



Mobility data after Gessmann *et al.* (2004)

Theoretical phenomenological formula for carrier mobility:

$$\mu = \mu_{\text{HC}} + \frac{\mu_{\text{LC}} - \mu_{\text{HC}}}{1 + (N / N_{1/2})^{2/3}}$$

**Parameters for n-type GaN:**

$\mu_{\text{LC}} = 1800 \text{ cm}^2 / (\text{Vs})$ ,  $\mu_{\text{HC}} = 10 \text{ cm}^2 / (\text{Vs})$ , and  $N_{1/2} = 1.0 \times 10^{17} \text{ cm}^{-3}$

**Parameters for p-type GaN:**

$\mu_{\text{LC}} = 40 \text{ cm}^2 / (\text{Vs})$ ,  $\mu_{\text{HC}} = 1 \text{ cm}^2 / (\text{Vs})$ , and  $N_{1/2} = 1.0 \times 10^{17} \text{ cm}^{-3}$