

ENTRY No. CU99
 NAME OF MACHINE Medi-Physics Cyclotron DATE
 INSTITUTION Medi-Physics, Inc.
 ADDRESS 5855 Christie Ave, Emeryville, CA 94608 - USA
 TEL TELEX
 IN CHARGE E.R. Russell REPORTED BY E.R. Russell

HISTORY AND STATUS

DESIGN, date Model tests
 ENG DESIGN, date
 CONSTRUCTION, date
 FIRST BEAM, date (or goal) Accepted 12/70
 MAJOR ALTERATIONS None
 COST, ACCELERATOR
 COST, FACILITY, total
 FUNDED BY Medi-Physics, Inc.
 ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
 SCIENTISTS 1 ENGINEERS
 TECHNICIANS 5 CRAFTS
 GRAD STUDENTS involved during year
 OPERATED BY Research staff or Operators
 OPERATION 168 hr/wk, On target 120 hr/wk
 TIME DISTR. in house 99 % , Outside 1 %
 BUDGET, op & dev
 FUNDED BY Medi-Physics, Inc.
 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) 97 cm, R extraction 42 cm
 R Injection cm
 GAP, min 5 cm, Field 21 kG }
 max 10 cm, Field 13.5 kG } at 2×10^6
 AVERAGE FIELD at R ext 16.5 kG } Ampere turns
 B max/ 1, 22
 NUMBER OF SECTORS { compact } Spiral, max deg
 separated
 SECTOR ANGLE (SSC) deg
 TRIMMING COILS Harmonic correction 1
 CONDUCTOR, material and type
 STORED ENERGY (cryogenic) MJ
 POWER: main coils max, kW ; current stability 3×10^{-5}
 trimming coils max, kW ; current stability
 WEIGHT: Fe 19.5 tons ; coils tons
 COOLING system
 ION ENERGY (bending limit) E/A = q^2/a^2 MeV/amu
 (focusing limit) E/A = q^2/a^2 MeV/amu
 ACCELERATION SYSTEM
 DEES, number 2 ; angle 90 deg
 BEAM APERTURE 2 cm ; DC Bias 1.5 kV
 TUNED by, coarse straps fine panels
 RF 12 to 25 MHz, stable \pm
 Orb F to MHz
 HARMONICS, RF/Orb F, used
 DEE - Gnd, max 30 kV, min gap cm
 STABILITY, (pk-pk noise)/(pk RF volt)
 ENERGY GAIN, max 100 kV/turn
 RF PHASE, stable to \pm deg
 RF POWER input, max 70 kW
 FREQUENCY MODULATION, rate /s
 modulator, type
 beam pulse, width
 VACUUM SYSTEM
 OPERATING PRESSURE Torr or mbar
 PUMPS, No, Type, Size
 ION SOURCES
 Internal cold cathode 1)

INJECTION SYSTEM

EXTRACTION SYSTEM
 Electrostatic and magnetic channel
 FACILITIES FOR RESEARCH
 SHIELDED AREA, fixed 100 m² ; movable m²
 TARGET STATIONS 8 In 1 rooms
 STATIONS served at same time, max 1
 MAG SPECTROGRAPH, type None
 COMPUTER model None
 OTHER FACILITIES
 CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV)		CURRENT (pμA)	
	Goal	Achieved	Internal	External
p		22	400	60
d		12	400	100
³ He		32	100	50

 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 % pμA of MeV ions
 RESOL ΔE/E % pμA of MeV ions
 EMITTANCE
 (π mm. mrad) { axial } pμA of MeV ions
 { rad }
 OPERATING PROGRAMS, time distribution
 BASIC NUCLEAR PHYSICS .. SOLID STATES PHYSICS
 BIOMEDICAL APPLICAT. ISOTOPE PRODUCTIONS 100.

REFERENCES/NOTES

- 1) IEEE Trans. Nucl. Sci. NS-14, 70-71 (1967)
- 2) IEEE Trans. Nucl. Sci. NS-16, 500-503 (1969)

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS

Designed by the Cyclotron Corporation.
 * Data confirmed October, 1981.