Entry: C2
Machine Name: CYCLONE44
Address: (UCL) 2 chemin du Cyclotron B-1348 Louvain-la-Neuve (Belgium)
In Charge of the cyclotron: G. RYCKEWAERT
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Date: June 1998
Institution: Université catholique de Louvain
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HISTORY

Design by: UCL
Construction time: 1995 - 1998
First beam: June 1998

CHARACTERISTIC BEAMS

Ions / energy (MeV/n) / current (pps) / power (W):
- radioactive ions ; 0.2 - 0.8 ; 10^{11}
- .....
- .....
- .....

transmission efficiency (total)
- typical: .....% - best: .....%

transverse emittance (rms)
- vertical: .....π mmmrad
- horizontal: .....π mmmrad

longitudinal emittance (rms) .....ΔE/E.deg RF

USES

basic research: ..... % therapy: ..... %
development: ..... % isotope production: .... %
other applications: ..... % maintenance: ..... %
beam tuning: ..... %
total time: ..... h/year

TECHNICAL DATA

a) magnet
type: compact - r.t. coils
Kb: 44 MeV/A Kf: 2 MeV/A
average field (min-max): 0.8 - 1.56 T
number of magnet sectors: 4
- angle: 33 - 65 deg
- spiral (max): ..... deg

pole parameters
- diameter: 1.56 m
- injection radius: ..... m
- extraction radius: .633 m

hill gap: .12 m valley gap: .24 m

field trimming
- trim coils
  - number: 12
  - current (max): 20 A
- harmonic coils
  - number: 2 x 4 pairs
  - current (max): 10 A
- others
  - number: .....
  - current (max): ..... A

main coils: .....
- number: 1 pair
- Ampere-turns: 210,000 A.T.
- current: 500 A

stored energy: ..... MJ
weight : - iron: 56. t - coils: 2 t
power
- main coils (total): 52 kW
- trim coils (total max): 1 kW
- refrigerator (cryogenic): ..... kW

b) RF
- acceleration
  - frequency range: 13.3 - 18.5 MHz
  - harmonic modes: 6, 8
  - number of dees: 2
  - angular aperture: variable deg
  - voltage:- average (min-max): 10 - 20 kV
    - variation with radius: .....
    - .....
  - power in (max): 2 kW
  - stability: - phase: 0.1 deg - voltage: 0.01 %
- other cavities
  - purpose: .....
  - frequency range: ..... MHz
  - region of influence: ..... m
  - voltage (max): ..... kV
  - power in (max): ..... kW
  - stability:- phase: ..... deg - voltage: .....%

c) injection
- internal source: .....
- external (radial/axial): ECRIS
  - elements: .....
    .....
  - source voltage: 7 - 20 kV
  - injection energy: variable MeV/n
  - buncher: ~~double gap - sinusoidal~~
- injection efficiency: 10 %

d) ion sources/injector
.....
.....

e) extraction
- elements, characteristics:
  - electrostatic deflector
  - passive focusing channel
  - .....
  - .....
- efficiency
  - typical: ..... % - best: ..... %

f) vacuum
- pumps: 2 x 800 l/s + 3 x 1500 l/s
  cryopumps
- achieved vacuum: ..... Pa

REFERENCES
M. Loiselet et al., CYCLOTRONS'98
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EXPERIMENTAL FACILITIES
RECOIL MASS SPECTROMETER
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PLAN VIEW OF FACILITY