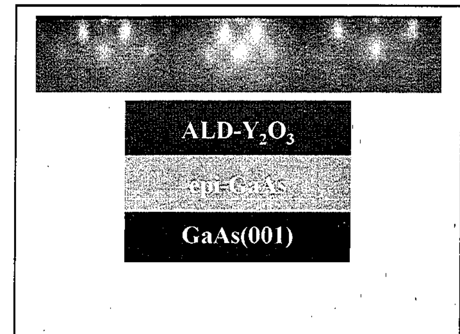
Single-crystal ALD-Y2O3 on GaAs(001)-4x6



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Experience:

http://www.phys.ntu.edu.tw/application/teacher1.aspx?mem_id=175&skey=A

Market Needs:

III-V semiconductors are competitive candidates as for high-speed low-power devices in the post Si era. Compared with (In)GaAs, GaAs with a lattice constant of 5.65 Å, similar to that of Ge, is easier to be grown on Si(001) with a 4% mismatch. ALD is a proven technique for large area and non-planar device architectures and has been applied in industry since 45nm-node. However, none of the ALD-oxide on GaAs has provide a low interface trap density and high thermal stability to fulfill the requirement of the technology.

Our Technology:

Single crystal Y_2O_3 grown by ALD on GaAs(001) demonstrates well-bahaved capacitance-voltage characteristics, low interfacial trap densities(lower than 10^{12} $cm^{-2}eV^{-1}$), and high thermal stability up to 900℃.

Strength:

Providing low interfacial trap density and high thermal stability (up to 900 ℃) interface between oxide and semiconductor(GaAs), enabling self-aligned process for device fabrication.

Competing Products:

ALD-Al_2O_3, ALD-HfO_2 on GaAs(001)

Intellectual Properties:

None

Contact (do not need to fill out):

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