

ENTRY NO. 129

NAME OF MACHINE CI-100
INSTITUTION ... Joint Institute for Nuclear Research, Laboratory of Nuclear Reactions
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IN CHARGE ... G.N. Flerov REPORTED BY

HISTORY AND STATUS

DESIGN, date ... 1984 Model tests ... 1984
ENG DESIGN, date ... 1984
CONSTRUCTION, date ... 1984-1985
FIRST BEAM, date (or goal) ... May, 1985
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) ... 105 ... cm, R-extraction ... 46 ... cm
R injection ... cm
GAP, min ... 2 ... cm, Field ... 25 ... kG }
max ... 11 ... cm, Field ... 11 ... kG } at 0.17 · 10⁶
AVERAGE FIELD at R ext ... 19.4 ... kG } Ampere turns
B max / < B > ... 1.25
NUMBER OF SECTORS { compact ... 4 } Spiral, max ... 0 ... deg
{ separated }
SECTOR ANGLE (SSC) ... 56 deg
TRIMMING COILS

CONDUCTOR, material and type ... Copper
STORED ENERGY (cryogenic)
POWER: main coils ... 110 ... max kW; current stability ... 10⁻⁴
trimming coils ... max kW; current stability
WEIGHT: Fe ... 43 ... tons; coils ... 0.7 tons
COOLING system ... Demineralized water
ION ENERGY (Bending limit) E/A = 40 q²/A² MeV/amu
(Focusing limit) E/A = q/A MeV/amu

ACCELERATION SYSTEM

DEES, number ... 2 angle ... 34 deg
BEAM APERTURE ... 2 cm; DC Bias ... 0 kV
TUNED by, coarse ... MS fine ... VC
RF ... 20.4 ... to ... 20.9 ... MHz, stable ± ... 10⁻⁵
Orb F ... 5.1 to ... 5.22 MHz
HARMONICS, RF/Orb F, used ... 4
DEE-Gnd, max ... 70 kV, min gap ... 3.5 cm
STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max ... 200 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 ... (5-10) · 10⁻⁶ Torr or mbar
PUMPS, No, Type, Size ... 3 oil diffusion pumps
..... One 4000 L/S, two 500 L/S (each)

ION SOURCES

..... Arc type with heated cathode

INJECTION SYSTEM

EXTRACTION SYSTEM

..... dc electrostatic and stripping

FACILITIES FOR RESEARCH

SHIELDED AREA, fixed m²; movable m²
TARGET STATIONS in rooms
STATIONS served at same time, max ... 1
MAG SPECTROGRAPH, type
COMPUTER model
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV)		CURRENT (µA)	
	Goal	Achieved	Internal	External
12 C ²⁺		13	12	5
16 O ³⁺		20	2	1
22 Ne ⁴⁺		27	1	0.5
40 Ar ⁷⁺		46	0.5	0.25
SECONDARY			(part/s)	

BEAM PROPERTIES

MEASURED CONDITIONS
PULSE WIDTH ... RF deg ... µA of ... MeV ... ions
PHASE EXC. max ... RF deg ... µA of ... MeV ... ions
EXTRACT eff. 50 % ... µA of ... MeV ... ions
RESOL ΔE/E ... % ... µA of ... MeV ... ions
EMITTANCE

(π mm-mrad) ... axial ... µA of ... MeV ...
rad ...

OPERATING PROGRAMS, time distribution

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

REFERENCES/NOTES

- 1)
- 2)

PLAN VIEW OF FACILITY, COMMENTS, ETC.