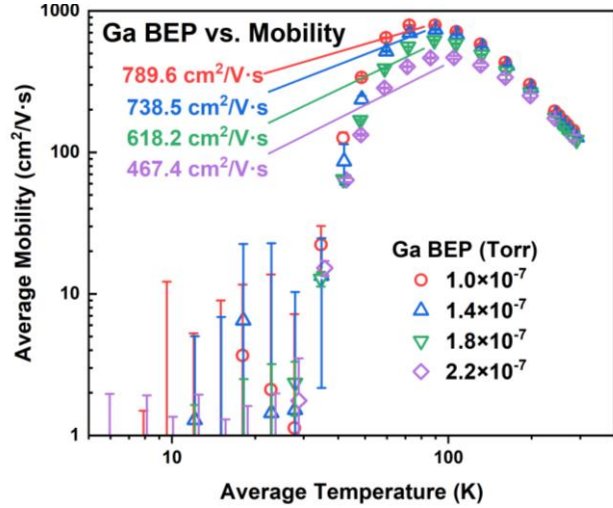


(Left) Temperature-dependent Hall mobility and volume carrier density comparing O-rich vs Ga-rich growths. The O-rich sample shows peak low-temperature mobility of  $\mu = 793 \text{ cm}^2/\text{V}\cdot\text{s}$ .



(Top) Beam flux series extending from O-rich into Ga-rich conditions showing a consistent decrease in mobility as growth goes increasingly Ga-rich.

(Bottom) (a) Extracted donor and compensating acceptor densities for each Ga flux. Si donor densities are anti-correlated with changes in growth rate shown in (b), while compensating acceptor density increases with increasing Ga flux. (c) Peak low temperature mobilities are anti-correlated with compensating acceptor density.

