

CHAPTER OVERVIEW

14: Waves

Learning Objectives

- Understand the definition of different types of waves.
- Understand how to mathematically describe traveling and standing waves.
- Understand how to model the propagation of a pulse on a rope.
- Understand how to model the energy transported by a wave.
- Understand how to model the interference of waves.
- Understand how standing waves form and how to model them

In this chapter we introduce the tools to describe waves. Waves arise in many different physical systems (the ocean, a string, electromagnetism, etc.), and can be described by a common mathematical framework.

prelude

Two waves travel down two identical strings (Figure 14.1). The frequency of the first wave is twice that of the second wave. Which wave will be faster?

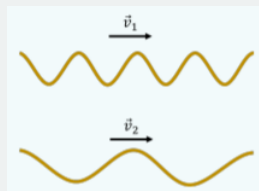


Figure 14.1: Two waves traveling down two identical strings.

- A. The first wave.
- B. The second wave.
- C. The speeds will be the same.

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