Diffusion carrier lifetime Lecture-11

TDC PART -1

PAPER 1(GROUP B)

Chapter -4

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What is diffusion in semiconductor?

- Atomic diffusion in semiconductors refers to the migration of atoms, including host, dopant and impurities. Diffusion occurs in all thermodynamic phases, but the solid phase is the most important in semiconductors.

Diffusion Carrier

- The carrier particles, namely the holes and electrons of a semiconductor, move from a place of higher concentration to a place of lower concentration. Hence, due to the flow of holes and electrons there is a current.

Carrier lifetime

- The minority carrier lifetime and the diffusion length depend strongly on the type and magnitude of recombination processes in the semiconductor. For many types of silicon solar cells, SRH recombination is the dominant recombination mechanism
- In silicon, the lifetime can be as high as 1 msec.