

ENTRY No. 92

NAME OF MACHINE Mini Cyclo Model 1710 (JSW) DATE June 19, 1989
INSTITUTION Brookhaven National Laboratory
ADDRESS Upton, NY 11973 USA
TEL (516) 282-4587 TELEX 6852516 BNL DOE
IN CHARGE A.P. Wolf REPORTED BY D.J. Schlyer

HISTORY AND STATUS

DESIGN, date 1981 Model tests 1981
ENG DESIGN, date
CONSTRUCTION, date 1981
FIRST BEAM, date (or goal) 1982
MAJOR ALTERATIONS None
COST, ACCELERATOR 860,000
COST, FACILITY, total 1,100,000
FUNDED BY Department of Energy
ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
SCIENTISTS 1 ENGINEERS
TECHNICIANS 3 CRAFTS
GRAD STUDENTS involved during year
OPERATED BY Research staff or XX Operators
OPERATION 40 hr/wk, On target 20 hr/wk
TIME DISTR. in house 100 % , Outside %
BUDGET, op & dev
FUNDED BY Dept. of Energy - National Institute of Health
RESEARCH STAFF, not included above
USERS, in house 7 outside Variable
GRAD STUDENTS involved during year
RESEARCH BUDGET, in house
FUNDED BY Dept. of Energy - National Institutes of Health

MAGNET

POLE FACE, diameter (compact) 105. cm, R extraction .42 cm
R injection cm
GAP, min 7. cm, Field 18.4 kG
max 13. cm, Field 12.4 kG at 1.3 x 10^5
AVERAGE FIELD at R ext 15.4 kG Ampere turns
B max/ <B> 1.2
NUMBER OF SECTORS {compact 4} Spiral, max 0 deg
{separated}
SECTOR ANGLE (ISSC) deg
TRIMMING COILS 3

CONDUCTOR, material and type Cu Hollow
STORED ENERGY (cryogenic) MJ
POWER: main coils 60 max, kW ; current stability 20/10^6
trimming coils 3 max, kW ; current stability
WEIGHT: Fe 35 tons ; coils 1 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 45 deg
BEAM APERTURE 1 cm ; DC Bias 0 kV
TUNED by, coarse Ms fine Mp
RF 43.5 to 47 MHz, stable +/- 5/10^6
Orb F 11.75 to 21.75 MHz
HARMONICS, RF/Orb F, used 2.4
DEE - Gnd, max 45 kV, min gap cm
STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max 180 kV/turn
RF PHASE, stable to +/- deg
RF POWER input, max kW
FREQUENCY MODULATION, rate /s
modulator, type
beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE 4 x 10^-6 Torr or mbar
PUMPS, No, Type, Size 1 - Diffusion Pump 12"

ION SOURCES

INJECTION SYSTEM

Hot Cathode Axial Source

EXTRACTION SYSTEM

Electrostatic and Magnetic Channel

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed 60 m^2 ; movable 0 m^2
TARGET STATIONS 1 in 1 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 H and D.

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 ΔE/E % pA of MeV ions
EMITTANCE
(π mm, mrad) {axial} pA of MeV ions
{rad}

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS
BIOMEDICAL APPLICAT. 90% ISOTOPE PRODUCTIONS
Chemistry Research 10%

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS