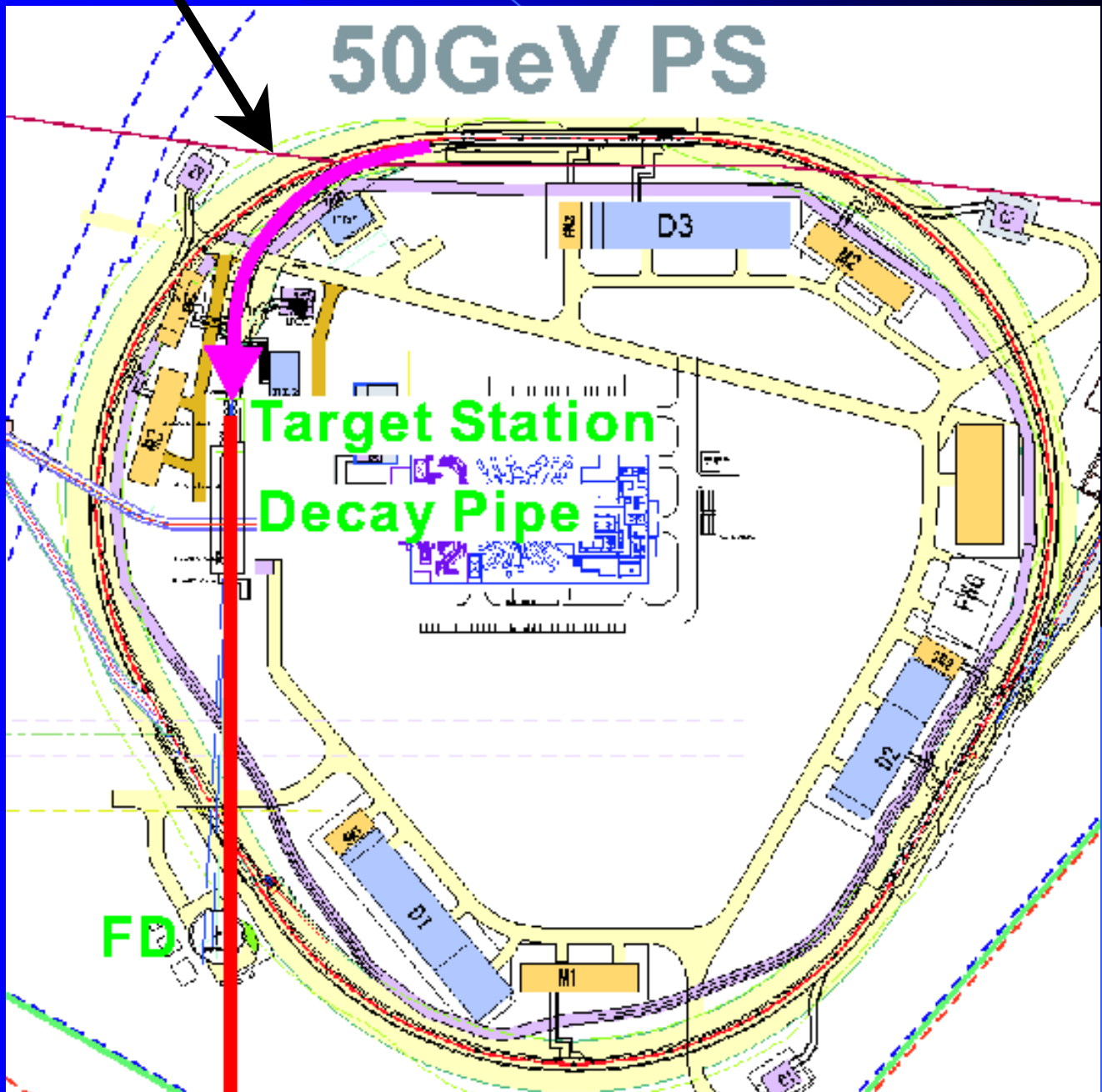


# Beam optics from the main-ring to the target

A. Ichikawa  
Kyoto University  
for the JHF-SK neutrino experiment  
