

ENTRY No. 24

NAME OF MACHINE CYCLOTRON 520 CGR MeV DATE 6 - 03 - 1989
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HISTORY AND STATUS

DESIGN, date 1973 Model tests
ENG DESIGN, date
CONSTRUCTION, date 1974
FIRST BEAM, date (or goal) May 1975
MAJOR ALTERATIONS

COST, ACCELERATOR

COST, FACILITY, total
FUNDED BY

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS ENGINEERS
TECHNICIANS 2 CRAFTS

GRAD STUDENTS involved during year

OPERATED BY Research staff or 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) cm, R extraction cm

R injection cm

GAP, min 8.6 cm, Field 17 kG } at 1.36x10^8

max 14 cm, Field 10.6 kG }

AVERAGE FIELD at R ext 14 kG Ampere turns

B max/ <B> 1.21

NUMBER OF SECTORS { compact 4 } Spiral, max 3.4 deg

SECTOR ANGLE (SSC) deg

TRIMMING COILS Harmonic correction 4

CONDUCTOR, material and type

STORED ENERGY (cryogenic) MJ

POWER: main coils 6.5 max, kW; current stability 2x10^-5

trimming coils 1.0 max, kW; current stability

WEIGHT: Fe 28 tons; coils tons

COOLING system water

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 50 deg

BEAM APERTURE 2 cm; DC Bias 1 kV

TUNED by, coarse Yes fine Yes

RF 20 to 62 MHz, stable +/- 10^-6

Orb F 6 to 20 MHz

HARMONICS, RF/Orb F, used 2, 3, 6

DEE - Gnd, max 35 kV, min gap 2 cm

STABILITY, (pk-pk noise)/(pk RF volt) 0.001

ENERGY GAIN, max 100 kV/turn

RF PHASE, stable to +/- 0.1 deg

RF POWER input, max 20 kW

FREQUENCY MODULATION, rate /s

modulator, type

beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE Torr or mbar

PUMPS, No, Type, Size Diffusion pump

ION SOURCES

Livingston

INJECTION SYSTEM

EXTRACTION SYSTEM

electrostatic deflector

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed m^2; movable m^2

TARGET STATIONS 3 In 2 rooms

STATIONS served at same time, max 1

MAG SPECTROGRAPH, type

COMPUTER model

OTHER FACILITIES Isotopes production

CHARACTERISTIC BEAMS

Table with columns: PARTICLE, ENERGY (MeV) Goal, Achieved, CURRENT (pA) Internal, External. Rows include protons, deuterons, alpha, He.

BEAM PROPERTIES

Table with columns: MEASURED, CONDITIONS. Rows include PULSE WIDTH, PHASE EXC, EXTRACT eff, RESOL delta E/E, EMITTANCE.

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

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

