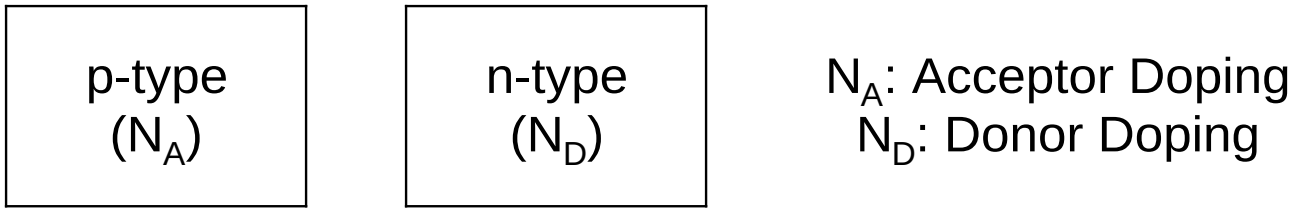
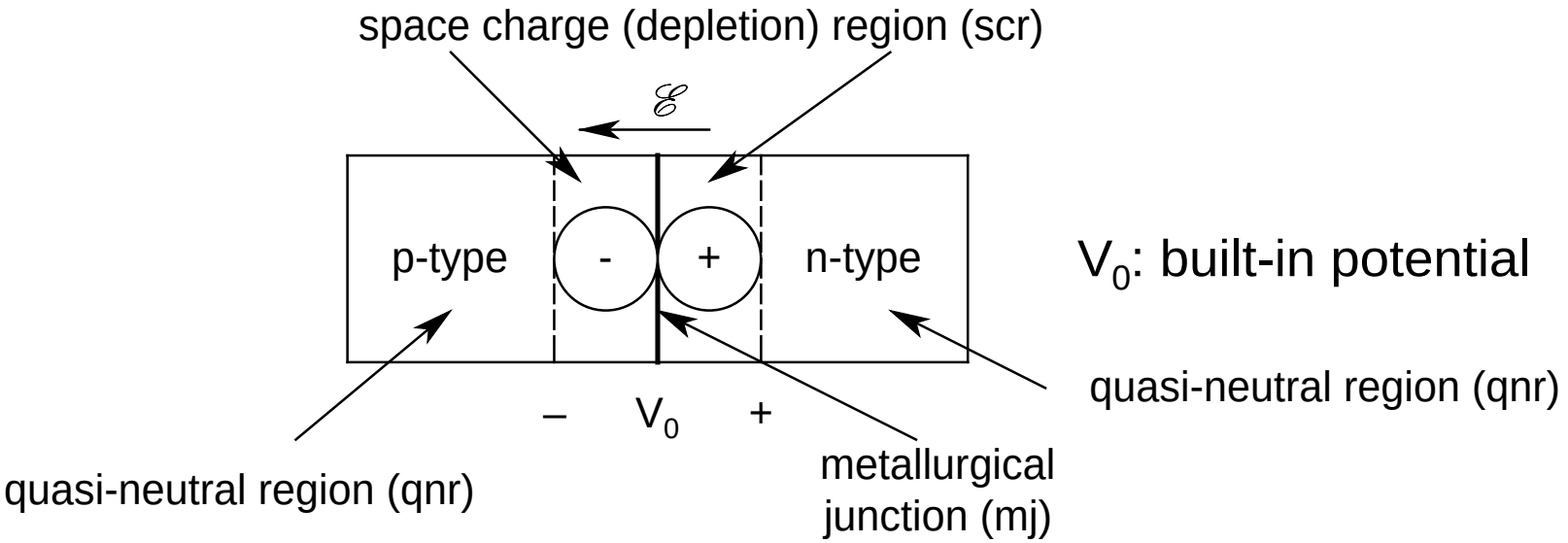
DIODE



Before Joining

- ***p-side***:
  - ***Holes majority carriers***
  - ***Electrons minority carriers***
- ***n-side***:
  - ***Electrons majority carriers***
  - ***Holes minority carriers***
- ***Holes***: ***Anti-particles*** of ***electrons***



After Joining (**In Equilibrium**)

- ***Dissociation Relations***:

$$N_A \leftrightarrow N_A^- + \text{hole}$$

$$N_D \leftrightarrow N_D^+ + \text{electron}$$

Establishment of Equilibrium

- ***Holes diffuse from p to n***
  - ***Negatively charged acceptor ions uncovered near MJ***
- ***Electrons diffuse from n to p***
  - **Positively charged donor ions uncovered near MJ**
- ***Establishment of a charge dipole around MJ***
  - ***Generation of an electric field $\mathscr{E}$ around MJ***
  - ***Creation of built-in potential V_0***