

CHAPTER OVERVIEW

16: Generation of Electromagnetic Fields

In this chapter we investigate how charge produces electric and magnetic fields. We first introduce Coulomb's law, which is the basis for everything else in the section. We then discuss Gauss's law for the electric and magnetic field, drawing on what we learned while using it on the gravitational field. Coulomb's law and the theory of relativity together show that magnetic fields are generated by moving charge. We then use this fact to compute the magnetic fields from some simple charge distributions. We finish with a discussion of electromagnetic waves.

[16.1: Coulomb's Law and the Electric Field](#)

[16.2: Gauss's Law for Electricity](#)

[16.3: Gauss's Law for Magnetism](#)

[16.4: Coulomb's Law and Relativity](#)

[16.5: Moving Charge and Magnetic Fields](#)

[16.6: Electromagnetic Radiation](#)

[16.7: The Lorenz Condition](#)

[16.8: Problems](#)

This page titled [16: Generation of Electromagnetic Fields](#) is shared under a [CC BY-NC-SA 3.0](#) license and was authored, remixed, and/or curated by [David J. Raymond](#) ([The New Mexico Tech Press](#)) via [source content](#) that was edited to the style and standards of the LibreTexts platform.