ENTRY NO. C19 Date February 09, 1996
Name of Machine ALICE
Institution Institut de Physique Nucleaire
Address B.P. no 1 ORSAY, FRANCE
Tel (33)1 69-41-73-25 Telex --- Fax (33)1 69-41-23-56 E-MAIL GALES@IPNCLS.IN2P3.FR
In Charge: Richomme Reported by: Richomme

HISTORY

MILESTONE DATES:
Design 1959 Model Tests 1958-59
Construction 1960-64 First Beam April 1965
DESIGN/CONSTRUCTION BY:
in house other
COST: Accelerator 5×10^6 FF Facility 12×10^6FF
FUNDED BY: Ministerie de la Recherche Scientifique

STATUS

STAFF: Machine
Scientists 0 Engineers 1
Technicians 17 Students
Research (in house/external)
Scientists / Engineers /
Technicians / Students /
BUDGET: Machine Funded by
Research 0.7×10^6 FF Funded by IN2P3-CNRS
TIME DISTRIBUTION:
Basic Research (in house/external) 64 % / %
Applied Program (in house/external) % / %
Maintenance % Development 10 %

MAGNET

POLE PARAMETERS:
Diameter cm $R_{extract}$ 80 cm R_{inject} 20 cm
HILL PARAMETERS: Gap (min) 21 cm B_{max} 1.8 T
(@ 0.75×10^6 AT) Gap (max) 47 cm B_{min} 1.24 T
VALLEY PARAMETERS: Gap (min) cm B_{max} T
(@ AT) Gap (max) cm B_{min} T
AVERAGE FIELD: $<B>_{min}$ T $<B>_{max}$ T
NUMBER OF SECTORS: compact/~~separated~~ 3 /
sector angle 50 deg. spiral (max) deg.
FIELD TRIMMING: Trim Coils 3
Harmonic Coils
Other
CURRENT: Main Coils 490kW ~~Amps~~ Stability 5×10^{-5}
Trim Coils 72kW ~~Amps~~ Stability 5×10^{-5}
Stored Energy (cryogenic) MJ
WEIGHT: Iron 260 tons Conductor 20 tons
ION ENERGY: Bending Limit E/A = 75 q^2/A^2 MeV/u
Focusing Limit E/A = q/A MeV/u

ACCELERATION SYSTEM

FUNDAMENTAL ACCELERATION:
Description: 180° dees
No. of Gaps/turn 2 dE/dn(max) 0.15 MeV/q
Voltage (max) 0.075 MV Harmonic f_{rf}/f_{ion} 1,3
Freq 5 - 10,2 MHz Power in(max) 0.1 MW
Stability: Phase Voltage $\pm 7 \times 10^{-6}$
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: INAC 5×10^{-7} CEV 10^{-6} mbar
PUMPS: (No. and type) 4 Diffusion pumps, one 80cm, three 60cm Turbo

ION SOURCE(S)

	Type	Intensity (mA)	@ $\varepsilon_n = \beta\gamma\varepsilon$ (π mm mrad)	Ion Species
(a)	Internal penning and Linac with internal stripping			
(b)	in the cyclotron,			
(c)				
(d)				

INJECTION SYSTEM

Internal stripping in the cyclotron Efficiency %

EXTRACTION SYSTEM

Electrostatic deflector + 2 magnetic channels Efficiency 45 %

CHARACTERISTIC BEAMS

	Accelerated Ions	E/A (MeV/u)	Current (μA) Internal	Current (μA) External
(a)	$^{14}N^{7+}$	210		50nA
(b)	$^{40}Ca^{15}$	400		100nA
(c)	$^{63}Cu^{20}$	450		80nA
(d)	$^{109}Ag^{29+}$	550		3nA

	Secondary Particles	E (MeV)	part/sec
(a)	Single linear ^{131}Xe		200nA
(b)			
(c)			

EXTRACTED BEAM PROPERTIES:
For 1 μA of MeV/u ions
$\Delta E/E$ 1 % $\Delta\phi$ 11 °rf
$\varepsilon_n = \beta\gamma\varepsilon$ x 42 π mm mrad z 120 π mm mrad

FACILITIES FOR RESEARCH

SHIELDED AREA: Fixed: 290 m^2 Moveable m^2
Target Stations: 9 No. Served At Same Time: 1
MAGNETIC SPECTROMETERS: 120° n = 1/2
OTHER FACILITIES:

REFERENCES/NOTES

(a)
(b)

PLAN VIEW OF FACILITY, COMMENTS