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

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