Muon back ground estimation for 1997-type JLC

6 MAR 1997
KEK Y. Namito

Muon back ground is estimated for 1997-type JLC design. 8-particle collimators are assumed in collimation section. The particle collimators locate from 1840.3 m to 2855.6 m from the IP. The effect of long iron cylinder shield was investigated. The outer and inner radius of the long iron cylinder shield are 31 and 1 cm respectively. The beam pipe locates inside this 1 cm–radius space The part of beam line from 1721 m to 2856 m from the IP is assumed to be covered with the long cylinder shield.

Fig.1 shows number of lost electron to produce one muon at the IP. The x-axis is the source location from IP in m. The filled circle, filled triangle and open circle represent 250 GeV – no shield, 500 GeV – no shield and 250 GeV long iron cylinder sheild respectively. The simulation shows,

- The e/μ ratio is propotional to inverse of beam energy.
- The long iron cylinder shield reduces muon back ground to 2 –3 order of magnitude.

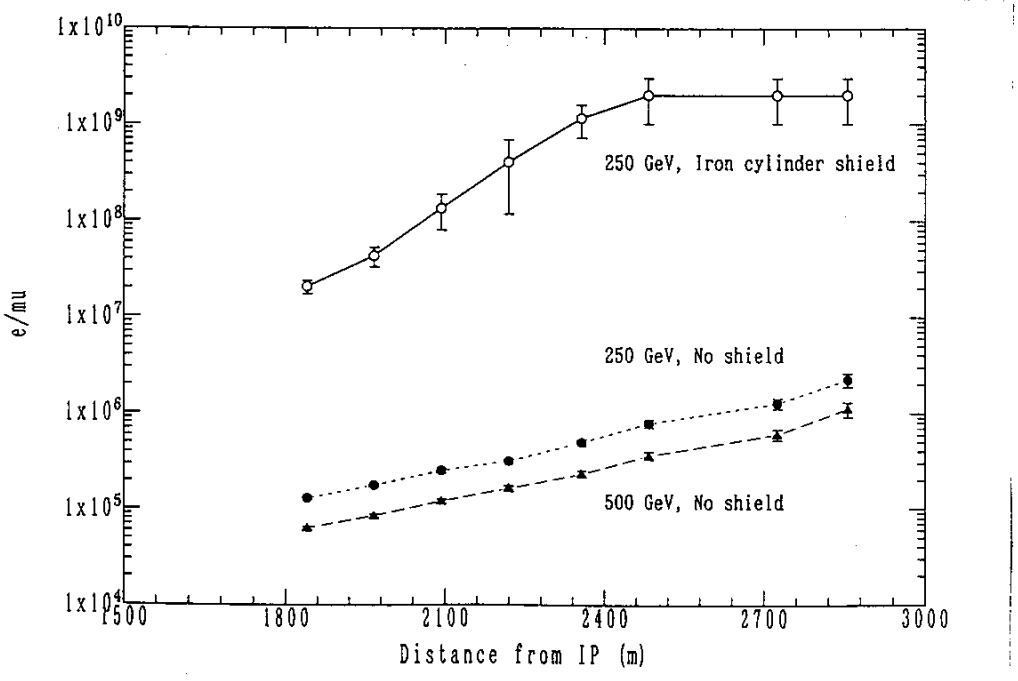

Figure 1: Number of electron to produce one muon which reaches the IP.