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Lattice and Magnet Design Assumptions

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LATTICE AND MAGNET DESIGN ASSUMPTIONS

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MAGNET CONSTRAINTS

1) FOR 100 GeV/amu Au OPERATION

ARC DIPOLE	10m EFF; B_{arc} = 3.26 T 8 cm COIL APERTURE
BC2	4.1 T, LENGTH AS REQUIRED SINGLE LAYER COSINE COIL APERTURE 10 cm
BC1	5.5 T, LENGTH AS REQUIRED DOUBLE LAYER COSINE ~ 20 cm COIL APERTURE
ARC QUADS	G/B_{arc} = 19.84 m^{-1}
INS QUADS	SPECS TO BE DEVELOPED PROBABLY 2 LAYER COSINE, 13 cm COIL APERTURE FOR SYNCH: EQUAL TO ARC
GOOD FIELD	ROOM FOR 6σ (30 GeV) IN ALL MAGNETS CHROMATIC AND RANDOM ERRORS CORRECTED

DEFINE QC AS REQUIRED BY LATTICE

MAGNET DIVISION WILL PROVIDE CONCEPTUAL DESIGN

COSINE, WINDOW FRAME, SEPTUM DIPOLE

2) HIGH ENERGY p OPERATION (~ 345 GeV)

EQUAL QUENCH MARGIN IN ALL DIPOLES

BC2 = 4.5 T

BC1 = 6 T

B_{arc} = 4.5 T

ACCEPT IRON SATURATION EFFECTS

ALL CORRECTION ELEMENTS DESIGNED FOR HIGH FIELD OPERATION

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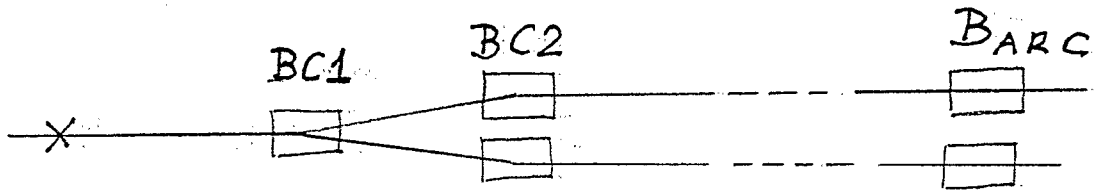
LATTICE SUMMARY

STUDY 2 LATTICES

- SYMMETRICAL
- ASYMMETRICAL

BASED ON FOLLOWING DESIGN ASSUMPTIONS:



FREE SPACE TO BC1

± 11 m TO EFFECTIVE POSITION (SYNCH)

± 10 m FOR PHYSICS

INNER/OUTER RING SPACING

35 cm

DESIGN INSERTION FOR OPTIMUM LUMINOSITY Au/Au

30 - 100 GeV/amu

$\alpha = 0 - 2$ mrad FOR Au-Au, Au-p

RETUNE INSERTION FOR HIGH ENERGY p OPERATION WITHOUT PHYSICAL CHANGE

$\alpha \neq 0$ ACCEPTED