working group

# Overview(1)

R=110m

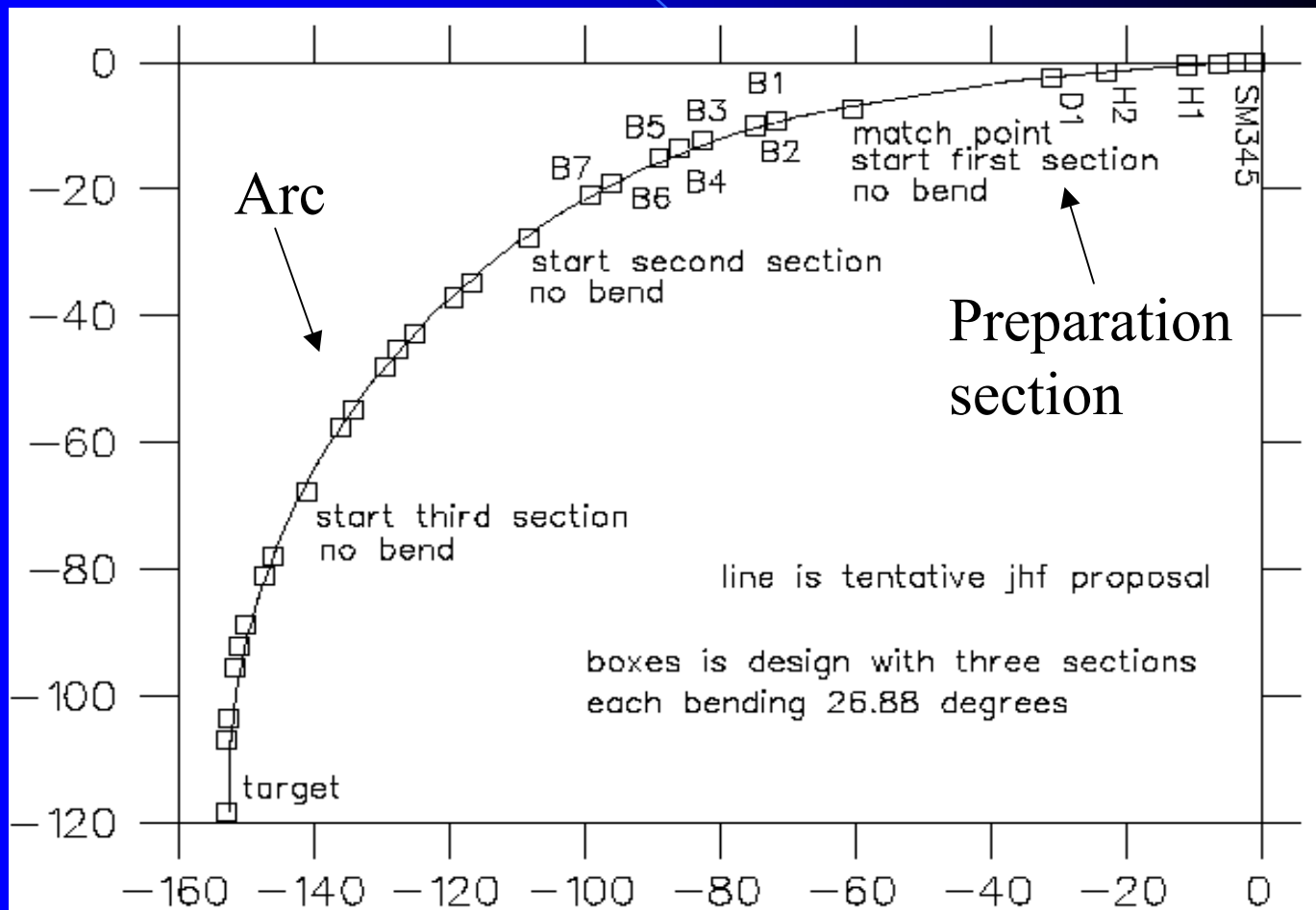


Fast extraction

$$\varepsilon = 6\pi \text{ mm.mr}$$

Beam power =  $\sim 0.75$  MW.

