

# Magnetostatics

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- Magnetostatics:

$$\vec{F}_{\text{lorentz}} = q\vec{v} \times \vec{B}$$

- This is “static” in the sense of steady flow of magnetic field
- The units of  $\vec{B}$  are Teslas [T]
- In the simple case where  $\vec{B} = B_o\hat{z}$  and  $v_z = 0$ , the force could be described as:

$$|\vec{F}| = qvB$$

- With inward direction. We can then write:

$$qvB = \frac{mv^2}{R}$$

$$qB = \frac{mv}{R}$$

$$qB = \frac{p}{R}$$

$$R = \frac{p}{qB}$$