

ENTRY NO: C-29
Machine Name: U-200P
Date: 6/4/01 5:59:08 AM
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HISTORY

Designed By:
Construction Dates: 1991
First Beam Date: 1992

CHARACTERISTIC BEAMS

ions	/ energy(MeV/N)/current(pps)/power(w)
11B+2	5 6e10
16O+3	5 2e12
14N+3	6 1e12
19F+3	2 2e10
20Ne+4	5.5 6e11
40Ar+7	4.3 4.3e10

transmission efficiency(source to extract beam)

typical: % - best: %

transverse emittance

emittance definition:

vertical: π mm mrad

horizontal: π mm mrad

longitudinal: $(\Delta) E/E) \% \times \text{deg RF}$

USES

basic research: 76% **therapy:** %
development: 2% **isotope production:** %
other: 4% **maintenance:** 14%
beam tuning: 4% **Total Time:** 2900h/year

TECHNICAL DATA

a)magnet: type: compact
Kb: $160q^2/A^2\text{MeV/A}$ **Kf:** $160q^2/A^2\text{MeV/A}$
average field (min/max): 2.14 T
number of magnet sectors: 4
hill angular width: 42hill angular width
spiral (max): deg
pole parameters
diameter: 2 m
injection radius: 0.04 m
extraction radius: max 0.85 m
hill gap: 0.027m **valley gap:** 0.15m
trim coils
 -number: 10x2
 -current(max): 900 A-turns
harmonic coils
 -number: xNsectorsx2
 -current(max): A-turns
main coils
number: 7x2
total ampere-turns: 16 800 A-turns
current: 1200 A
stored energy: MJ
weight - iron: 220t **coils:** 18t
power
main coils (total): 240 kW
trim coils (total max): 60 kW
refrigerator (cryogenic): 15 kW
b)RF
acceleration
frequency range: 12-20MHz

harmonic modes: 1,2,3,4
number of dees: 2
number of cavities: 2
dee angular width: 45degrees
voltage
 at injection: 75kV(peak to ground, max)
 at extraction: 75kV(peak to ground, max)
 peak: kV(peak to ground, max)
line power(max): kW
stability
phase: 1 deg
voltage: %
injection
c)ion source: ECR
external injection: axial
components:
source bias voltage: 10kV
injection energy: 0.002MeV/N
buncher:
injection efficiency: %
d)injector: electrostatic mirror inflector
e)extraction
 stripping, range from 60 to 85 cm
efficiency
typical: %
best: %

f)vacuum

pumps: 4 cryogenic pumps, 2 x 1 500 l/sec air and 2 x 3 0

achieved vacuum: 9e-5Pa

REFERENCES

Laboratory Portrait, Nuclear Physics News Europe, vol. 4 No 3, 1994, p. 6

EXPERIMENTAL FACILITIES

OSIRIS the BGO shielded gamma ray detectors system with multiplicity filter and Si-Ball (C3); JANOSIK a large NaI, cosmic rays shielded detector working in coincidence with an array of barrium fluoride and NaI(Tl) counters (C4); CUDAC Silicon detector (PIN-diodes) scattering chamber for below the Coulomb barrier experiments (C2); IGISOL on-line isotope separator with helium transport system (C 1.1); He-Jet reaction products transport system (C 1.2); Universal Scattering Chamber (B); Laser Spectroscopy set-up (off line); Low-Background Gamma Ray Counting Laboratory (off line).

COMMENTS

GENERAL VIEW AND BEAM LINES LAYOUT

