

Hands-on Training Topics

1. Design of an MBA based Storage Ring, which satisfies following conditions:

1.1 Energy: 4 GeV

Circumference: about 800 m

MBA: 7 BA

1.2 Energy: 4 GeV

Circumference: about 1300 m

MBA: 7 BA

1.3 Energy 4 GeV

Circumference: about 1500 m

MBA: 9 BA

RF Frequency = 500 MHz

Dispersion: closed at long drift sections

Chromaticity: Compensated

Tunes should be far away from resonance lines.

Try to get a lattice giving the best minimum emittance (< 30 pm)

2. Design of an S-band Injector with a Bunch Compressor, 3 FODO Cells for Beam Diagnostics Section

Energy is about 250 MeV

Charge: 200 pC

Short-range Wakefield: considered in S-band and X-band Linacs

CSR is considered in Bunch Compressor

Bunch Length should be compressed < 60 μ m

Normalized emittance at the end of 3 FODO cells < 0.4 μ m

FODO X-phase advance: 50 deg

FODO Y-phase advance: 20 deg

FODO cell length: 3.2 m

3. Design of an Rapid Cycling Synchrotron which satisfies following conditions

Energy: 2 GeV

Injected Energy: 100 MeV

Extracted Energy: 2 GeV

Circumference: 280 m

Ramping Repetition Rate: 25 Hz

RF Frequency: 2 MHz