

Physics Cup 2018 - Problem 3. February 25, 2018

Find the inductance of a circular loop of wire around an infinite ferromagnetic cylinder of radius r . The cylinder is made from a ferromagnetic material of relative permeability $\mu \gg 1$ (if needed, you can also assume that $\ln \mu \gg 1$); the radius of the loop is slightly larger than r so that it sits tightly around the cylinder.