

2007/10/13(六) 物理 (陳政維老師) 上課筆記

$$\text{Gravitation} - \text{force} \propto \frac{1}{r^2}$$

Electromagnetic force (coulomb law)

$$\frac{1}{4\pi\epsilon_0} \square G$$

Number of order magnitude

Strong interaction \rightarrow nuclear $\sim 10^{-15}$ m

Weak interaction \rightarrow radio decay interaction

H. Lippershey (1698/10/2) refractory telescope

Galileo Galilei (1564~1642)

Z. Jansson (1588~1632)

The compound microscope (probably)

Johannes Kepler (1571~1630)

Discover total internal reflection

Willebrord Snell

Snell Law (diffraction effect)

Rene' Desartes (1596~1650)

Publish Snell law, define ether

Pierre de Fermat (1601~1665)

Light can choose the least time path

Hook

Discover diffraction effect

Issac Newton (1642~1727)

Light is particle

Christiaan Huygens (1629~1695)

Light is wave

Romer (17 century)

Find Jupiter the nearest satellite I_0 (1676.11.9).

Romer suggest light must be wave property that the Jupiter satellite I_0 would be observed 10 minutes later than light is particle.

Light velocity $\doteq 2.3 \cdot 10^8$ m/s

Thomas Young (1773~1829)

Published interference principle

A. Jean Fresnel (1788~1827)

Light has finite velocity

At the beginning, light was considered a longitudinal wave.

But at the experiment , Light cross the calcite separated into two direction .
So the correction of light property is that light is a transverse wave, not a longitudinal wave.

A. H. L. Fizean (1849)

The measurement of light velocity $8633\text{m/s} \doteq 315300\text{km/s}$