

MAGNETIC FIELDS OF CURRENTS

LONG, STRAIGHT WIRE

$$B = \frac{\mu_0}{2\pi} \cdot \frac{I}{r}$$

CENTRE OF A CIRCULAR LOOP

$$B = \frac{\mu_0}{2} \cdot \frac{I}{r}$$

COIL

$$B = \mu_0 \cdot \frac{NI}{\sqrt{L^2 + d^2}}$$

SOLENOID

$$B \approx \mu_0 \cdot \frac{NI}{L}$$

HELMHOLTZ COIL

$$B = \left(\frac{4}{5}\right)^{3/2} \cdot \mu_0 \cdot \frac{NI}{r} \approx 0.716 \cdot \mu_0 \cdot \frac{NI}{r}$$