

ENTRY NO. 19

NAME OF MACHINE . . . GANIL
 INSTITUTION . . . GANIL
 ADDRESS . . . BP. 5027 - F. 14021 - CAEN-CEDEX
 TEL . 31.45.46.47 TELEX . 170533. F.
 IN CHARGE M. GOUTTEFANGEAS REPORTED BY . GANIL. STAFF.

HISTORY AND STATUS

DESIGN, date . 1973 Model tests . 1976
 ENG DESIGN, date . 1975-76
 CONSTRUCTION, date . 1976-1982
 FIRST BEAM, date . Nov. 1982
 MAJOR ALTERATIONS
 ECR external ion source and axial injection in C02
 COST, ACCELERATOR . 400 MF (1986)
 COST, FACILITY, total . 750 MF (1986)
 FUNDED BY . CEA and IN2P3 (CNRS)

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS ENGINEERS . 61
 TECHNICIANS . . . 79 CRAFTS . 14
 GRAD STUDENTS involved during year . 2
 OPERATED BY . 11 Research staff . 18 Operators
 OPERATION . . . 146 . . . hr/wk. ~ 4800 hrs/yr authorized
 TIME DISTR. in house . ~ 75 . . . % outside . ~ 23 . . . %
 BUDGET, op & dev . . . 60 millions FF
 FUNDED BY . CEA and IN2P3 (CNRS)

RESEARCH STAFF, not included above

USERS, in house . 15 outside . 400
 GRAD STUDENTS involved during year . 4
 RESEARCH BUDGET, in house . 2 millions FF
 FUNDED BY . CEA and CNRS

MAGNET SSC1 and SSC2

POLE FACE, diameter (compact) cm, R-extraction . 300 cm
 R injection . 857 cm
 GAP, min . 10 cm, Field . 16.5 kG
 max cm, Field kG at . 173000
 AVERAGE FIELD at R ext 9.5 kG Ampere turns
 B max / < B > 1.73

NUMBER OF SECTORS { separated 4 }
 SECTOR ANGLE (SSC) . . . 52 deg
 TRIMMING COILS . 12 in series for isochronism
 and 28 independent

CONDUCTOR, material and type Copper + MgO
 STORED ENERGY (cryogenic) MJ
 POWER: main coils . 950 . . . max kW: current stability . 10⁻⁵ . . .
 trimming coils . 140 . . . max kW: current stability . 10⁻⁴ . . .
 WEIGHT: Fe . 1700 tons: coils . 14 tons
 COOLING system . . . De-ionized water in closed loop
 ION ENERGY (Bending limit) E/A = . . . 380 q²/A² MeV/amu
 (Focusing limit) E/A = q/A MeV/amu

ACCELERATION SYSTEM SSC1 and SSC2

DEES, number 2 angle . 34 deg
 BEAM APERTURE . . . 5 cm; DC Bias kV
 TUNED by, coarse movable pannel, fine rotating loop
 RF 7 to . 14 MHz, stable ± 10⁻⁸
 Orb F . . . 3.5 to . 7 MHz (SSC2)
 HARMONICS, RF/Orb F, used . 2. (SSC2) 7. (SSC1)
 DEE-Gnd, max . . 200 kV, min gap . . 6 cm.
 STABILITY, (pk-pk noise)/(pk RF volt) . . 10⁻⁴
 ENERGY GAIN, max . . . 4 * 200 kV/turn
 RF PHASE, stable to ± . . . 0.1 deg
 RF POWER input, max . . . 80/cavity kW
 FREQUENCY MODULATION, rate . . . 0 /s
 modulator, type
 beam pulse, width

VACUUM SYSTEM SSC1 or SSC2

OPERATING PRESSURE . . 5.10⁻⁸ Torr or mbar
 PUMPS, No, Type, Size . 4 turbo pumps 3500 l/sec
 8 cryo 20000 l/sec

ION SOURCES

. Internal, PIG, or External, ECR

INJECTION SYSTEM SSC1 and SSC2

magnetic channel + electrostatic inflector

EXTRACTION SYSTEM

electrostatic deflector + magnetic channel

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed m²; movable . 4000 m²
 TARGET STATIONS . 10 in 8 rooms
 STATIONS served at same time, max . 1
 MAG SPECTROGRAPH, type energy loss spectrometer
 COMPUTER model MODCOMP
 OTHER FACILITIES 2 rooms served in time sharing with
 beam intensity modulation facility
 RF bunch suppressor

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) (SSC2)		CURRENT (µA) out of SSC2	
	Goal	Achieved	Internal	External
. . . O . . . 16 1500 0.187
. . . Ni . . . 58 3190 0.0022
. . . Kr . . . 86 3698 0.007
. . . Xe . . . 129 3483 0.0025

SECONDARY

(part/s)

Exotic beams in the LISE spectrometer

BEAM PROPERTIES

MEASURED

PULSE WIDTH . 6 . . RF deg FWHM
 PHASE EXC. max . . RF deg
 EXTRACT eff ≥ 80. %
 RESOL ΔE/E ≤ 0.1% FW
 EMITTANCE
 (π mm-mrad) ≤ 5. axial
 ≤ 5. rad

} All beams

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS >85% SOLID STATES PHYSICS
 BIOMEDICAL APPLICAT. ISOTOPE PRODUCTIONS
 SOLID. STATES. and. ATOMIC. PHYSICS. . <15%.

REFERENCES/NOTES

- 1)
- 2)

PLAN VIEW OF FACILITY, COMMENTS, ETC.

