**ENTRY NO.** 45

NAME OF MACHINE ...RIKEN SSC.....

INSTITUTION ...The Institute of Physical & Chemical Research.....

ADDRESS .....Wako-shi, Saitama, 351 JAPAN.....

TEL ...0484-62-1111..... TELEX ..296-2818 RIKEN J.....

IN CHARGE .....H. Kamitsubo..... REPORTED BY .S. Motonaga.....

**HISTORY AND STATUS**

DESIGN, date .1975..... Model tests .....1977.....

ENG DESIGN, date .....1975 - 1980.....

CONSTRUCTION, date ...1980 - 1986.....

FIRST BEAM, date (or goal) .1986.....

MAJOR ALTERATIONS .....

.....

COST, ACCELERATOR .....

COST, FACILITY, total .....

FUNDED BY ..Science and Technology Agency.....

**ACCELERATOR STAFF, OPERATION AND DEVELOPMENT**

SCIENTISTS .....and..... ENGINEERS .....26.....

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) ..... cm, R extraction ..356 cm

R injection ...89 cm

GAP, min .....8 cm, Field ....15.5.... kG
min ..... cm, Field ..... kG } at $1.28 \times 10^5$

AVERAGE FIELD at R ext .....9.7.... kG } Ampere turns

B max/ < B > .....1.8.....

NUMBER OF SECTORS { compact ..... / separated .....4..... } Spiral, max ... deg

SECTOR ANGLE (SSC) .....50..... deg

TRIMMING COILS .....29 x 4 pairs.....

.....

CONDUCTOR, material and type .....copper.....

STORED ENERGY (cryogenic) ..... MJ

POWER: main coils ...480.. max, kW; current stability <0.001%

trimming coils ...215.. max, kW; current stability <0.05. %

WEIGHT: Fe ....2100..... tons; coils .....16..... tons

COOLING system ..Demineralized water.....

ION ENERGY (bending limit) E/A = ...540.....$q^2/a^2$ MEV/amu

(focusing limit) E/A = ..... q/a MeV/amu

**ACCELERATION SYSTEM**

DEES, number .....2.....23.5..... deg

BEAM APERTURE .....5..... cm; DC Bias ..... kV

TUNED by, coarse Movable box..... fine Capacitive trimmer

RF .....20..... to .....45..... mHz, stable $\pm 10^{-8}$.....

Orb F .1.9..... to .....7.5..... mHz

HARMONICS, RF/Orb F, used ....9, 6.....

DEE--Gnd, max ....250..... kV, min gap .....10..... cm

STABILITY, (pk-pk noise)/(pk RF volt) ....$10^{-4}$.....

ENERGY GAIN, max .....1000..... kV/turn

RF PHASE, stable to ± .....1..... deg

RF POWEP input, max ..... 2 x 300..... kW

FREQUENCY MODULATION, rate ..... /s

modulator, type .....

beam pulse, width .....

**VACUUM SYSTEM**

OPERATING PRESSURE ...<1 x $10^{-7}$..... Torr or mbar

PUMPS, No, Type, Size .....10 cryopumps 10,000 ℓ/s.....

.....4 cryopanels 5,000 ℓ/s.....

.....

**ION SOURCES**

.....

**INJECTION SYSTEM**

.....

**EXTRACTION SYSTEM**

.....

**FACILITIES FOR RESEARCH**

SHIELDED AREA, fixed ....4,000.. $m^2$; movable ..... $m^2$

TARGET STATIONS .....18..... in ..8.....

STATIONS served at same time, max .....

MAG SPECTROGRAPH, type .....

COMPUTER model .....

OTHER FACILITIES .....

.....

.....

**CHARACTERISTIC BEAMS**

| PARTICLE | ENERGY (MeV) Goal | Achieved | CURRENT (pμA) Internal | External |
|---|---|---|---|---|
| $^3$P..... | 210 MeV | ..... | ..... | ..... |
| He..... | 185 MeV/A | ..... | ..... | ..... |
| C..... | 135 MeV/A | ..... | ..... | ..... |
| U..... | 13 MeV/A | ..... | ..... | ..... |
| 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 ($\pi$ mm. mrad) { .....axial / .....rad } | ..... pμ A of ..... MeV ..... |

**OPERATING PROGRAMS,** time distribution

BASIC NUCLEAR PHYSICS ..... SOLID STATES PHYSICS.....

BIOMEDICAL APPLICAT..... ISOTOPE PRODUCTIONS.....

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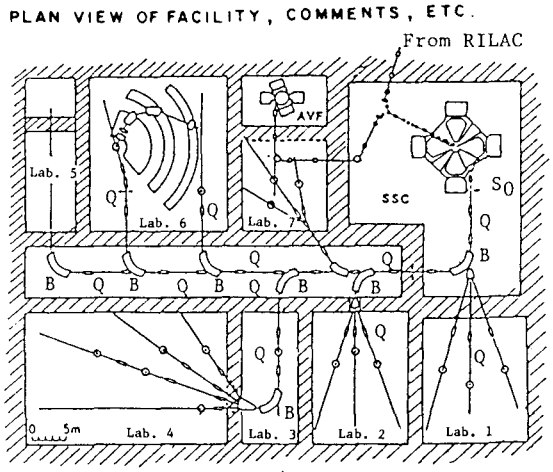
**REFERENCES/NOTES**


1. H. Kamitsubo, Proc. of 9th Int. Conf. on Cycl. and their appl., Caen (1982) 13.
2. H. Kamitsubo: This conference.


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




⊙: Target Position ⫶: Slit

B: Bending Magnet Q: Quadrupole magnet

| | | | |
|---|---|---|---|
| Lab. 1 | RI Production | Lab. 5 | Medical Irradiation |
| Lab. 2 | Atomic Collision Study | Lab. 6 | Nuclear Structure Study |
| Lab. 3 | Nuclear Reaction Study (I) | Lab. 7 | Material Irradiation |
| Lab. 4 | Nuclear Reaction Study(II) | | |