

ENTRY NO: C-35
Machine Name: 120-cm cyclotron, R-7
Date: 6/4/01 6:12:47 AM
Institution: Scobelcyn Institute of Nuclear Physics of
Moscow State University (SINP MSU)
Address Leninsky Gory, 119899 Moscow, Russia
In Charge of Cyclotron: Keeryanov E.
Telephone: (7095)939-1818
Fax: (7095)939-0896
Person Reporting: Spassky A.
Web: http://www.npi.msu.su
E-mail: wg2@anna19.npi.msu.su

HISTORY

Designed By: NIIFA
Construction Dates: 1958
First Beam Date: 1958
CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)	/current(pps)	/power(w)
p, d, He-3, He-4	5-7,5	100- 0	300

transmission efficiency(source to extract beam)

typical: 10% - **best:** %

tranverse emittance

emittance definition:

vertical: π mm mrad

horizontal: π mm mrad

longitudinal: (Δ) E/E)%xdeg RF

USES

basic research: 40%

therapy: %

development: 5%

isotope production: 20%

other: 15%

maintenance: 10%

beam tuning: 10%

Total Time: 1000-2000h/year

TECHNICAL DATA

a)magnet: **type:** compact SP-44
Kb: MeV/A **Kf:** MeV/A

average field (min/max): 1,5/0,55 T

number of magnet sectors:

hill angular width: hill angular width

spiral (max): deg

pole parameters

diameter: 120 cm m

injection radius: 0 m

extraction radius: 53 m

hill gap: m **valley gap:** m

trim coils

-number: 5x2

-current(max): 250 A-turns

harmonic coils

-number: 4xNsectorsx2

-current(max): A-turns

main coils

number: 1x2

total ampere-turns: A-turns

current: 300 A

stored energy: MJ

weight - iron: 120t **coils:** t

power

main coils (total): 80 kW

trim coils (total max): 10 kW

refrigerator (cryogenic): kW

b)RF

acceleration

frequency range: 8-12MHz

harmonic modes: 1, 3

number of dees: 2

number of cavities:

dee angular width: 180degrees

voltage

at injection: kV(peak to ground, max)

at extraction: kV(peak to ground, max)

peak: kV(peak to ground, max)

line power(max): 100kW

stability

phase: deg

voltage: 0,5%

injection

c)ion source: arc source

external injection:

components:

source bias voltage: kV

injection energy: MeV/N

buncher:

injection efficiency: %

d)injector:

e)extraction

pulsed electrostatic deflector

efficiency

typical: 30%

best: %

f)vacuum

pumps: diffusion pumps

achieved vacuum: 3E -4Pa

REFERENCES

EXPERIMENTAL FACILITIES

several scattering chambers

COMMENTS