Entry: C17
Machine Name: SSC2
Address: BP 5027 14076 CAEN CEDEX 5 - FRANCE
In Charge of the cyclotron: M.H.Moscatello (operation) F.Loyer (equipments)
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HISTORY

Design by: in house
Construction time: 1976-1982
First beam: nov 82

CHARACTERISTIC BEAMS

ions / energy (MeV/n) **/ current** (pps) **/ power** (W) :
- ^{12}C to ^{36}Ar / 95 / 1.5 10^{12} / 400 (planned: 2 10^{13} / 6000)
- ^{86}Kr / 60 / 2 10^{11} / 100
- ^{132}Xe / 45 / 1 10^{11} / 50
- ^{238}U / 25 / 2 10^{9} / 2

transmission efficiency (total)
- **typical**: 90 % - **best**: 98 %

transverse emittance (rms)
- **vertical**: 5 π mmmrad
- **horizontal**: 5 π mmmrad

longitudinal emittance (rms) . 2 10^{-3} . 10 ΔE/E.deg RF

USES

basic research: 65 % **therapy**: 0 %
development: 10 % **isotope production**: 0 %
other applications: 5 % **maintenance**: 5 %
beam tuning: 15 %
total time: 5000 h/year

TECHNICAL DATA

a) magnet
type: room temperature
Kb: 380 MeV/A **Kf**: 380 MeV/A
average field (min-max): 0.39 - 0.95 T
number of magnet sectors: 4
- **angle**: 52 deg
- **spiral (max)**: no

pole parameters
- **diameter**: 6 m
- **injection radius**: 1.2 m
- **extraction radius**: 3 m

hill gap: 0.01 m **valley gap**: m
field trimming
- **trim coils**
  - **number**: 10 / sector
  - **current (max)**: 300 A
- **harmonic coils**
  - **number**: 1 / sector
  - **current (max)**: 110 A
- **others**
  - **number**: 3 to 5 / sector
  - **current (max)**: 200 A

main coils:
- **number**: 8 (2 per sector)
- **Ampere-turns**: 190000/sector A.T.
- **current**: 1850 A

stored energy: MJ
weight : - **iron**: 1700 t - **coils**: 14 t
power
- **main coils (total)**: 950 k W
- **trim coils (total max)**: 140 k W
- **refrigerator (cryogenic)**: k W

b) RF
- **acceleration**
  - **frequency range**: 7 to 14 MHz
  - **harmonic modes**: 2
  - **number of dees**: 2
  - **angular aperture**: 34 deg
  - **voltage:- average (min-max)**: 70-180 kV
    - **variation with radius**:
  - **power in (max)**: 100(per dee) 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**: no
- **external (radial/axial)**: radial
  - **elements**: 4 magnetic channels
    1 electrostatic inflector
  - **source voltage**: kV
  - **injection energy**: 4 to 15 MeV/n
  - **rebuncher**: harmonic 4 - 200 kV
- **injection efficiency**: up to 100 %

d) ion sources/injector
SSC1 (see other entry)

e) extraction
- **elements, characteristics:**
  - 1 electrostatic deflector with septum
  - 4 magnetic channels
  -
  -
- **efficiency**
  - **typical**: 90 % - **best**: 98 %

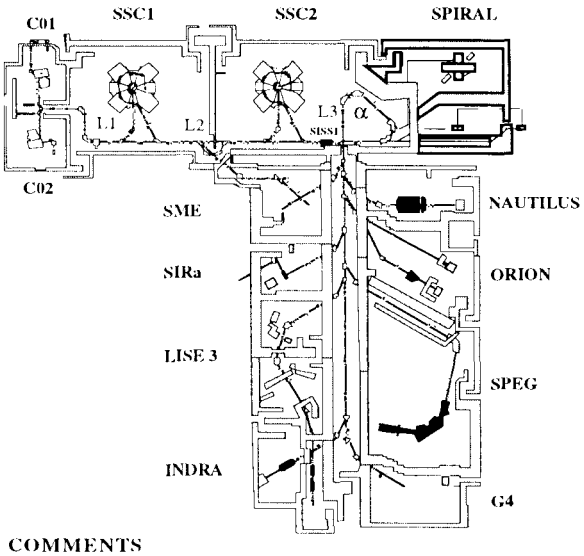
f) vacuum
- **pumps**: 8 cryopumps (20000 l/s each)
  4 turbopumps (3500 l/s each)
- **achieved vacuum**: 6 10^{-6} Pa

REFERENCES

EXPERIMENTAL FACILITIES

9 experiment rooms
2 of them provided with beam in time sharing

PLAN VIEW OF FACILITY



COMMENTS