IR Design Criteria

- Separation scheme to avoid parasitic beam-beam collisions (35nsec distance between bunches).

  The separation should work well in all energy range: 5-10 GeV electrons, 25-250 GeV protons.

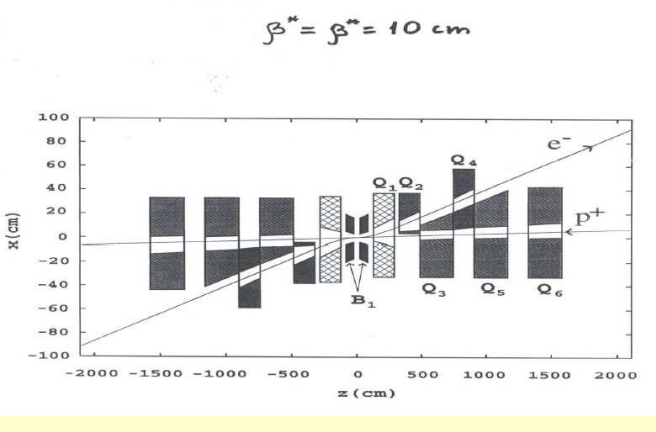
- Focusing to low β^* in both rings. What is lowest β^* achievable?
- Longitudinal polarization in interaction point.
- Minimal depolarization from separation and spin rotation schemes. Spin transparency conditions
- Detector background, protection from synchrotron radiation issues

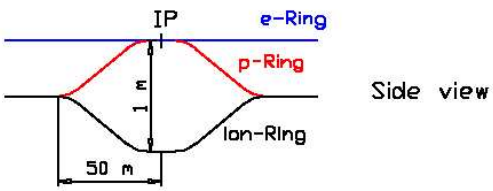
Current IR design points

- Round beams: $\beta_x=\beta_y$, $\varepsilon_x=\varepsilon_y$
- Mininimal β_i= 25 cm ; β_e=10cm
- Head-on Collisions
- Spin rotators: solenoidal for electrons,
  helical for protons

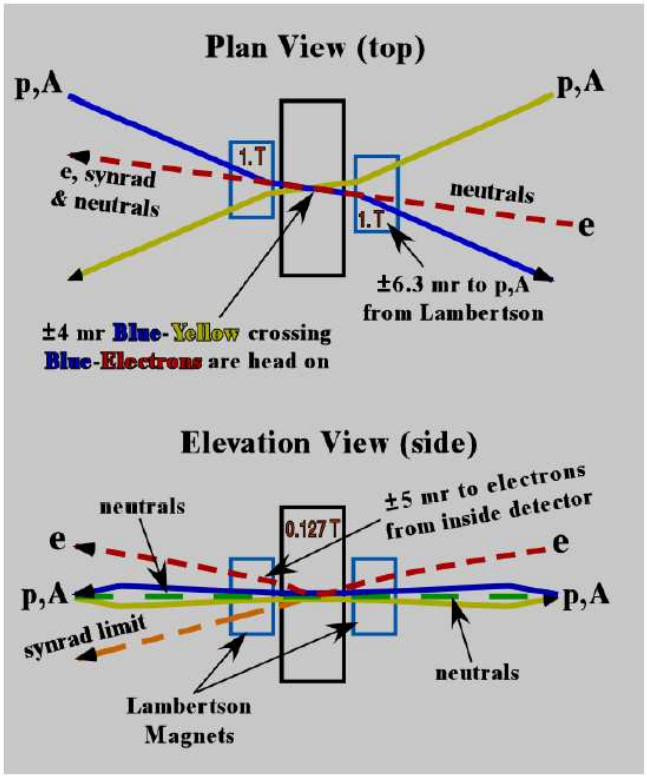
IR Design

Horizontal separation scheme (BINP)





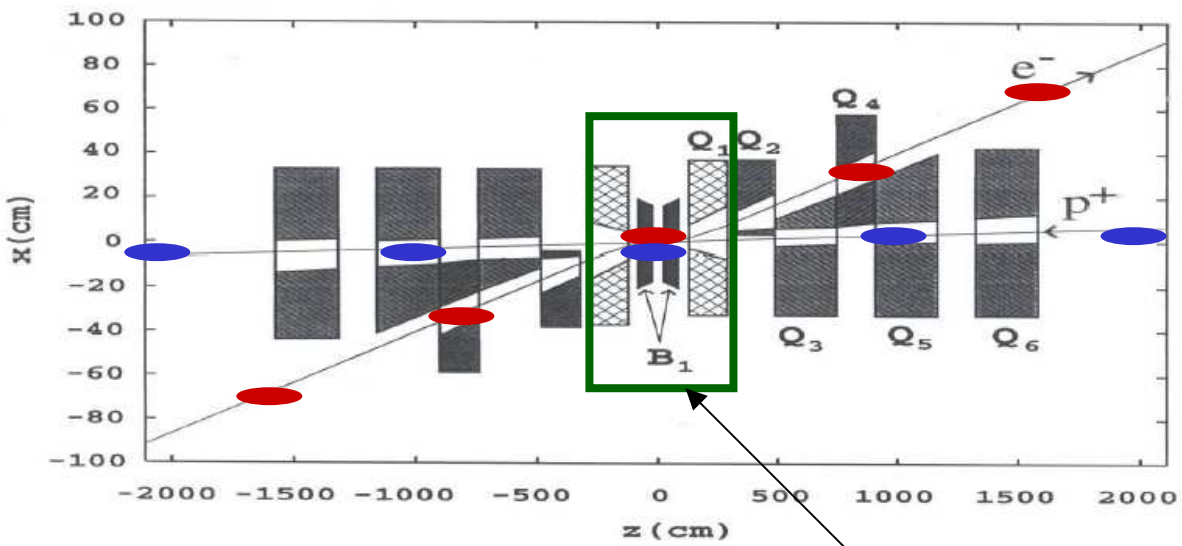
Vertical separation scheme (B.Parker)



- IR development proceeds in close link with the detector design
- Detector background and protection from synchrotron radiation issues

Beam separation

$\beta^* = \beta^* = 10$ cm



Detector area