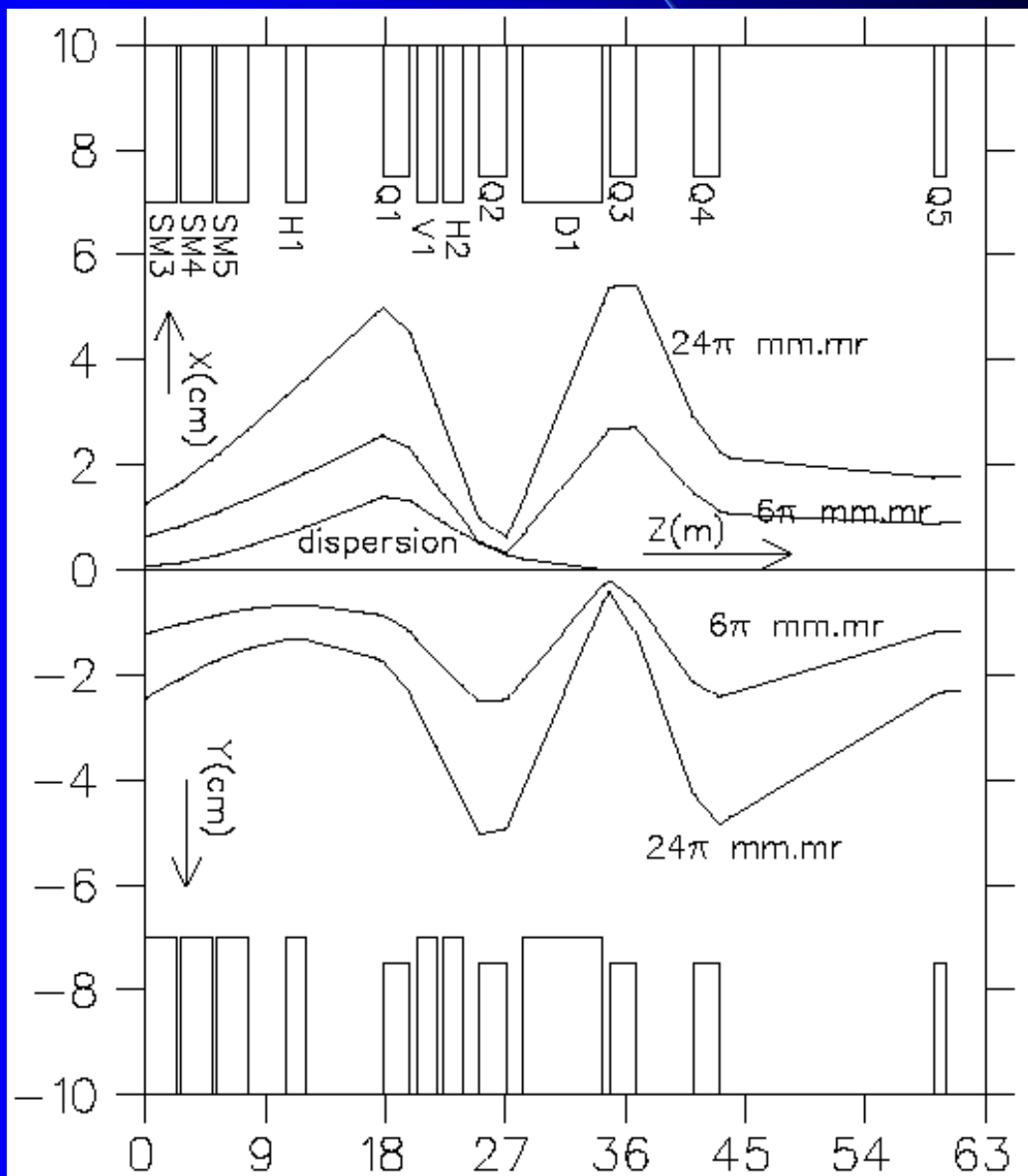
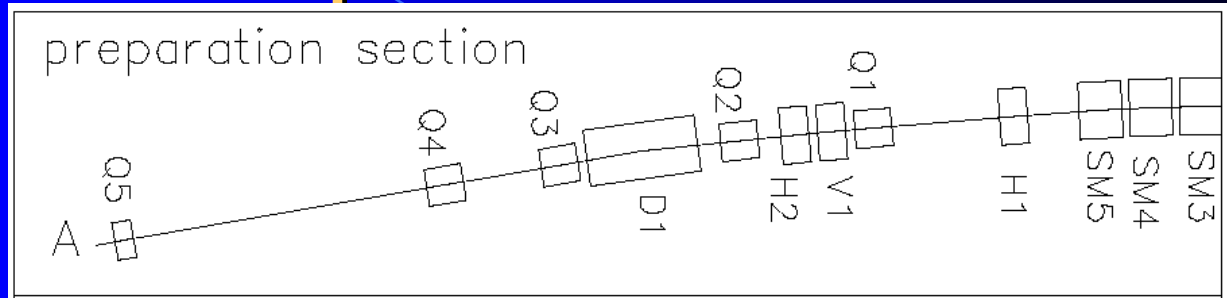
# Overview(2)



