

Activity 5

Battle of the Bands

Consider the band structure plots shown below. Label each plot with the following elements:

Direct or indirect band gap; estimate the size of the band gap (in eV); circle the lowest point in the conduction band and highest point in the valence band; label the heavy hole, light holes, and any split-off bands; label which bands are along the $\langle 100 \rangle$ and $\langle 111 \rangle$ directions. With the same energy scale, draw a band diagram for Ge in the margins to the left of Ge; and draw a band diagram for GaAs in the margin to the right of GaAs.

