ENTRY No. 103

NAME OF MACHINE U-200 DATE 1972, same for 1975
INSTITUTION Joint Institute for Nuclear Research
ADDRESS DUBNA - USSR
TEL TELEX
IN CHARGE G.N. FLEROV* REPORTED BY same

HISTORY AND STATUS
DESIGN, date 1966 Model tests
ENG DESIGN, date 1966-67
CONSTRUCTION, date 1966-67
FIRST BEAM, date (or goal) INT 1968, EXT 1968
MAJOR ALTERATIONS NONE
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 120 hr/wk, On target 84 hr/wk
TIME DISTR. in house 100 %, 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) 200. cm, R extraction 90 cm
R injection cm
GAP, min 3. cm, Field 26. kG
max 15. cm, Field 14 kG
at 0.59.10^6 Ampere turns
AVERAGE FIELD at R ext 20. kG
B max/ <B> 1.3
NUMBER OF SECTORS compact 4 / separated Spiral, max deg
SECTOR ANGLE (SSC) deg
TRIMMING COILS HARMONIC 4/SEC.
7 CIRCULAR
CONDUCTOR, material and type
STORED ENERGY (cryogenic) MJ
POWER : main coils 370. max, kW ; current stability 10^-4
trimming coils max, kW ; current stability
WEIGHT : Fe 220 tons ; coils 11.5 tons
COOLING system WATER
ION ENERGY (bending limit) E/A = 156. q²/a² MeV/amu
(focusing limit) E/A = q /a MeV/amu

ACCELERATION SYSTEM
DEES, number 2 ; angle 45 deg
BEAM APERTURE 2.8 cm ; DC Bias 0. kV
TUNED by, coarse MS fine
RF 12. to 21.5 mHz, stable ± 10^-5
Orb F 3. to 10.7 mHz
HARMONICS, RF/Orb F, used 2,3
DEE - Gnd, max 75. kV, min gap cm
STABILITY, (pk-pk noise)/(pk RF volt)
ENERGY GAIN, max 275. kV/turn
RF PHASE, stable to ± deg
RF POWER input, max 100 kW
FREQUENCY MODULATION, rate /s
modulator, type
beam pulse, width

VACUUM SYSTEM
OPERATING PRESSURE 0.4-1.0 μ Torr
PUMPS, No, Type, Size

ION SOURCES
ARC TYPE WITH HEATED CATHODE

INJECTION SYSTEM

EXTRACTION SYSTEM
STRIPPING AND DC ELECTROSTATIC

FACILITIES FOR RESEARCH
SHIELDED AREA, fixed 225. m² ; movable m²
TARGET STATIONS 4 in 2. rooms
STATIONS served at same time, max 1
MAG SPECTROGRAPH, type
COMPUTER model
OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV) Goal	Achieved	CURRENT (μA) Internal	External
$^4He^+$	39	36.5	< 600	60
C^{3+}	208	198	60	60
Xe^{30+}	950	900		2.10^{10} PART/S
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 90-100%		60. μA of 109	MeV C^{3+} ions
RESOL ΔE/E .1	%	60. μA of 365	MeV α. ions
EMITTANCE (π mm. mrad) 9. axial / 22. rad		5. μA of 36.5	MeV α. ions

OPERATING PROGRAMS, time distribution
BASIC NUCLEAR PHYSICS SOLID STATES PHYSICS
BIOMEDICAL APPLICAT. ISOTOPE PRODUCTIONS

REFERENCES/NOTES

IEEE TRANS. NUCL. SCI., NS-16, No 3, 802 (1969)

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

* AS PER CABLEGRAM 5/14/75