

PHYS1022 Summary Sheet 5

Magnetic Field and Magnetic Forces

Chapter 26

26.2 The Force exerted by a Magnetic Field

$$\underline{F} = q\underline{v} \times \underline{B} \quad \text{Magnetic force on a moving charge}$$

26.3 Motion of Charged Particles in a Magnetic Field

Special case of particle velocity being perpendicular to \underline{B}
Circular motion
Cyclotron frequency

Applications:

Velocity selector
Thompson's measurement of q/m
Mass Spectrometers
Cyclotron

26.4 Magnetic Force on a Current-Carrying Conductor

$$d\underline{F} = I d\underline{l} \times \underline{B} \quad \text{Magnetic force on a current element}$$

Application:

The Hall Effect
The Hall potential