

Laboratory 5

<https://ophysics.com/em7.html>

Velocity of particle is perpendicular to applied magnetic field

This is a simulation of a charged particle being shot into a magnetic field. Use it to explore relationships between mass, charge, velocity, magnetic field strength, and the resulting radius of the particle's path within the field.

1. Determine the relationship between resulting radius of the particle's path within the field and mass of particle.
2. Determine the relationship between resulting radius of the particle's path within the field and velocity of particle.
3. Determine the relationship between resulting radius of the particle's path within the field and strength/nature of charge particle.
4. Determine the relationship between resulting radius of the particle's path within the field and strength/direction of magnetic field.
5. Also, explore the impact of above on time-period.

<https://ophysics.com/em8.html>

Velocity of particle is not perpendicular to applied magnetic field

This is a 3D simulation of a charged particle moving in a magnetic field. Adjust the strength of the magnetic field, the particle mass, particle charge, and its initial velocity in the x and z directions using the sliders.

1. Vary the charge, mass, velocity and observe the trajectory of particle
2. Vary the parallel and perpendicular component of magnetic field and observe the trajectory of particle