

Force Between Perpendicular Lines of Electric Current



- Electric currents: I_a, I_b
- Magnetic field generated by line a : $B_a = \frac{\mu_0 I_a}{2\pi r}$
- Magnetic force on segment dr of line b : $dF_{ab} = I_b B_a dr$
- Magnetic force on line b : $F_{ab} = \frac{\mu_0 I_a I_b}{2\pi} \int_{r_1}^{r_2} \frac{dr}{r} = \frac{\mu_0 I_a I_b}{2\pi} \ln \frac{r_2}{r_1}$

