

ENTRY No. FM2

NAME OF MACHINE Synchro-Cyclotron Lyon DATE 3 avril 1989
INSTITUTION Service Commun du Synchro-Cyclotron
ADDRESS Université Claude Bernard Lyon-1 - 43, Bd du 11 Novembre 1918 - 69622 Villeurbanne Cedex (France)
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IN CHARGE Prof. B.E. Labneche REPORTED BY G. HADINGER

HISTORY AND STATUS

DESIGN, date Model tests
ENG DESIGN, date 1956
CONSTRUCTION, date 1962
FIRST BEAM, date (or goal) 1963
MAJOR ALTERATIONS 1965

COST, ACCELERATOR 2,7 MF
COST, FACILITY, total 7,5 MF
FUNDED BY Ministère de l'Education Nationale

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
SCIENTISTS 1 ENGINEERS 1
TECHNICIANS 1 CRAFTS

GRAD STUDENTS involved during year
OPERATED BY Research staff or 1 Operators

OPERATION hr/wk, On target hr/wk
TIME DISTR. in house % , Outside %
BUDGET, op & dev

FUNDED BY
RESEARCH STAFF, not included above
USERS, in house outside

GRAD STUDENTS involved during year
RESEARCH BUDGET, in house
FUNDED BY

MAGNET
POLE FACE, diameter (compact) 180 cm, R extraction .75 cm
R injection cm

GAP, min 35 cm, Field 14.7 kG
max 35 cm, Field 14.7 kG } at D.61.106
AVERAGE FIELD at R ext kG } Ampere turns
B max/ <B>

NUMBER OF SECTORS {compact separated} Spiral, max deg
SECTOR ANGLE (SSC) deg

TRIMMING COILS
CONDUCTOR, material and type Aluminium
STORED ENERGY (cryogenic) MJ

POWER: main coils max, kW ; current stability
trimming coils max, kW ; current stability

WEIGHT: Fe 200 tons ; coils
COOLING system
ION ENERGY (bending limit) E/A = q^2/a^2 MeV/amu
(focusing limit) E/A = q^2/a^2 MeV/amu

ACCELERATION SYSTEM
DEES, number 2 ; angle 180 deg
BEAM APERTURE 18.5 cm ; DC Bias D,2 kV

TUNED by, coarse fine
RF 10.4 to 11.0 MHz, stable +/-
Orb F to MHz

HARMONICS, RF/Orb F, used
DEE - Gnd, max 22 kV, min gap cm

STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max kV/turn

RF PHASE, stable to +/- deg
RF POWER input, max 23 kW

FREQUENCY MODULATION, rate /s
modulator, type Rotating capacitor
beam pulse, width 40 usec macrocycle

VACUUM SYSTEM
OPERATING PRESSURE 8 x 10^-6 Torr or mbar
PUMPS, No, Type, Size 1 Diffusion pump
50cm diamètre

ION SOURCES
OPEN ION SOURCE

INJECTION SYSTEM

EXTRACTION SYSTEM
Magnetic regenerative

FACILITIES FOR RESEARCH
SHIELDED AREA, fixed 160 m^2 ; movable m^2
TARGET STATIONS 2 In 2 rooms

STATIONS served at same time, max
MAG SPECTROGRAPH, type
COMPUTER model
OTHER FACILITIES

CHARACTERISTIC BEAMS

Table with columns: PARTICLE, ENERGY (MeV) Goal, Achieved, CURRENT (pA) Internal, External. Rows for d and alpha.

SECONDARY (part/s)

BEAM PROPERTIES

MEASURED CONDITIONS
PULSE WIDTH RF deg pA of MeV Ions
PHASE EXC, max RF deg pA of MeV Ions

EXTRACT eff % pA of MeV Ions
RESOL delta E/E 2-2.5 % pA of MeV Ions
EMITTANCE

(pi mm. mrad) {40. axial} pA of MeV Ions
{40. rad}

OPERATING PROGRAMS, time distribution
BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS
BIOMEDICAL APPLICAT. 70% ISOTOPE PRODUCTIONS 30%

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS