

Chapter I

- Michelson-Morley experiment (non existence of the ether)
- The two postulates of special relativity

Consequences of special relativity

- Time dialation $\Delta T = \gamma \Delta T'$

- Length contraction $\Delta L = \frac{\Delta L'}{\gamma}$

$$\gamma = \frac{1}{\sqrt{1 - v^2/c^2}} = \frac{1}{\sqrt{1 - \beta^2}} > 1$$

The "primed" are the proper quantities.

Relativistic Doppler shift



$$f_{\text{obs}} = \frac{\sqrt{1 + v/c}}{\sqrt{1 - v/c}} f_{\text{source}}$$

$$f_{\text{obs}} > f_{\text{source}}$$