

Answer on Question#46012 - Physics - Electromagnetism

One end of a simple rectangular wire-loop current balance is inserted into a solenoid. A force of $30 \times 10^{-3} \text{ N}$ is found to act on this end when a current of 2.0 A is flowing in it. If the length of the conductor forming the end of the the wire-loop is 0.

Solution:

The force acting on the end of a wire-loop is given by

$$F = I \cdot B \cdot l,$$

where I – is the current flowing in the loop, B – magnetic field, and l – is the length of the inserted end. if $l = 0$, then the magnitude of magnetic field should be infinitely large, which is impossible.