

## CHAPTER OVERVIEW

### 18: Electric Charge and Electric Field

This chapter begins the study of electromagnetic phenomena at a fundamental level. The next several chapters will cover static electricity, moving electricity, and magnetism—collectively known as electromagnetism. In this chapter, we begin with the study of electric phenomena due to charges that are at least temporarily stationary, called electrostatics, or static electricity.

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Thumbnail: This diagram describes the mechanisms of Coulomb's law; two equal (like) point charges repel each other, and two opposite charges attract each other, with an electrostatic force  $F$  which is directly proportional to the product of the magnitudes of each charge and inversely proportional to the square of the distance  $r$  between the charges. Regardless of attraction, repulsion, charges or distance, the magnitudes of the forces,  $|F|$  (absolute value), will always be equal. (CC-BY-3.0).

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