**ENTRY NO. 52**

NAME OF MACHINE: Mini Cyclotron Model-325 (Sumitomo-CGR MeV)
INSTITUTION: Kyoto University Hospital, Kyoto University
ADDRESS: 54 Shogoin Kawahara-cho, Sakyo-ku, Kyoto 606, Japan
TEL: 075-751-3306 TELEX:
IN CHARGE: K. Torizuka REPORTED BY: H. Saji

**HISTORY AND STATUS**

DESIGN, date: Model tests
ENG DESIGN, date:
CONSTRUCTION, date: 1982
FIRST BEAM, date (or goal): Aug. 1982
MAJOR ALTERATIONS:
COST, ACCELERATOR:
COST, FACILITY, total:
FUNDED BY:

**ACCELERATOR STAFF, OPERATION AND DEVELOPMENT**

SCIENTISTS: 1 ENGINEERS:
TECHNICIANS: 1 CRAFTS:
GRAD STUDENTS involved during year:
OPERATED BY: Research staff or X Operators
OPERATION: 40 hr/wk. On target 30 hr/wk
TIME DISTR, in house: 100 %, outside %
BUDGET, op & dev:
FUNDED BY: Japan Ministry of Education

**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): 81 cm, R-extraction 32.5 cm
R injection: cm
GAP, min 7. cm, Field kG
max 12. cm, Field kG } at 1.87 x $10^5$ Ampere turns
AVERAGE FIELD at R ext: 17.6. kG
B max/<B>:
NUMBER OF SECTORS { compact 4 / separated } Spiral, max: deg
SECTOR ANGLE (SSC): deg
TRIMMING COILS: Harmonic 4 pairs
CONDUCTOR, material and type: Copper Hollow
STORED ENERGY (cryogenic): MJ
POWER: main coils 66. max kW: current stability $2 \times 10^{-6}$
trimming coils: max kW: current stability:
WEIGHT: Fe 13. tons: coils 1. tons
COOLING system: Demineralized water
ION ENERGY (Bending limit) E/A = $q^2/A^2$ MeV/amu
(Focusing limit) E/A = q/A MeV/amu

**ACCELERATION SYSTEM**

DEES, number 1 angle 180 deg
BEAM APERTURE 2 cm; DC Bias - kV
TUNED by, coarse short plate fine:
RF 26 and 40 MHz, stable ±:
Orb F 26 and 13.3 MHz
HARMONICS, RF/Orb F, used 1, 3:
DEE–Gnd, max 40 kV, min gap 2 cm
STABILITY, (pk-pk noise)/(pk RF volt) $1 \times 10^{-3}$:
ENERGY GAIN, max 80 kV/turn
RF PHASE, stable to ± deg
RF POWER input, max. 25 kW
FREQUENCY MODULATION, rate /s
modulator, type:
beam pulse, width:

**VACUUM SYSTEM**

OPERATING PRESSURE: $2 \times 10^{-5}$ Torr
PUMPS, No, Type, Size:
1, Diffusion pump, 1300 l/sec

**ION SOURCES**

Livingstone-Jones type

**INJECTION SYSTEM**

**EXTRACTION SYSTEM**

Electrostatic deflector and magnetic channel (static)

**FACILITIES FOR RESEARCH**

SHIELDED AREA, fixed 10. $m^2$; movable $m^2$
TARGET STATIONS 1 in 1 rooms
STATIONS served at same time, max:
MAG SPECTROGRAPH, type:
COMPUTER model:
OTHER FACILITIES:

**CHARACTERISTIC BEAMS**

| PARTICLE | ENERGY (MeV) Goal | Achieved | CURRENT (μA) Internal | External |
|---|---|---|---|---|
| P | | 15 | | 50 |
| d | | 8 | | 50 |
| | | | | |
| | | | | |
| SECONDARY | | | (part/s) | |
| | | | | |
| | | | | |

**BEAM PROPERTIES**

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

**OPERATING PROGRAMS,** time distribution

BASIC NUCLEAR PHYSICS: SOLID STATES PHYSICS:
BIOMEDICAL APPLICAT.: 100% ISOTOPE PRODUCTIONS:

**REFERENCES/NOTES**

1)
2)

**PLAN VIEW OF FACILITY, COMMENTS, ETC.**