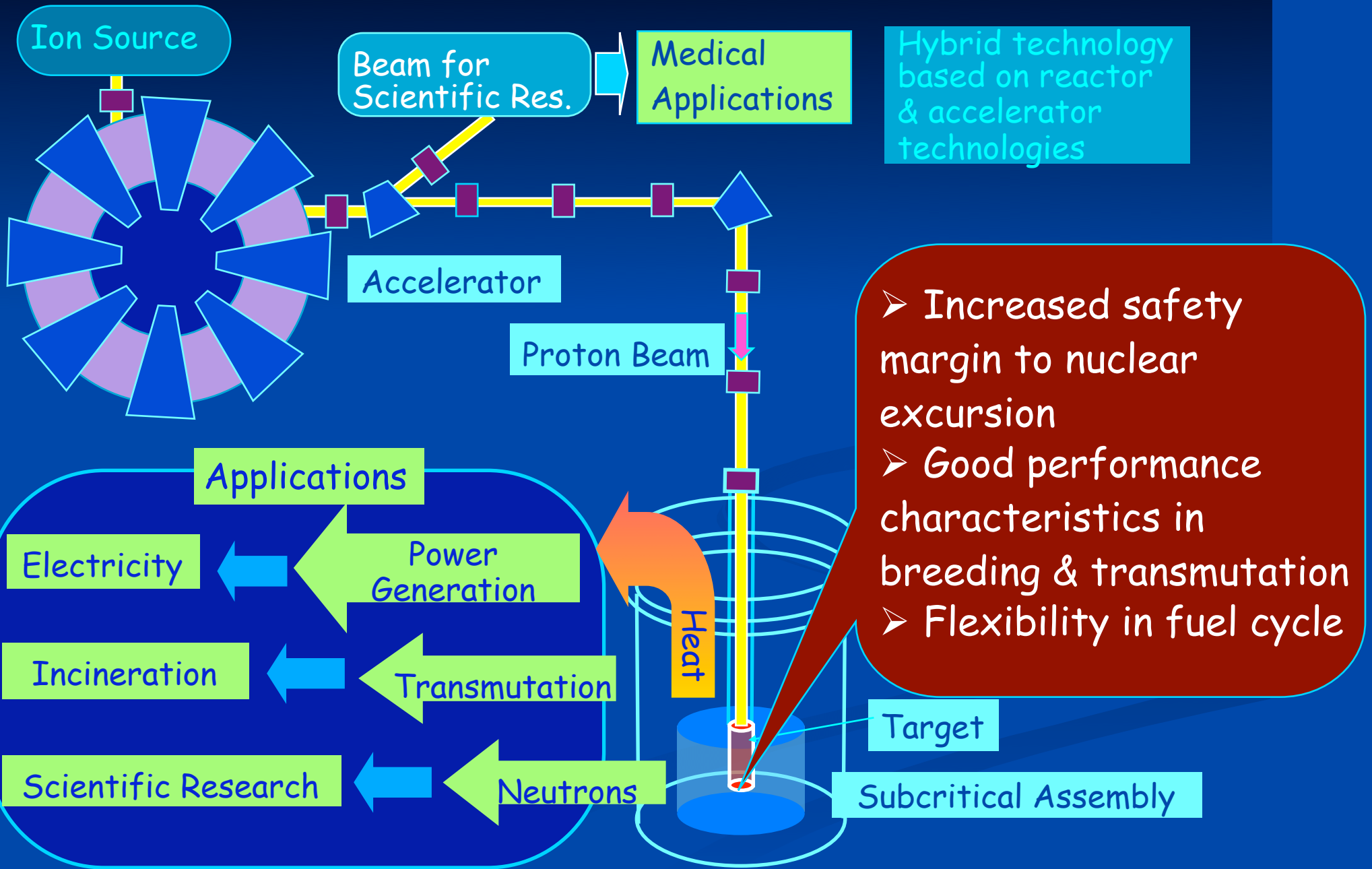


# Future for KURRI 1 GeV FFAG

# Accelerator-driven Subcritical Reactor (ADSR)



# Purpose & design constraints

## Purpose

### Neutron source with ADSR

- 1 GeV proton (>10 microA) + Sub-critical Reactor ( $k_{eff}=0.98$ )
- ~MW (reactor class) neutron source

