TEST RING FOR NUMATRON

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Abstract

The TEST RING is being constructed at INS, Univ. of Tokyo, in order to study the problem related to the developement for NUMATRON. Also, the heavy ion from SF cyclotron will be thrown in the TEST RING and the beam dynamics, injection, stacking, etc. will be tested.

The high energy heavy ion facility is called for in several field of researches. The basic design of the accelerator has been proposed [1]. In order to accomplish the proposal, the most technology related accelerator must be developed and established. It was designed for that purpose to constructe the TEST RING. The basic plan about the TEST RING finished already and a part of the magnet system will be set up at INS presently. It is the aim of the TEST RING to accumulate the data as follows:

1) The beam dynamics and the lattis structure.
2) The beam stacking and the injection.
3) The control of RF system.
4) The beam monitoring and handling.
5) The establishment of ultrahigh vacuum.

The parameters and the layout of the TEST RING are shown in Table 1 and Fig. 1.

The heavy ion beam accelerated by SF cyclotron at INS will be injected to the TEST RING and the problems apointed above will be measured actualy. Beside, several preparatory works on the related technical developement have been making progress; on the production of a ultrahigh vacuum, on the trial of the RF cavity of the synchrotron, on the constructuon of a model cavity of the linac stage, etc.

Reference [1]   INS-NUMA-5

Table 1. Parameter List of the TEST RING

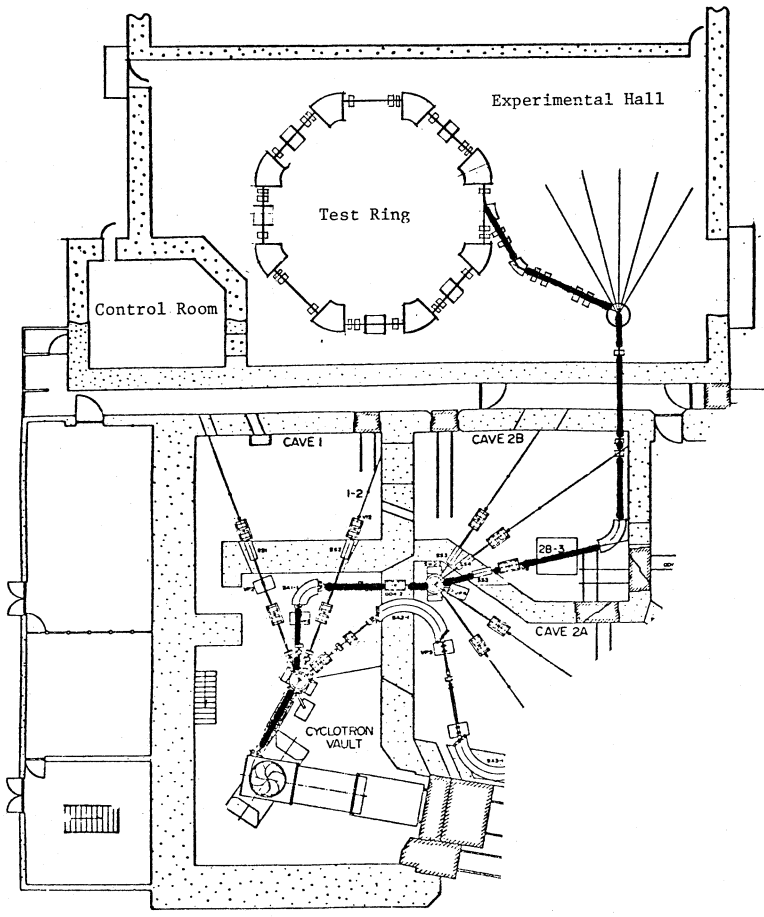|	
Repetition Rate	1 Hz
Average Radius	$R = 5.06$ m
Radius of Curvature	$\rho = 1.333$ m
Circumference	$C = 31.795$ m
Length of a Unit Cell	$L_{cell} = 3.974$ m
Length of a Long Straight Section	$L\ell_{st} = 1.8$ m
Number of Unit Cells	$N_{cell} = 8$
Superperiodicity	$N_S = 8$
Structure of a Unit Cell	FODO
Number of Betatron Oscillation per Revolution	

Fig. 1   The layout of the TEST RING and the beam transport system