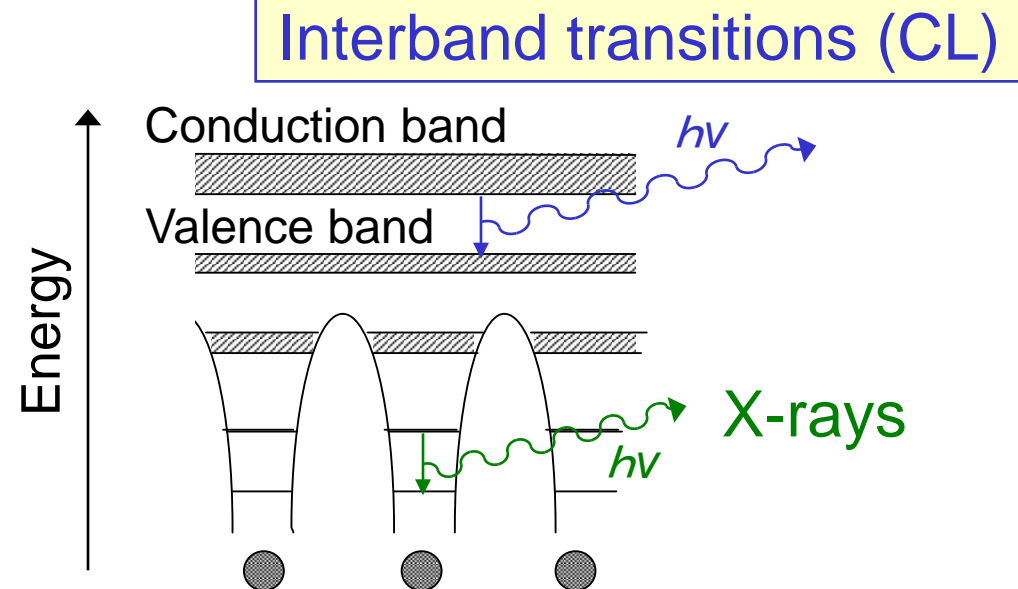
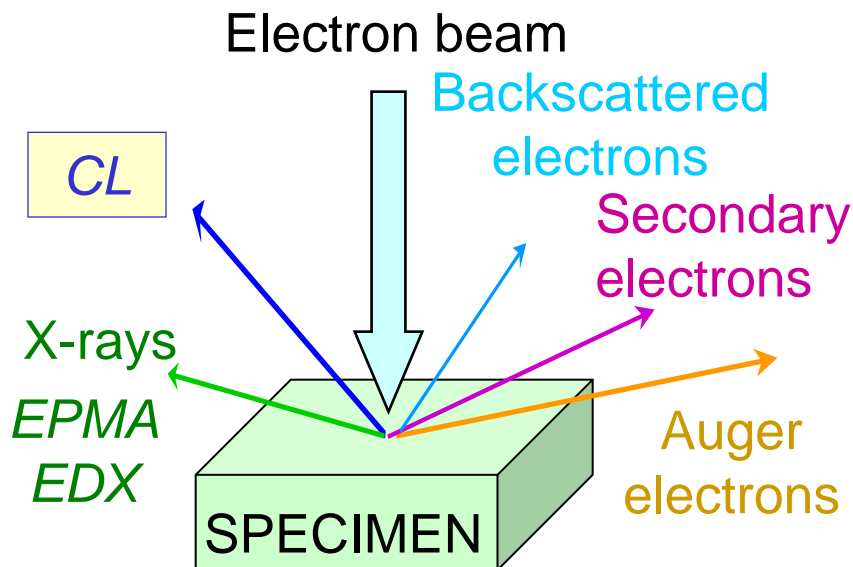


Principle of Cathodoluminescence (CL)

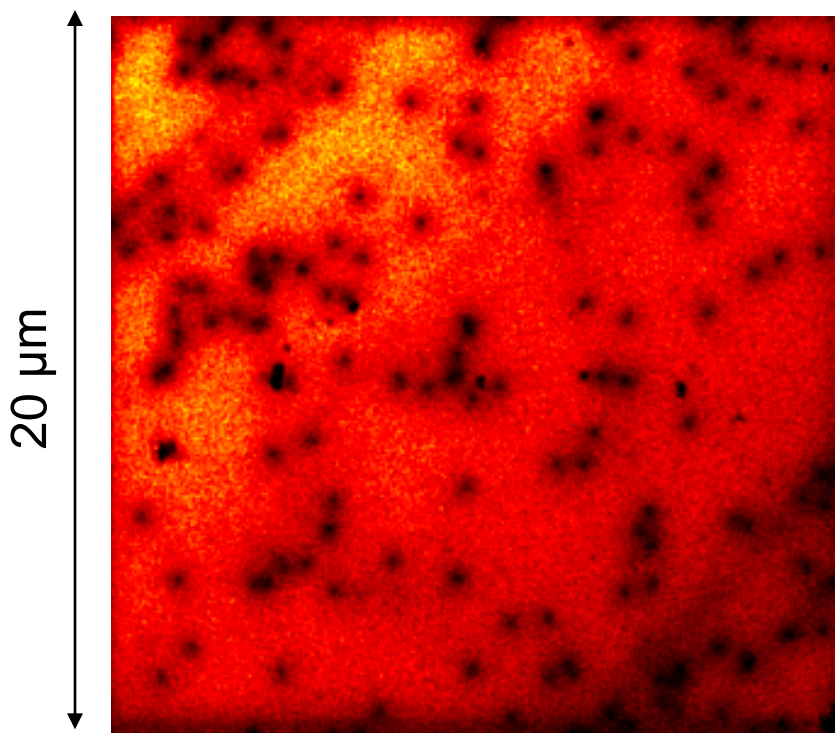
- (1) Generation of electron-hole pairs by primary electron beam
- ⇒ (2) Diffusion of carriers
- ⇒ (3) Recombination of electron-hole pairs



Threading dislocations in GaN single crystal

How much is the density of threading dislocations(TD)?

→ It is easily obtained by the number of dark spots in CL image.



CL image

The density of TD in this sample is about $3 \times 10^7 \text{ cm}^{-2}$

Ex.

If the density of TD is $1 \times 10^4 \text{ cm}^{-2}$, we observe one dark spot in the area $100 \times 100 \text{ μm}^2$.