

MODEL - MAGNETIC FIELD

- Description
 - Object Variables:
 - Charge
 - distance
 - State variables:
 - velocity
 - current
 - Interaction variables
 - Magnetic field

- Formulations

- Interaction laws

- $\vec{B} = \frac{\mu_0}{4\pi} \frac{q \vec{v} \times \hat{r}}{r^2}$

- $d\vec{B} = \frac{\mu_0}{4\pi} \frac{I d\vec{l} \times \hat{r}}{r^2}$

- $B = \frac{\mu_0}{4\pi} \frac{LI}{r \sqrt{r^2 + (L/2)^2}}$

- $B = \frac{\mu_0}{4\pi} \frac{2\pi R^2 I}{(z^2 + R^2)^{3/2}}$

- $B_S = \mu_0 n I$

μ_0 = vacuum permeability

μ = "how easy is it to setup
a magnetic field"