The design and calculation was done

by J. Doornboss of TRIUMF

# Preparation section



Achromatic

9.6 degrees bending

# Arc

Bends by 3m long 4 Tesla superconducting magnet.

Two designs for the arc

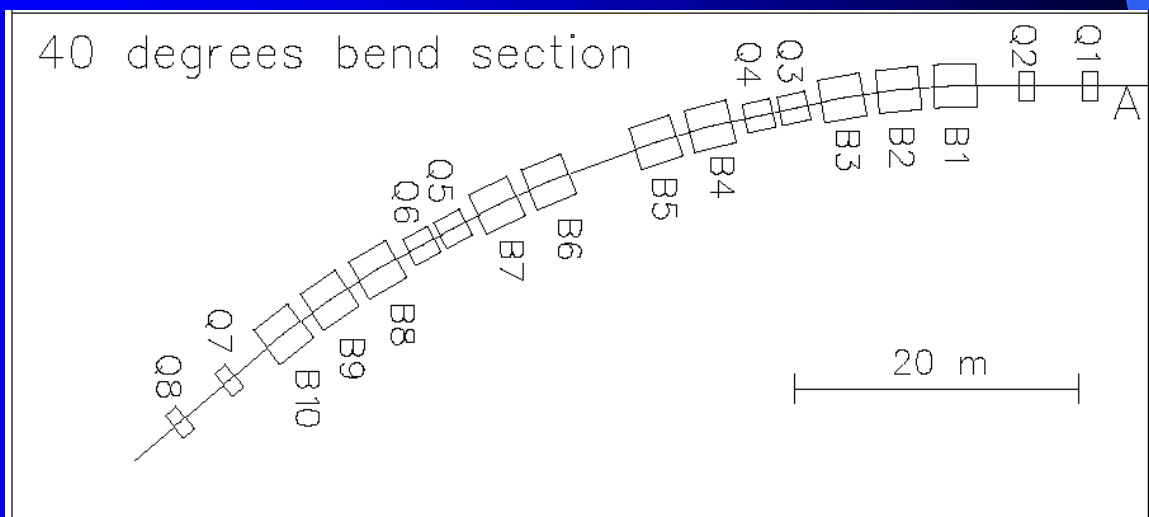
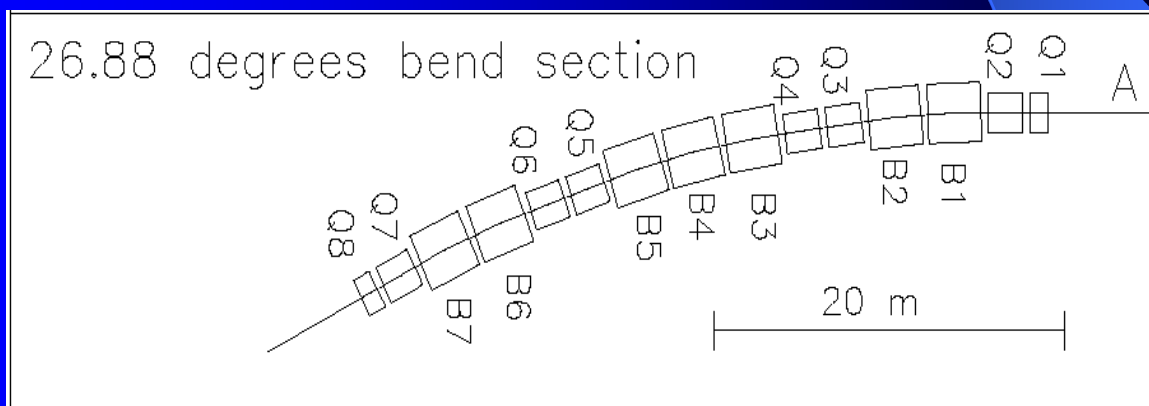
with 3 sections of 26.88 degrees bending

