

Entry: **C18**  
 Machine Name: CIME  
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**HISTORY**

Design by: GANIL  
 Construction time: 1994-1998  
 First beam: 1998

**CHARACTERISTIC BEAMS**

ions / energy (MeV/n) / current (pps) / power (W) :  
 - 2 - 25 MeV/n  
 -  
 -

**transmission efficiency (total)**

- typical: % - best: %  
 transverse emittance (rms)  
 - vertical:  $\pi$  mmrad  
 - horizontal:  $\pi$  mmrad  
 longitudinal emittance (rms)  $\Delta E/E$ .deg RF

**USES**

basic research: 100% therapy: %  
 development: % isotope production: %  
 other applications: % maintenance: %  
 beam tuning: %  
 total time: h/year

**TECHNICAL DATA**

**a) magnet**

type: compact  
 Kb: 265 MeV/A Kf: MeV/A  
 average field (min-max): 0.7 - 1.56 T  
 number of magnet sectors: 4  
 - angle: 44 deg  
 - spiral (max): none deg

**pole parameters**

- diameter: 3.5 m  
 - injection radius: 0.034 m  
 - extraction radius: 1.5 m  
 hill gap: 0.12 m valley gap: 0.3 m

**field trimming**

- trim coils  
 - number: 11  
 - current (max): 250-375 A  
 - harmonic coils  
 - number: 4  
 - current (max): 250 A  
 - others  
 - number:  
 - current (max): A

**main coils:**

- number: 1  
 - Ampere-turns: 270 000 A.T.  
 - current: 800 A

**stored energy:**

weight : - iron: 550 t - coils: t

**power**

- main coils (total): 170 kW  
 - trim coils (total max): kW  
 - refrigerator (cryogenic): kW

**b) RF**

- acceleration

- frequency range: 9.6 - 14.5 MHz  
 - harmonic modes: 2, 3, 4, 5  
 - number of dees: 2  
 - angular aperture: 40 deg  
 - voltage:- average (min-max): 25 - 85 kV  
 - variation with radius:  
 - power in (max): 50 kW  
 - stability: - phase: 0.2 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: none  
 - external (radial/axial): axial  
 - elements: Mueller Inflector  
 - source voltage: 34 kV  
 - injection energy: MeV/n  
 - buncher:

**d) ion sources/injector**

ECR permanent magnet 10 GHz

**e) extraction**

- elements, characteristics:  
 - 2 electrostatic deflectors, 17 deg. 60 kV/cm  
 - 1 magnetostatic channel 16 deg. 5.7 T/m  
 - 1 magnetostatic channel 16 deg. 13 T/m

- efficiency

- typical: % - best: %

**f) vacuum**

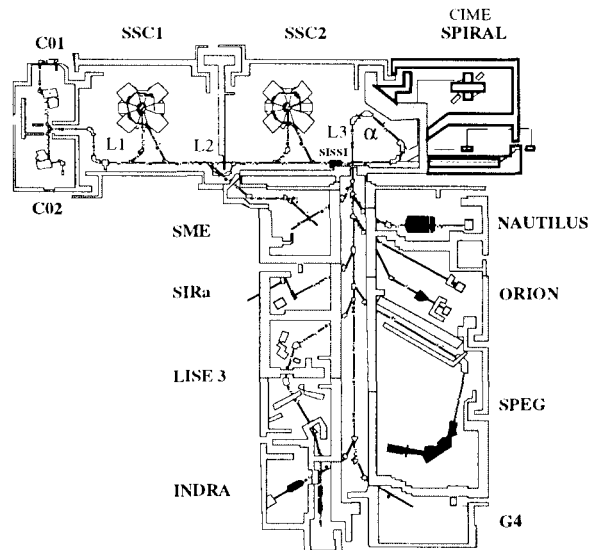
- pumps: 1 cryogenic panel, 2 Turbomolecular pumps.  
 - achieved vacuum:  $5 \cdot 10^{-6}$  Pa

**REFERENCES**

The SPIRAL Radioactive Ion Beam Facility  
 GANIL Internal Report R 94 02

**EXPERIMENTAL FACILITIES**

**PLAN VIEW OF FACILITY**



**COMMENTS**

Post-accelerator for radioactive beams.