

Continuity Equations Lesson

Lesson Topic: Continuity Equations

Objective of Lesson: To get some ideas about the continuity equations.

Reading Assignment: Section 3.4.1

What do you need to know for the exam?

1. There is nothing to learn for the exam.

Summary

The continuity equations are bookkeeping equations for semiconductors and their carriers. They have the ability to handle every detail with no assumptions in three dimensions. We cannot use them as they are because they don't have nice solutions that can be worked out on paper or on a chalkboard.

Continuity Equations

The continuity equations are not that important for this course so we will breeze past them pretty quickly, but they are used extensively in computer simulators of electronic devices. The continuity equations are bookkeeping equations for semiconductors and their carriers. They have the ability to handle every detail with no assumptions in three dimensions. We cannot use them as they are because they don't have nice solutions that can be worked out on paper or on a chalkboard. Instead, as we did with the recombination rate equations, we will make assumptions that simplify the continuity equations into the minority carrier diffusion equations.

For now just take a look at the section, read through it and understand that the continuity equations are bookkeeping equations for holes and for electrons, respectively, and that each would tell us how many holes/electrons there are at a single point in space.

Other useful links

[Look at the continuity equations](#)

Definitions:

Continuity: An uninterrupted flow; a coherent whole.