

ENTRY No. 78

NAME OF MACHINE Anna and Louis Hand Cyclotron DATE August, 1981
INSTITUTION Mount Sinai Medical Center
ADDRESS Miami Beach, Florida
TEL (305) 674-2465 TELEX
IN CHARGERonald D. Finn, Ph.D. REPORTED BY J. Dwyer / K. Koh

HISTORY AND STATUS

DESIGN, date Model tests 1971
ENG DESIGN, date Cyclotron Corporation CS30
CONSTRUCTION, date 1971
FIRST BEAM, date (or goal) 1972
MAJOR ALTERATIONS None

COST, ACCELERATOR
COST, FACILITY, total
FUNDED BY Mount Sinai Medical Center

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT

SCIENTISTS 3 ENGINEERS 2
TECHNICIANS 3 CRAFTS 1
GRAD STUDENTS involved during year 0

OPERATED BY 3 Research staff or 4 Operators
OPERATION 90 hr/wk, On target 65 hr/wk
TIME DISTR. in house 100% Outside %

BUDGET, op & dev
FUNDED BY Mount Sinai Medical Center

RESEARCH STAFF, not included above

USERS, in house 7 outside 4
GRAD STUDENTS involved during year 1
RESEARCH BUDGET, in house
FUNDED BY Mount Sinai Medical Center

MAGNET

POLE FACE, diameter (compact) 96 cm, R extraction 42 cm
R injection 0 cm
GAP, min 5 cm, Field 14.4 kG
max 10 cm, Field 22.5 kG at 1.6 x 10^5
AVERAGE FIELD at R ext 18 kG Ampere turns
B max / <B> 1.3

NUMBER OF SECTORS {compact 3} Spiral, max 23.3 deg

SECTOR ANGLE (SSC) deg
TRIMMING COILS Three sets of coils with maximum
800 A-turn each.

CONDUCTOR, material and type Copper foil
STORED ENERGY (cryogenic) MJ 4

POWER: main coils 53 max, kW; current stability 3 x 10^-4
trimming coils max, kW; current stability

WEIGHT: Fe coils tons; coils 20.5 tons total
COOLING system 600 water

ION ENERGY (bending limit) E/A = .27.5 q^2/a^2 MeV/amu
(focusing limit) E/A = .26.5 q/a MeV/amu

ACCELERATION SYSTEM

DEES, number 2; angle 90 deg
BEAM APERTURE 0.3 cm; DC Bias -1.5 kV

TUNED by, coarse Straps fine -4
RF 12 to 26.6 MHz, stable +/- x 10^-4
Orb F 12 to 26.6 MHz

HARMONICS, RF/Orb F, used First
DEE - Gnd, max 35 kV, min gap 4 cm

STABILITY, (pk-pk noise)/(pk RF volt) <= 1%
ENERGY GAIN, max 100 kV/turn

RF PHASE, stable to +/- deg
RF POWER input, max 40 kW

FREQUENCY MODULATION, rate /s
modulator, type 1

beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE 4 x 10^-5 Torr or mbar
PUMPS, No, Type, Size A 10 inch oil diffusion pump
(2) 4" oil diffusion pump, (1) 23.3 CFM mechanical

forepump, (2) 12 CFM mechanical fore pump

ION SOURCES

P. J. G. Type

INJECTION SYSTEM

Electrostatic

EXTRACTION SYSTEM

Electrostatic

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed 90 m^2; movable m^2
TARGET STATIONS 6 in 2 rooms

STATIONS served at same time, max 2
MAG SPECTROGRAPH, type
COMPUTER model Perkin Elmer 3220

OTHER FACILITIES

CHARACTERISTIC BEAMS

Table with columns: PARTICLE, ENERGY (MeV) Goal, Achieved, CURRENT (pA) Internal, External. Rows for Proton, Deuteron, Helium-3.

SECONDARY (part/s)

BEAM PROPERTIES

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

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

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS
BIOMEDICAL APPLICAT. 50% ISOTOPE PRODUCTIONS 50%

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS