

5.1: Introduction

In this chapter, we study the electrical **current**, which defined as the flow of charge through a material. We also examine a characteristic of materials known as its resistance. Resistance is a measure of how much a material impedes the flow of charge, and it will be shown that the resistance depends on temperature. In general, a good conductor, such as copper, gold, or silver, has very low resistance.

One way we can tell if current is flowing through a material is if it gets warm. In many cases, these losses of electrical energy to thermal energy are undesirable. But in an electric toaster or space heater they can be exactly what is needed: a compact, non-combustible source of heat (Fig. 5.1.1).



Figure 5.1.1: Current flowing through resistive elements in a toaster cause them to give off heat and light. [1]

References

1. Wikimedia Commons contributors. File:[Toaster Filaments.JPG](#) [Internet]. Wikimedia Commons. (Nick Carson, CC-BY 3.0)

5.1: Introduction is shared under a [CC BY 4.0](#) license and was authored, remixed, and/or curated by Ronald Kumon & OpenStax.

- [9.1: Prelude to Current and Resistance](#) by OpenStax is licensed [CC BY 4.0](#). Original source: <https://openstax.org/details/books/university-physics-volume-2>.