

ENTRY NO. **C51** Date February 14, 1996
 Name of Machine CI-100
 Institution Joint Institute for Nuclear Research, Laboratory of Nuclear Reactions
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HISTORY
MILESTONE DATES:
 Design 1974 Model Tests 1984
 Construction 1984-1985 First Beam May, 1985
DESIGN/CONSTRUCTION BY:
 in house other
COST: Accelerator Facility
FUNDED BY:

STATUS
STAFF: Machine
 Scientists Engineers
 Technicians Students
 Research (in house/external)
 Scientists / Engineers /
 Technicians / Students /
BUDGET: Machine Funded by
 Research Funded by
TIME DISTRIBUTION:
 Basic Research (in house/external) % / %
 Applied Program (in house/external) % / %
 Maintenance % Development %

MAGNET
POLE PARAMETERS:
 Diameter 1.05 cm $R_{extract}$ 46 cm R_{inject} cm
HILL PARAMETERS: Gap (min) cm B_{max} T
 (@ 0.17 10^6 AT) Gap (max) 2 cm B_{min} 2.5 T
VALLEY PARAMETERS: Gap (min) cm B_{max} T
 (@ AT) Gap (max) 1.1 cm B_{min} 1.1 T
AVERAGE FIELD: $\langle B \rangle_{min}$ T $\langle B \rangle_{max}$ T
NUMBER OF SECTORS: compact/separated 4 / -
 sector angle 66 deg. spiral (max) 0 deg.
FIELD TRIMMING: Trim Coils
 Harmonic Coils
 Other
CURRENT: Main Coils 110 kW Amps Stability 10^{-4}
 Trim Coils Amps Stability
 Stored Energy (cryogenic) MJ
WEIGHT: Iron 43 tons Conductor 0.7 tons Cu
ION ENERGY: Bending Limit E/A = 40 q^2/A^2 MeV/u
 Focusing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM
FUNDAMENTAL ACCELERATION:
 Description: Two 34° dees
 No. of Gaps/turn $dE/dn(max)$ 0.2 MeV/q
 Voltage (max) 0.07 MV Harmonic f_{rf}/f_{ion} 4
 Freq 20.4 - 20.9 MHz Power in(max) 0.025 MW
 Stability: Phase Voltage $\pm 10^{-5}$
OTHER CAVITIES (Flattopping or otherwise):
 Description:
 Region of Influence: R_{min} cm R_{max} cm
 No. of Gaps/turn $dE/dn(max)$ MeV/q
 Voltage (max) MV Harmonic f_{rf}/f_{ion}
 Freq MHz Power in(max) MW
 Stability: Phase Voltage

VACUUM SYSTEM
OPERATING PRESSURE: (5 - 10) 10^{-6} mbar
PUMPS: (No. and type) 3 oil diffusion pumps
 one 4000 ℓ/s , two 500 ℓ/s (each)

ION SOURCE(S)
 Type Intensity @ $\epsilon_n = \beta\gamma\epsilon$ Ion Species
 (mA) (π mm mrad)
 (a) Arc type with heated cathode
 (b)
 (c)
 (d)

INJECTION SYSTEM Efficiency %

EXTRACTION SYSTEM
 dc electrostatic and stripping Efficiency 50 %

CHARACTERISTIC BEAMS
 Current (part μA)

Accelerated Ions	E/A (MeV/u)	Internal	External
(a) $^{12}C^{2+}$	13	12	5
(b) $^{16}O^{3+}$	20	1	1
(c) $^{22}Ne^{4+}$	27	1	0.5
(d) $^{40}Ar^{7+}$	46	0.5	0.25

Secondary Particles	E (MeV)	part/sec
(a)		
(b)		
(c)		

EXTRACTED BEAM PROPERTIES:
 For μA of MeV/u ions
 $\Delta E/E$ % $\Delta\phi$ °rf
 $\epsilon_n = \beta\gamma\epsilon$ x π mm mrad z π mm mrad

FACILITIES FOR RESEARCH
SHIELDED AREA: Fixed: m^2 Moveable m^2
 Target Stations: No. Served At Same Time: 1
MAGNETIC SPECTROMETERS:
OTHER FACILITIES:

REFERENCES/NOTES
 (a)
 (b)

PLAN VIEW OF FACILITY, COMMENTS