

## 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  $2.0 \text{ A}$  is flowing in it. If the length of the conductor forming the end of 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.