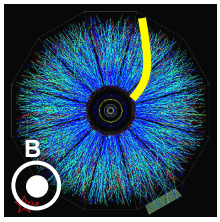
Here is an event display from a high energy physics experiment. (You are seeing millions of tracks of charged particles leaving the central region) There is a 1 Tesla uniform magnetic field coming *out of the page*. What sign is the electric charge for the highlighted (yellow) track?

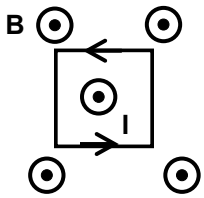
A: + B: -

$$\vec{F} = q\vec{v} \times \vec{B}$$



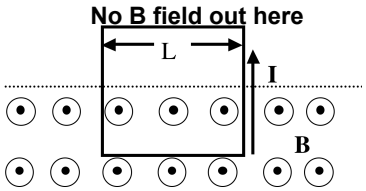
A square loop of wire carrying current I is in a uniform magnetic field B. The loop is perpendicular to B (B out of the page). What is the direction of the net force on the wire?

A: out of the page
B: into the page
C: ↕
D: ↓
E: 0 (or, none of these)



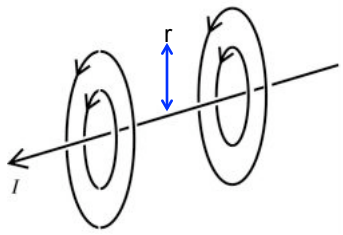
A square loop has a CCW current. It sits in a uniform B field (OUT of the page)
Note: the B field is "cut off" partway up the current loop What is the direction of F(net) on the whole loop?

A) ⊙
B) ⊗
C) ↑
D) ↓
E) other



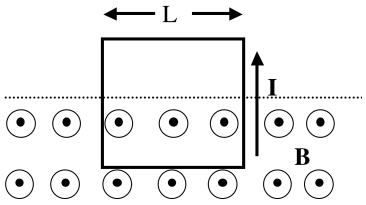
B-Field a distance r from a long wire:

$B=\mu_0 I / 2\pi r$



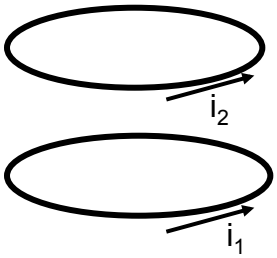
A square loop has a CCW current I, shown. It is placed in a uniform B field (OUT of the page) However, the B field is "cut off" halfway up the current loop. What is the magnitude of the net force on the loop?

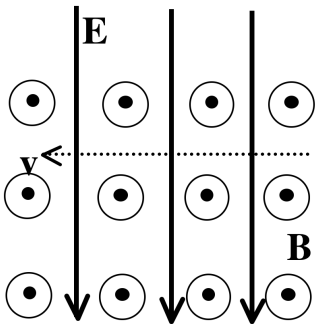
A: iLB
B: 2iLB
C: 4iLB
D: 0
E: Other



Two loops of wire have current going around in the same direction.
The forces between the loops is:

A: Attractive
B: Repulsive
C: Net force is zero.

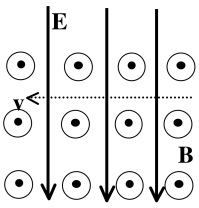




A particle with unknown (non-zero) charge q moves left with speed v. It enters a region with uniform electric field down and uniform magnetic field out of the page It goes in a straight line. The sign of q *must* be…

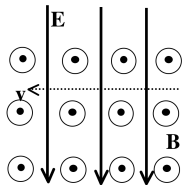
A: + B: - C: 0

D: Could be anything

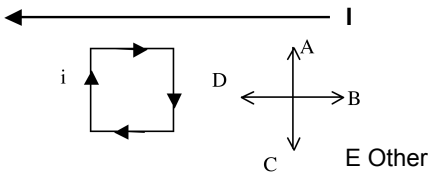


Suppose the particle in the last question is a proton. If the speed of the proton is increased, it will

A: still undergo no deflection
B: deflect out of the plane of the page
C: stay in the plane of the page and deflect upward
D: stay in the plane of the page and deflect downward
E: None of these/not sure.



A rectangular loop of wire (with CW current i) is near a long straight wire carrying current I. What is the direction of the net force on the rectangular loop, due to the B-field from the long, straight wire?



E Other