## Constraints

### Injector for 1 GeV proton accelerator

- 150 MeV p-FFAG

### Size <20m (diameter): site limitation

### Intensity present <1 microA

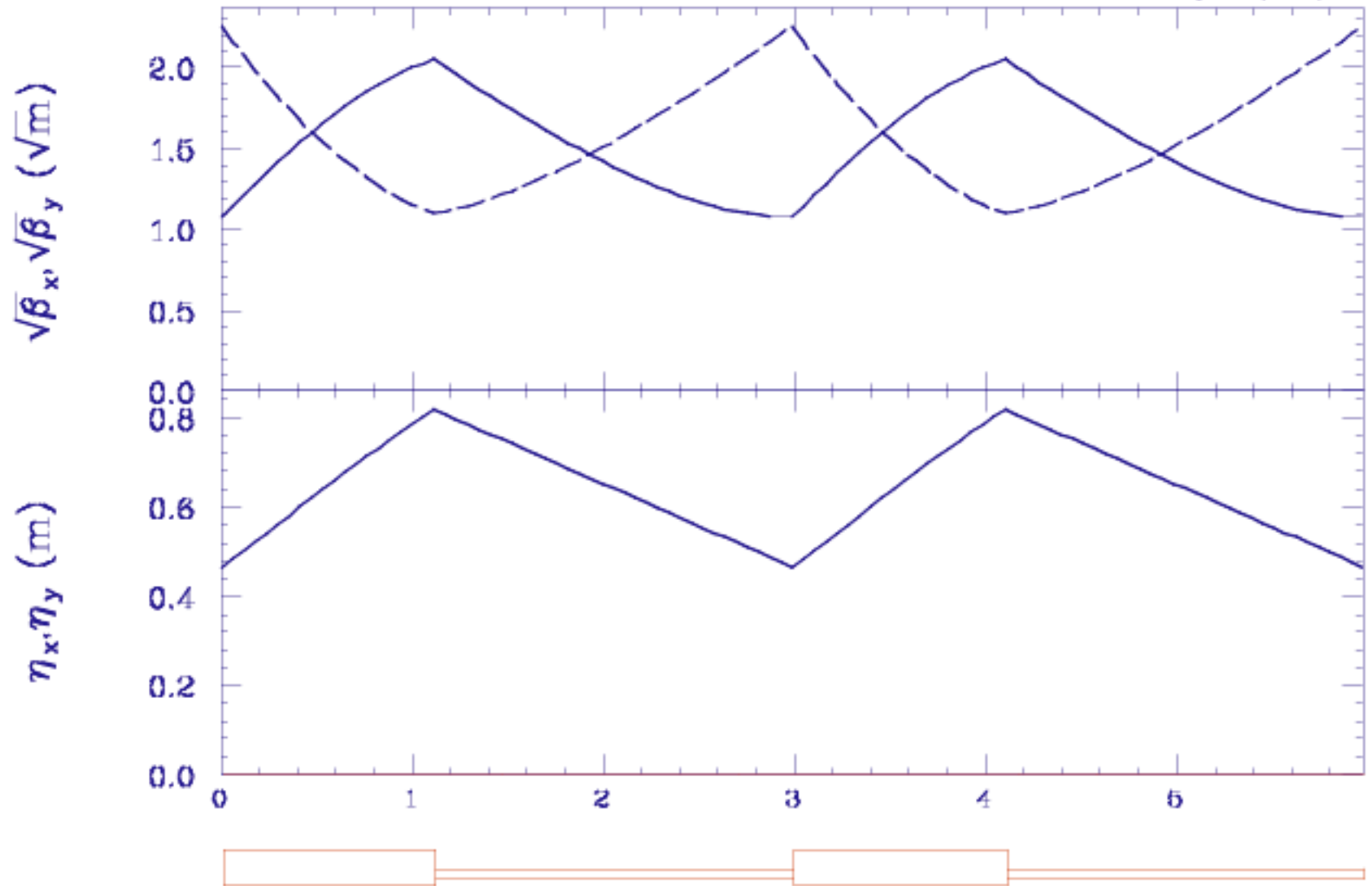
- $H^+ \rightarrow H^-$  charge-exchange injection to 150 MeV FFAG.

