

## Dependence of kick angle on the momentum of the muon

The closed orbit in the ring depends on the momentum according to

$$R = R_0 + \eta\delta$$

As shown in the following slides, the angle kick required to steer the muon onto its closed orbit is

$$\theta_k = \frac{x_{inf} + \eta\delta}{R_0(1 - \delta)}$$

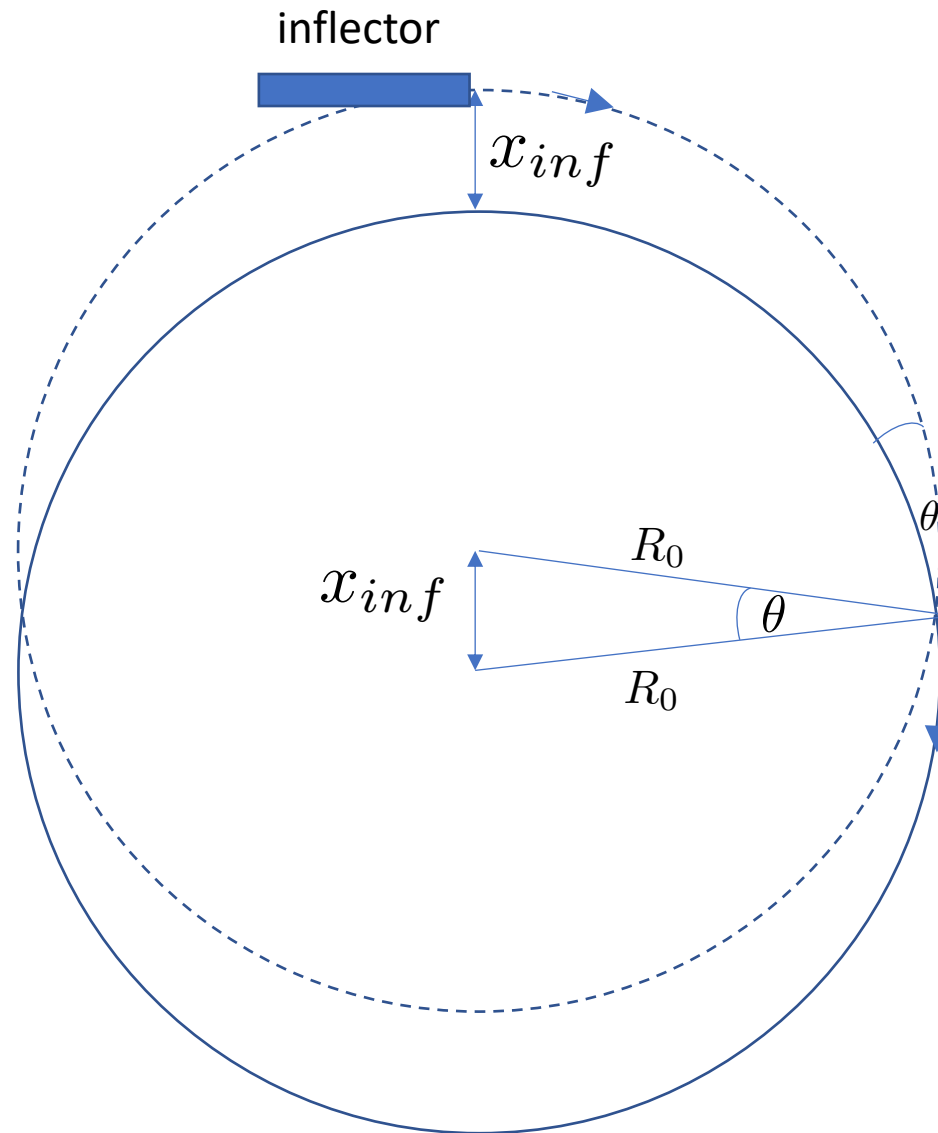
