ENTRY No. 97

NAME OF MACHINE MC 50 DATE 1981-07-10
INSTITUTION UNIVERSITY OF WASHINGTON HOSPITAL
ADDRESS SEATTLE, WASHINGTON 98 195 (U.S.A)
TEL ... TELEX ...
IN CHARGE P. WOOTTON REPORTED BY S. LINDBACK

HISTORY AND STATUS
DESIGN, date 1980-81 Model tests 1980
ENG DESIGN, date 1980-81
CONSTRUCTION, date 1980-81
FIRST BEAM, date (or goal) 1982
MAJOR ALTERATIONS
COST, ACCELERATOR
COST, FACILITY, total
FUNDED BY

ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
SCIENTISTS ENGINEERS
TECHNICIANS 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) 150 cm, R extraction 58 cm
R injection cm
GAP, min 11.5 cm, Field 20.8 kG
max 20.7 cm, Field 13.0 kG } at 260 000 Ampere turns
AVERAGE FIELD at R ext 17.7 kG
B max/ <B> 1.19
NUMBER OF SECTORS { compact 3 / separated } Spiral, max 50 deg
SECTOR ANGLE (SSC) deg
TRIMMING COILS 10 concentric gradient coils
4 sets harmonic coils
CONDUCTOR, material and type Cu
STORED ENERGY (cryogenic) MJ
POWER : main coils 120 max, kW ; current stability 10^{-5}
trimming coils 15 max, kW ; current stability 10^{-4}
WEIGHT : Fe 92 tons ; coils 3.8 tons
COOLING system Demineralized water
ION ENERGY (bending limit) E/A = 50 q^2/a^2 MeV/amu
(focusing limit) E/A = - q /a MeV/amu

ACCELERATION SYSTEM
DEES, number 2 ; angle 80 deg
BEAM APERTURE 2 cm ; DC Bias - kV
TUNED by, coarse mov. short fine flaps
RF 17 to 25.8 mHz, stable ± 10^{-6}
Orb F 8.5 to 25.8 mHz
HARMONICS, RF/Orb F, used 1,2
DEE - Gnd, max 40 kV, min gap - cm
STABILITY, (pk-pk noise)/(pk RF volt) < 10^{-3}
ENERGY GAIN, max 1.58 kV/turn
RF PHASE, stable to ± 0.5 deg
RF POWER input, max 60 kW
FREQUENCY MODULATION, rate /s
modulator, type
beam pulse, width

VACUUM SYSTEM
OPERATING PRESSURE < 10^{-5} Torr or mbar
PUMPS, No, Type, Size 2 oil diffusion pumps
2 mechanical fore pumps

ION SOURCES
Internal cold cathode, axially inserted

INJECTION SYSTEM

EXTRACTION SYSTEM
El. static deflector, el. magn. channel, focusing channel

FACILITIES FOR RESEARCH
SHIELDED AREA, fixed m² ; movable m²
TARGET STATIONS in rooms
STATIONS served at same time, max
MAG SPECTROGRAPH, type
COMPUTER model
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (pμA) Internal	External
P	50		> 100	> 70
d	25		> 100	> 70

SECONDARY (part/s)
n 50 Rad/min for SAD of 150 cm

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 / rad }		pμA of	MeV ... ions

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

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

The cyclotron is primarily to be used for the
Neutron Therapy Facility presently under construction.