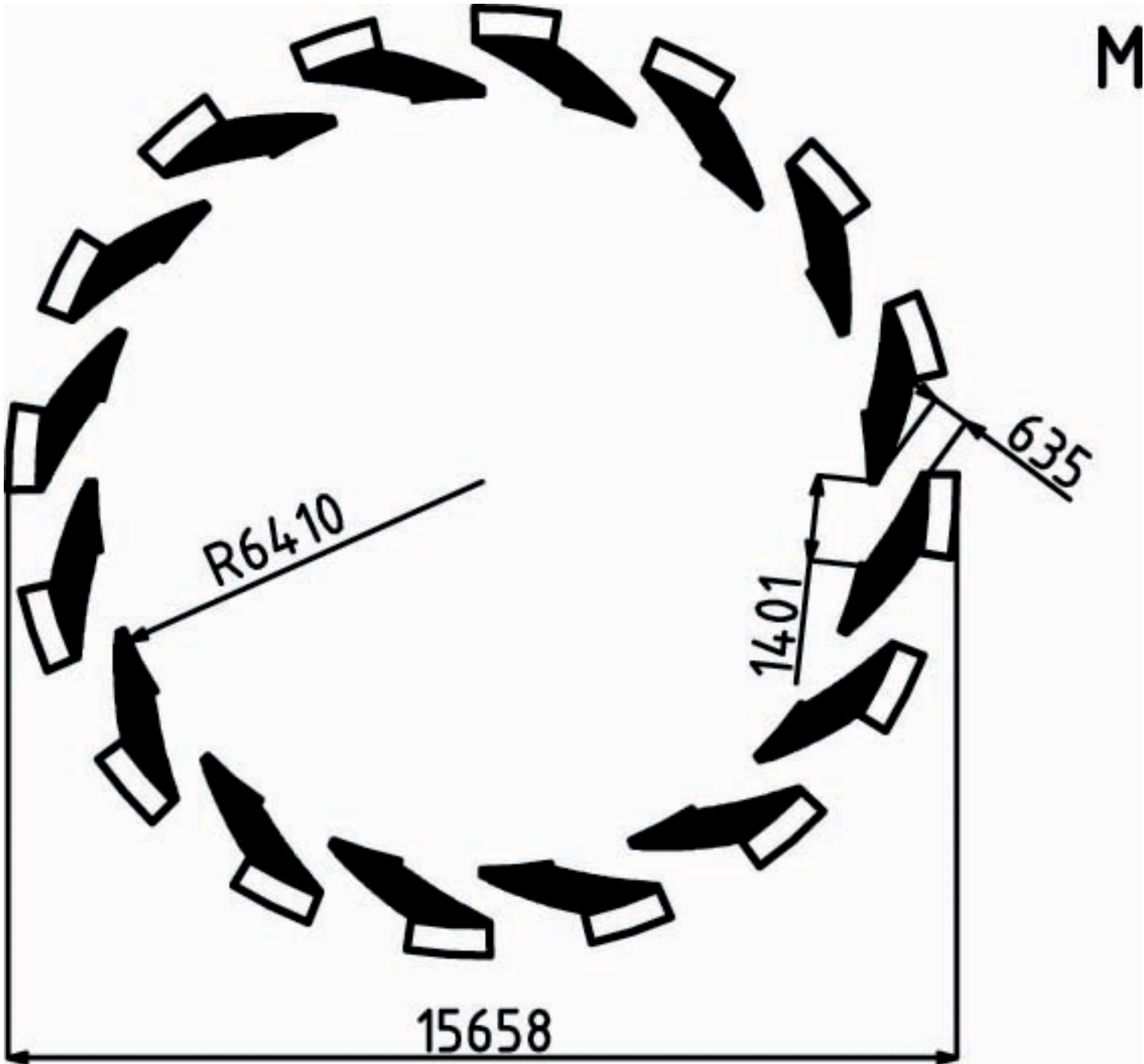
# Main ring(spiral)

E	0.15 - 1GeV
Br	1.84 – 5.66Tm
Cirumference	45m
Ncell	16
k	12
$f_{\text{pack}}$	0.45
z	64 degree
Bmax	1.69T
tune	(3.9, 1.3)
Long straight	1.55m
r	6.57 – 7.16m
excursion	0.6m
Repetition	120Hz (1kHz)

