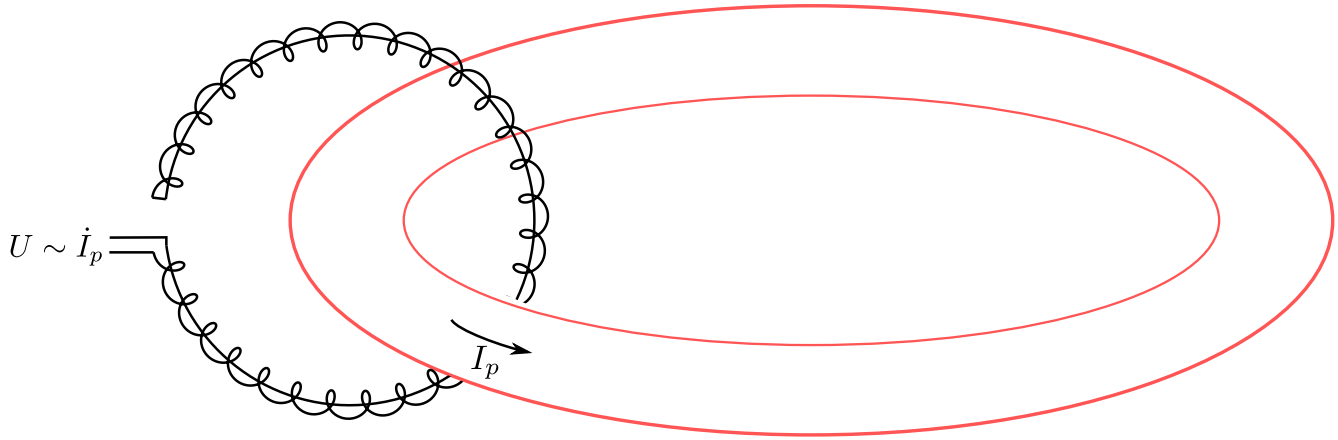
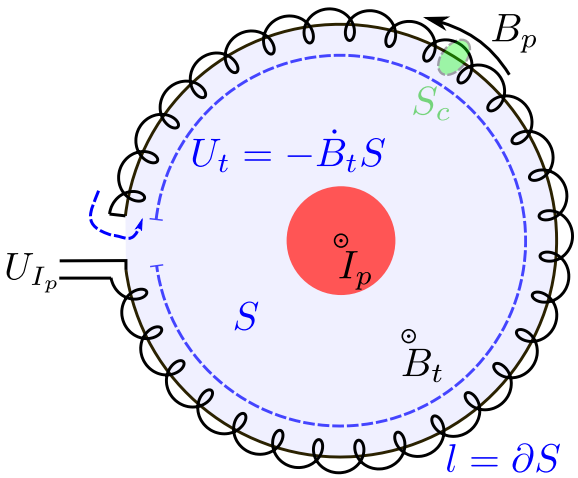
Rogowski coil for the plasma current I_p measurements





- Ampere's Law: $\nabla \times \mathbf{B} = \mu_0 \mathbf{j}$ (neglecting $\dot{\mathbf{D}}$)
- current through (const) surface S: $\int \mathbf{j} \cdot d\mathbf{S} = I_p$
- (const) poloidal field along surface border l: $\int \nabla \times \mathbf{B} \cdot d\mathbf{S} = \int B_p dl = l B_p$
- voltage induced: $U_{I_p} + U_t - U_t = -N \dot{B}_p S_c = -\frac{N S_c}{l} \dot{I}_p$