ENTRY NO. 89

NAME OF MACHINE Anna and Louis Hand Cyclotron Complex
INSTITUTION Mount Sinai Medical Center
ADDRESS 4300 Alton Road, Miami Beach, Florida 33140
TEL (305)674-2465 TELEX
IN CHARGE Ronald D. Finn REPORTED BY J. Dwyer/K. Koh

HISTORY AND STATUS

DESIGN, date Model tests 1971
ENG DESIGN, date Cyclotron Corporation CS-30
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
min 10 cm, Field 22.5 kG at $1.6X10^5$
AVERAGE FIELD at R ext 18 kG Ampere turns
B max/ < B > 1.3
NUMBER OF SECTORS compact 3 Spiral, max 23.3 deg
separated
SECTOR ANGLE (SSC) deg
TRIMMING COILS (3) 800A-turns each

CONDUCTOR, material and type copper foil
STORED ENERGY (cryogenic) MJ
POWER: main coils 58 max, kW; current stability $3X10^{-4}$
trimming coils max, kW; current stability
WEIGHT: Fe coils F tons; coils 20.5 tons
COOLING system 60 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 90 deg
BEAM APERTURE 0.3 cm; DC Bias 1.5 kV
TUNED by, coarse straps fine
RF 12 to 26.6 mHz, stable ± $1X10^{-4}$
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 POWEP input, max 40 kW
FREQUENCY MODULATION, rate /s
modulator, type 1
beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE $4X10^{-5}$ Torr or mbar
PUMPS, No, Type, Size 10" oil diffusion
(2) 4" oil diffusion

ION SOURCES

P.I.G.

INJECTION SYSTEM

Electrostatic

EXTRACTION SYSTEM

Electrostatic

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed 90 m²; movable m²
TARGET STATIONS 7 in 2 rooms
STATIONS served at same time, max 2
MAG SPECTROGRAPH, type
COMPUTER model Perkin-Elmer 3220
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
proton		26	200	65
deuteron		15	200	50
helium-3		40	100	50
SECONDARY		(part/s)		

BEAM PROPERTIES

MEASURED	CONDITIONS
PULSE WIDTH RF deg	pμ A of MeV ions
PHASE EXC. max RF deg	pμ A of MeV ions
EXTRACT eff %	pμ A of MeV ions
RESOL ΔE/E %	pμ A of MeV ions
EMITTANCE (π mm. mrad) axial	pμ A of MeV
rad	

OPERATING PROGRAMS, time distribution

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

REFERENCES/NOTES

1)
2)

PLAN VIEW OF FACILITY, COMMENTS, ETC.