ENTRY NO. C 53 Date July 2, 1992

Name of Machine Kurchatov Institute of Atomic Energy

Institution Cyclotron IAE

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In Charge: ..... Reported by: V.E.Jarosh

HISTORY

MILESTONE DATES:

Design date 1971-73 Model Tests 1973-74

Construction date 1976 First Beam 1976

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) ..... % / ..... %

Development ..... % Maintenance ..... %

MAGNET

POLE PARAMETERS:

Diameter 150 cm $R_{extract}$ 67.5 cm R_{inject} ..... cm

HILL PARAMETERS: Gap (min) 20 cm B_{max} 2.1 T

(@ ..... AT) Gap (max) ..... cm B_{min} ..... T

VALLEY PARAMETERS: Gap (min) 34 cm B_{max} ..... T

(@ ..... AT) Gap (max) ..... cm B_{min} 1.5 T

AVERAGE FIELD: $< B >_{min}$ ..... T $< B >_{max}$ ..... T

NUMBER OF SECTORS: compact/separated 3 / .....

sector angle ..... deg. spiral (max) 50 deg.

FIELD TRIMMING: Trim Coils .....

Harmonic Coils 3 pairs

Other concentric, 8 pairs

CURRENT: Main Coils ..... Amps Stability .....

Trim Coils ..... Amps Stability .....

Stored Energy (cryogenic) ..... MJ

WEIGHT: Iron 300 tons Conductor 70 tons

ION ENERGY: Bending Limit E/A = ... q^2/A^2 MeV/u

Focussing Limit E/A = ... q/A MeV/u

ACCELERATION SYSTEM

FUNDAMENTAL ACCELERATION:

Description: dees number 2, angle 180 deg.

No. of Gaps/turn ..... dE/dn(max) ..... MeV/q

Voltage(max) ..... MV Harmonic f_{rf}/f_{ion} .....

Freq 6 to 20 MHz Power in(max) ..... MW

Stability: Phase ..... Voltage 10^{-3} %

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: 10^{-5} torr

PUMPS: No. and type .....

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ION SOURCE(S)

	Type	Intensity (mA)	@	$\epsilon_n = \beta\gamma\epsilon$ (πmm mrad)	Ion Species
(a)	Penning type				
(b)					
(c)					
(d)					

INJECTION SYSTEM

..... Efficiency ..... %

EXTRACTION SYSTEM

Electrostatic defl., mag. chan Efficiency ..... %

CHARACTERISTIC BEAMS

	Accelerated Ions	E/A (MeV/u)	Current(part μA) Internal	External
(a)	p, d			30
(b)	Li^{+2}			7.5-1.5
(c)	C^{+4}			7.5
(d)	N			3

	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 20 πmm mrad z 30 πmm mrad

FACILITIES FOR RESEARCH

SHIELDED AREA: Fixed ..... m^2 Moveable ..... m^2

Target Stations: ..... No. Served At Same Time: .....

MAGNETIC SPECTROMETERS: .....

OTHER FACILITIES: .....

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REFERENCES/NOTES

(a) Vanikov, N. I. e.a. IEEE Trans. on Nucl. Sci., v. NS-26 (1979) 1996

PLAN VIEW OF FACILITY, COMMENTS