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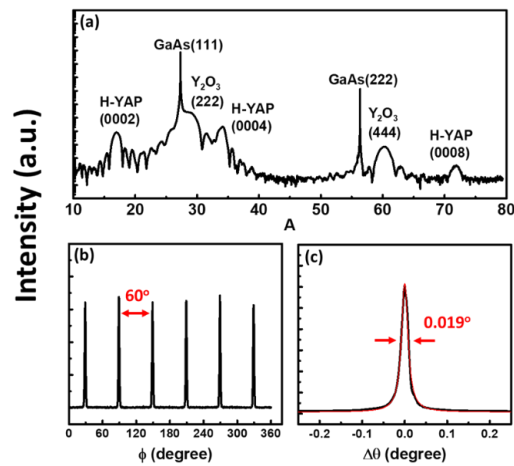


Figure 1. (a) Surface normal scan, (b) off-normal ϕ -scan across H-YAP $\{10\bar{1}2\}$, and (c) θ -rocking scan of H-YAP(0004) of H-YAP grown on MBE- $Y_2O_3(111)$ buffered GaAs(111)A after 900°C annealing for 30 s in He.

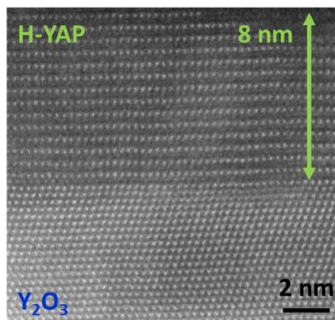


Figure 2. STEM image of H-YAP grown on MBE- $Y_2O_3(111)$

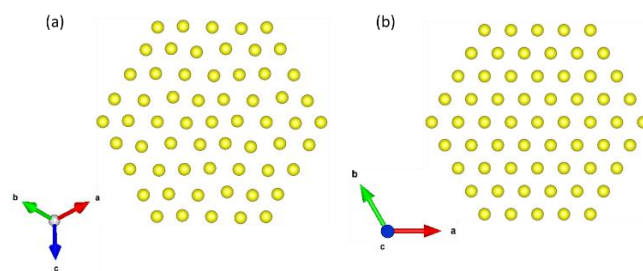


Figure 3. The Y-sublattice of (a) $Y_2O_3(111)$ and (b) H-YAP(0001)

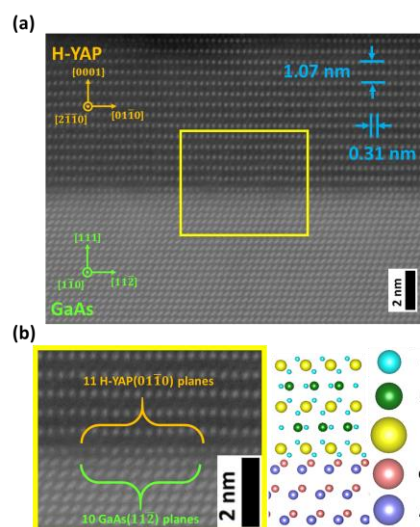


Figure 4. STEM images of (a) H-YAP grown on after 900°C 30 s annealing and (b) magnified STEM image and a schematic of a possible atomic structure.