$$R_0 = R_{magic} = 7.112 \text{ m}$$

$$x_{inf} = 77 \text{ mm}$$

$$\eta = \frac{R_0}{1 - n} \sim R_0$$

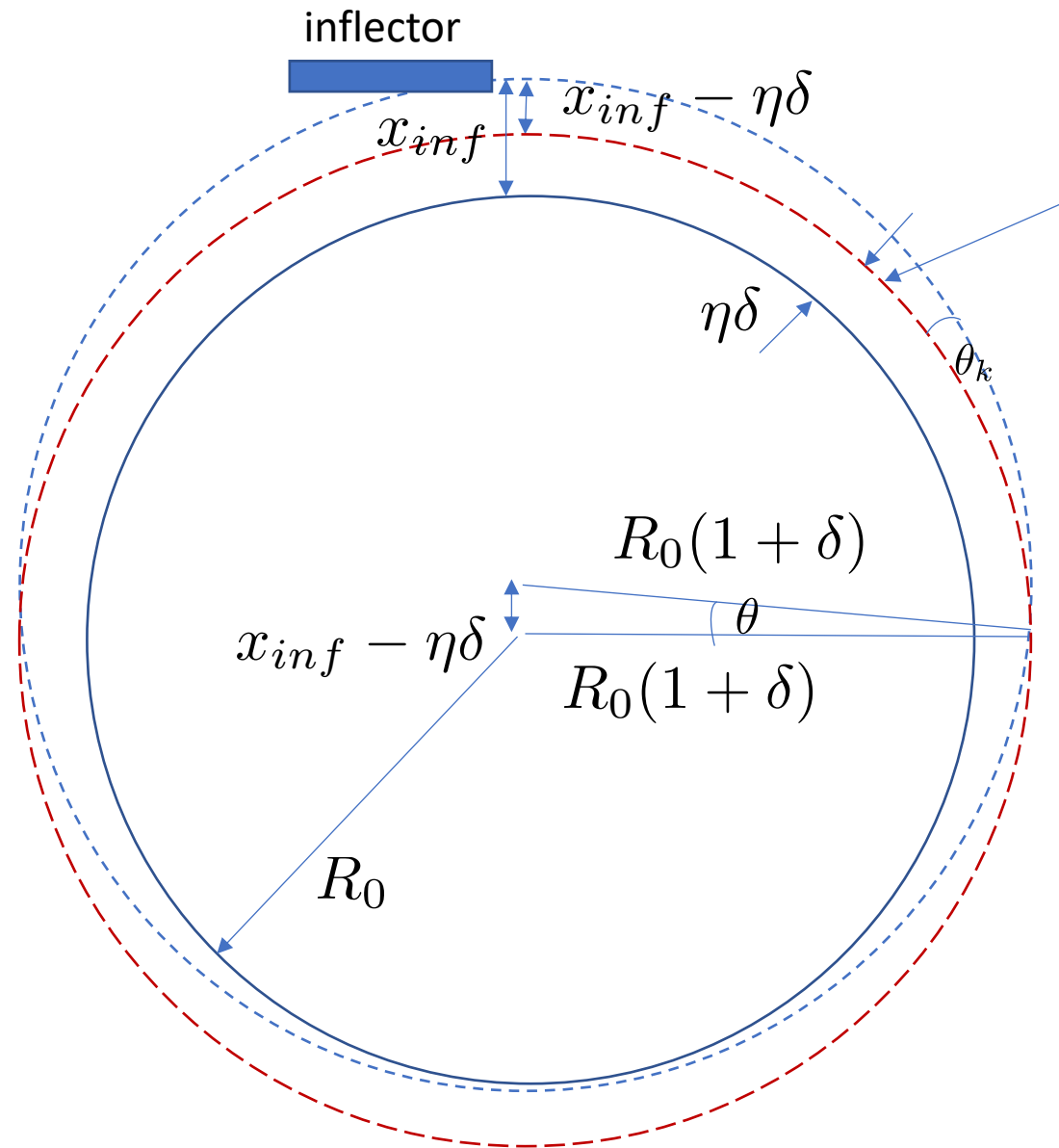
$$R_0 = R_{magic} = 7.112 \text{ m}$$

$$x_{inf} = 77 \text{ mm}$$



Magic momentum muon

$$\theta_k = \frac{x_{inf}}{R_0}$$



Closed orbit for momentum offset  $\delta$

$$\theta_k = \frac{x_{inf} - \eta\delta}{R_0(1 + \delta)}$$

