

Q. What is Impact of parameter & is scattering.

Ans. Impact parameter is the scattering of α particle from a nucleus depends on its distance of closest approach to the nucleus on an equivalent length.

The impact parameter is defined as the perpendicular distance of the velocity vector of the α particle from the centre of ~~nucleus~~ nucleus when it is far away from the atom.

For large impact parameters, the repulsive force experienced by the α -particle is weak and the α -particle passes almost undeflected.

For small impact parameter, the repulsive force is large and so the α particle is scattered through large angle.

For a head on collision, when the α -particle just aims at the centre of nucleus, the impact parameter b is equal to zero.

Scattering angle $\theta = 180^\circ$ that is, the α -particle is reversed back along its original path.

Thus, the slope of the trajectory of the scattered α -particle depends on the impact parameter and the nature of potential field.
