

ENTRY No. 40

NAME OF MACHINE **IPCR SSC** DATE **August 1981**
 INSTITUTION **The Institute of the Physical and Chemical Research**
 ADDRESS **Wako-shi, Saitama, 351 JAPAN**
 TEL **TELEX**
 IN CHARGE **H. Kamitsubo** REPORTED BY **S. Motonaga**

HISTORY AND STATUS

DESIGN, date **1974** Model tests **1977**
 ENG DESIGN, date **1975 - 1979**
 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

SCIENTISTS and ENGINEERS **23**
 TECHNICIANS and 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) **788 cm**, R extraction **356 cm**
 R injection **89 cm**
 GAP, min **8 cm**, Field **15.5 kG**
 max **8 cm**, Field **15.5 kG** } at **1.35 x 10⁵**
 AVERAGE FIELD at R ext **9.27 kG** } Ampere turns
 B max/ **1.7**

NUMBER OF SECTORS { compact **4** } Spiral, max **deg**
 SECTOR ANGLE (SSC) **50 deg**
 TRIMMING COILS **29**

CONDUCTOR, material and type **Copper**
 STORED ENERGY (cryogenic) **MJ**
 POWER: main coils **480 max, kW**; current stability **0.002 %**
 trimming coils **200 max, kW**; current stability **0.05 %**
 WEIGHT: Fe **2100 tons**; coils **20 tons**
 COOLING system **DeminerIALIZED water**
 ION ENERGY (bending limit) **E/A = 540 q²/a² MeV/amu**
 (focusing limit) **E/A = q/a MeV/amu**

ACCELERATION SYSTEM

DEES, number **2**; angle **20 deg**
 BEAM APERTURE **5 cm**; DC Bias **kV**
 TUNED by, coarse **Shorting plates**; fine **capacitive trimmer**
 RF **1.7 to 4.5 MHz**, stable \pm **10**
 Orb F **1.9 to 7.5 MHz**
 HARMONICS, RF/Orb F, used **9, 6, (4)**
 DEE - Gnd, max **250 kV**, min gap **10 cm**
 STABILITY, (pk-pk noise)/(pk RF volt) **5 x 10⁻⁴**
 ENERGY GAIN, max **1000 kV/turn**
 RF PHASE, stable to \pm **1 deg**
 RF POWER input, max **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 **4 cryopumps 25,000 l/s**
8 cryopumps 3,000 l/s
2 turbo-molecular pump 5,000 l/s

ION SOURCES

INJECTION SYSTEM

1 electrostatic inflector, 2 magnetic channels, 2 bending magnets

EXTRACTION SYSTEM

2 electrostatic deflector, 2 magnetic channels, 2 bending magnets

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed **4320 m²**; movable **m²**
 TARGET STATIONS **15** in **8 rooms**
 STATIONS served at same time, max
 MAG SPECTROGRAPH, type
 COMPUTER model
 OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV)		CURRENT (μ A)	
	Goal	Achieved	Internal	External
D	184 MeV			
C	134 MeV/A			
Xe	22 MeV/A			
U	13 MeV/A			

SECONDARY (part/s)

BEAM PROPERTIES

MEASURED	CONDITIONS	
	RF deg	μ A of MeV ions
PULSE WIDTH		
PHASE EXC, max		
EXTRACT eff		
RESOL $\Delta E/E$		
EMITTANCE		

(π mm. mrad) { axial } μ A of MeV ions
 { rad }

OPERATING PROGRAMS, time distribution

BASIC NUCLEAR PHYSICS **SOLID STATES PHYSICS**
 BIOMEDICAL APPLICAT. **ISOTOPE PRODUCTIONS**

REFERENCES/NOTES

IPCR Group: This conference

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

