ENTRY NO: C-27
Machine Name: AGOR
Date: 6/7/01 8:27:13 AM
Institution: Kernfysisch Versneller Instituut (KVI)
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HISTORY
Designed By: IPN Orsay (France) / KVI
Construction Dates: 1987 - 1994
First Beam Date: april 1994 (Orsay)/ january 1996 (KVI)
CHARACTERISTIC BEAMS

ions	/ **energy**(MeV/N)/**curre**nt(pps)/**power**(w)		
1H	190	3e11	10
2H	85	3e11	8.5
36Ar11+	25	1e11	12
3He2+	55		
3He1+	60		
40Ar8+	10		

transmision efficiency(source to extract beam)
typical: 10% - **best:** 25%
tranverse emmitance
emmitance definition: RMS
vertical: 6π mm mrad
horizontal: 3π mm mrad
longitudinal: 0.2 % x 15 deg(Δ) E/E)%xdeg RF

USES
basic research: 57% **therapy:** %
development: 6% **isotope production:** %
other: 7% **maintenance:** 22%
beam tuning: 8% **Total Time:** 5000h/year

TECHNICAL DATA
a)magnet: **type:** compact
Kb: 600MeV/A **Kf:** 200MeV/A
average field (min/max): 4.05/1.70 T
number of magnet sectors: 3
hill angular width: 54hill angular width
spiral (max): 245 deg
pole parameters
diameter: 1.90 m
injection radius: 0.015 m
extraction radius: 0.89 m
hill gap: 0.07m **valley gap:** 1.68m
trim coils
-number: 15x2
-current(max): 3000 A-turns
harmonic coils
-number: 4 (sectorized trim coils)xNsectorsx2
-current(max): 3000 A-turns
main coils
number: 2x2
total ampere-turns: 5.2e6 + 1.2e6 A-turns
current: 1800 + 900 A
stored energy: 56MJ
weight - iron: 330t coils: 30 (incl. cryostat)t
power
main coils (total): 0 kW
trim coils (total max): 30 kW
refrigerator (cryogenic): 250 kW
b)RF
acceleration
frequency range: 24 - 62MHz
harmonic modes: 2; 3; 4
number of dees: 3
number of cavities: 3
dee angular width: 60degrees
voltage
at injection: 90kV(peak to ground, max)
at extraction: 110kV(peak to ground, max)
peak: 125kV(peak to ground, max)
line power(max): 200kW
stability
phase: 0.1 deg
voltage: 0.01%
injection
c)ion source: multicusp; ECR; polarized p and d
external injection: axial
components:
source bias voltage: 10 - 35 kVkV
injection energy: 0.002 - 0.030MeV/N
buncher: sinusoidal + sawtooth
injection efficiency: 30%
d)injector:
e)extraction
ESD: electrostatic, 4 movements: 55 kV, 10.5 MV/m EMC1: electromagnetic, roomtemperature, dB = 0.2 T, dB/dx = 13 T/m, J = 140 A/mm^2, 2 correctors EMC2: electromagnetic, cryogenic, dB = 0.4 T, dB/dx = 22 T/m, corrector QPOL: electromagnetic, cryogenic,
efficiency
typical: 60%
best: 85 %
f)vacuum
pumps: 2 turbomolecular + cryogenic extraction
achieved vacuum: 2e-4 (turbPa
REFERENCES
H.W. Schreuder et al., Proc. 15th Int. Conf. on Cyclotrons and their Applications, IoP Bristol (1999); pg. 592 and references therein contained
EXPERIMENTAL FACILITIES
BigByteSpectrometer (operational) SmallAngleLargeAcceptanceDetector for p and d(operational) PlasticBall for high E gammas and electrons (operational) 1.2m scattering chamber (operational) recoil separator + ion guide + ion and atom traps (under development)
COMMENTS