

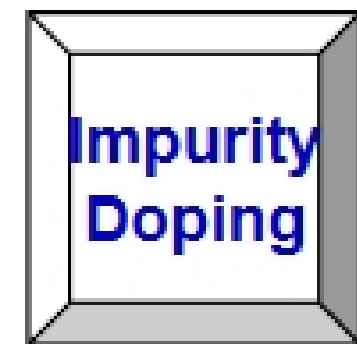
Fabrication Technology, Part I

■ Agenda:

- ↗ Impurity Doping (cont.)
- ↗ Heat Treatment
- ↗ Cleaning

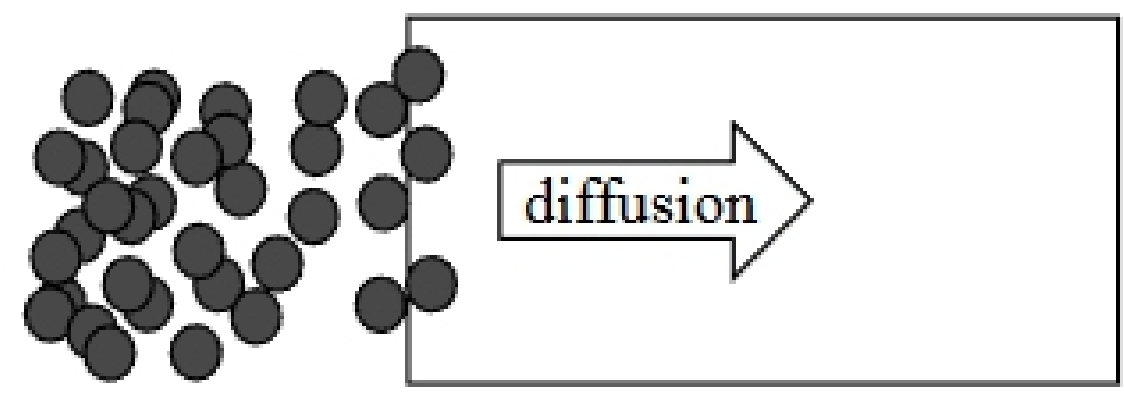
📖 Reading: Senturia, pp. 29-44, 50-56

- 📄 Overview
- 📄 Diffusion
- ➔ Ion Implantation
- Two-Step Diffusion
- Junction Formation



Diffusion vs Ion Implantation

- Two methods of impurity incorporation (incorporates impurity dose, $Q = \# \text{ impurities/area}$, into semiconductor)
 - * Impurities incorporated via *diffusion* from constant impurity source (external at surface) characterized by Case I.



$$Q = \text{dose} = 2N_0 \sqrt{\frac{Dt}{\pi}}$$

- * Impurities incorporated via *ion implantation* into semiconductor.