# 1-GeV FFAG Accelerator (16cells)

11:13:42 Tuesday 03/11/2003

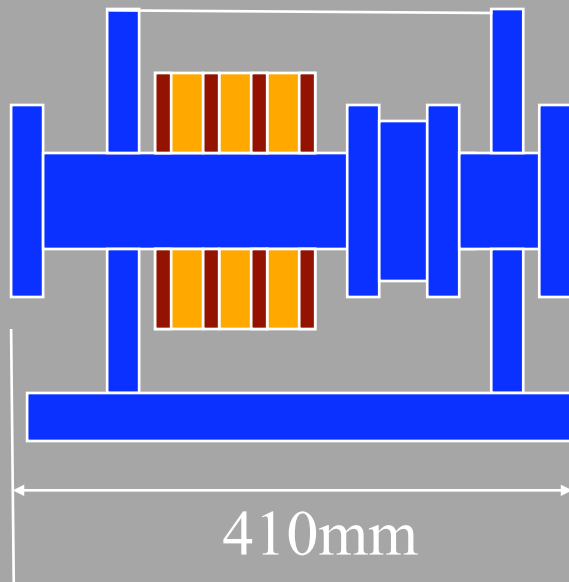




# Main ring rf cavity parameters (repetition rate : 120Hz)

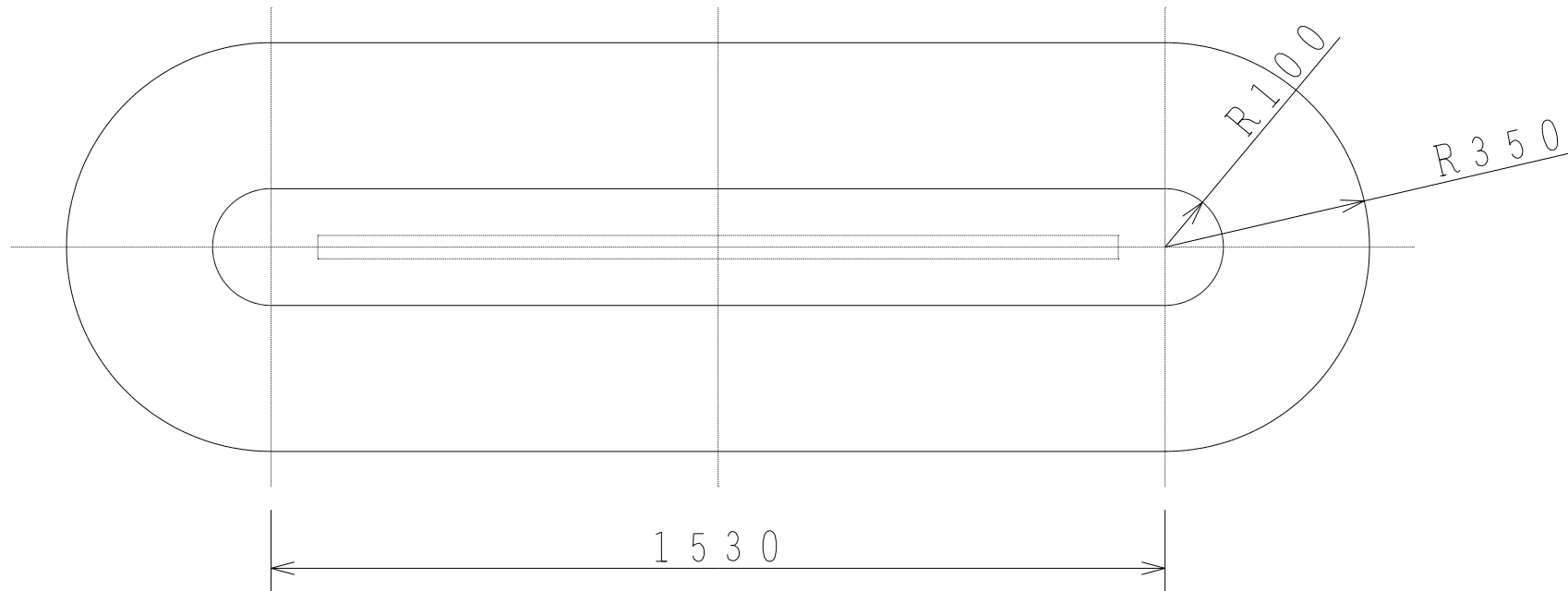
## *MA cavity*

Frequency	6.62MHz~7.15MHz
Acc. voltage	16.0kV ( $\varphi=60^\circ$ )
# of cavities	2
Core thickness	30mm
# of cores	3/cavity



Repetition rate 1KHz  
----> HNJ acceleration

# Main ring core shape



Shunt impedance

118.4 $\Omega$ /cavity

RF power

100kW/cavity

Core weight

~274kg/core



# Power consumption

Magnet	800kW
Cavity	200kW
total	1680kW

H- beam  
(11MeV)

C-foil

Future Plan  
1GeV Proton FFAG

635

R64

1401

15658

