

ENTRY No. 51
 NAME OF MACHINE Physitron DATE June 1989
 INSTITUTION Nihon Medi-Physics Co., Ltd. Takarazuka Facility
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 IN CHARGE H. Tobiki REPORTED BY Y. Tanaka

HISTORY AND STATUS

DESIGN, date Model tests TCC CS-30
 ENG DESIGN, date
 CONSTRUCTION, date Jun.-Nov., 1981
 FIRST BEAM, date (or goal) Dec., 1981
 MAJOR ALTERATIONS Addition of Yoke Iron
 .. Negative (P⁻) Acceleration to Positive (P⁺)
 COST, ACCELERATOR
 COST, FACILITY, total
 FUNDED BY Nihon Medi-Physics Co., Ltd.
 ACCELERATOR STAFF, OPERATION AND DEVELOPMENT
 SCIENTISTS ENGINEERS 5
 TECHNICIANS 7 CRAFTS
 GRAD STUDENTS involved during year
 OPERATED BY Research staff or Operators
 OPERATION hr/wk, On target 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) .96 cm, R extraction 42 cm
 R injection cm
 GAP, min cm, Field kG }
 max cm, Field kG } at
 AVERAGE FIELD at R ext 17.5 kG } Ampere turns
 B max' < B >
 NUMBER OF SECTORS { compact } Spiral, max .. deg
 { separated }
 SECTOR ANGLE (SSC) deg
 TRIMMING COILS
 CONDUCTOR, material and type
 STORED ENERGY (cryogenic) MJ
 POWER : main coils max, kW ; current stability
 trimming coils max, kW ; current stability
 WEIGHT : Fe tons ; coils tons
 COOLING system
 ION ENERGY (bending limit) E/A = q²/a² MeV/amu
 (focusing limit) E/A = q²/a² MeV/amu

ACCELERATION SYSTEM

DEES, number 2 ; angle 90 deg
 BEAM APERTURE cm ; DC Bias 1.5 kV
 TUNED by, coarse fine
 RF to MHz, stable ±
 Orb F to MHz
 HARMONICS, RF/Orb F, used
 DEE - Gnd, max kV, min gap cm
 STABILITY, (pk-pk noise)/(pk RF volt)
 ENERGY GAIN, max kV/turn
 RF PHASE, stable to ± deg
 RF POWER input, max kW
 FREQUENCY MODULATION, rate /s
 modulator, type
 beam pulse, width

VACUUM SYSTEM

OPERATING PRESSURE 5 x 10⁻⁶ Torr or mbar
 PUMPS, No, Type, Size 1 x 10¹¹ D.P. (Aux. 1 x 10¹⁰ D.P.)
 1 x 4¹¹ D.P.

ION SOURCES

PIG type

INJECTION SYSTEM

EXTRACTION SYSTEM

Deflector & Magnetic Channel
 FACILITIES FOR RESEARCH
 SHIELDED AREA, fixed m² ; movable m²
 TARGET STATIONS 3 in 1 rooms
 STATIONS served at same time, max
 MAG SPECTROGRAPH, type
 COMPUTER model
 OTHER FACILITIES

CHARACTERISTIC BEAMS

PARTICLE	ENERGY (MeV)		CURRENT (pμA)	
	Goal	Achieved	Internal	External
proton	26	26	200	50

SECONDARY

(part/s)

BEAM PROPERTIES

MEASURED	CONDITIONS	
	MEASURED	CONDITIONS
PULSE WIDTH RF deg	pμ A of	MeV ... ions
PHASE EXC, max RF deg	pμ A of	MeV ... ions
EXTRACT eff %	pμ A of	MeV ... ions
RESOL ΔE/E %	pμ A 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 ..

REFERENCES/NOTES

PLAN VIEW OF FACILITY, NOTEWORTHY FEATURES, COMMENTS