PHYS 1220 **Fall 2025**

Lab 7: Magnetic Field from Current Carrying Wires and Magnetic Force

Challenge

Generate a magnetic field using available materials and measure the corresponding distance (r) dependence of the field for a single wire. Repeat these measurements for two wires with current running in the (a) parallel and (b) anti-parallel directions.

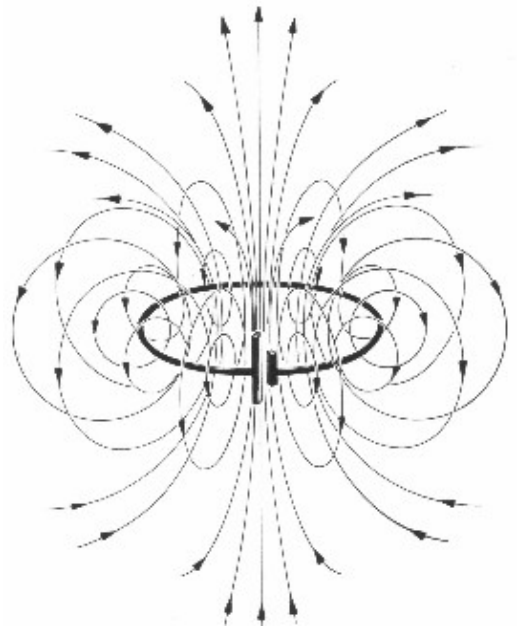
Now, calculate the force between the two wires for the currents you are using. Comment on how you know there is a force (and the nature of the force) and whether your observation is qualitatively consistent with your calculation. If you don't detect a force, what would you do?

Materials

multimeter & probes	Logger Pro software	wires & string
circuit boards	magnetic field sensor	resistors
alligator clamps	DC power supply	

Lab Report Considerations

Your lab report must provide an example circuit diagram, a photo, sketch, or diagram of the lab setup, and relevant plots showing B as a function of $1/r$ for the different current and wire configurations.



A neutron walked into a bar and asked, "How much for a drink?"

The bartender replied, "For you, no charge."