with 2 sections of 40.0 degrees bending

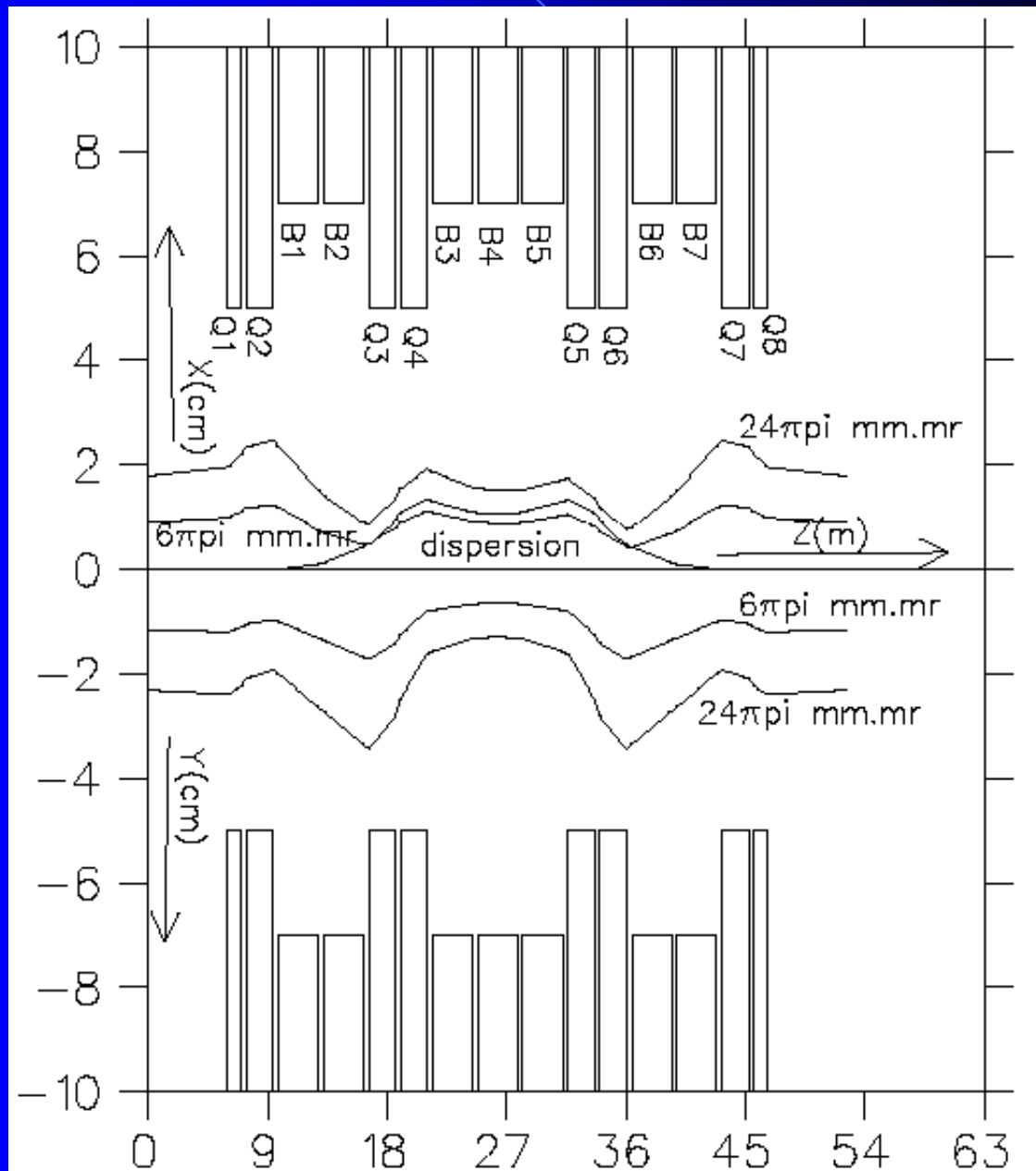
Each section is...

Symmetric with respect to the midpoint.

Achromatic unit or minus unit matrix.



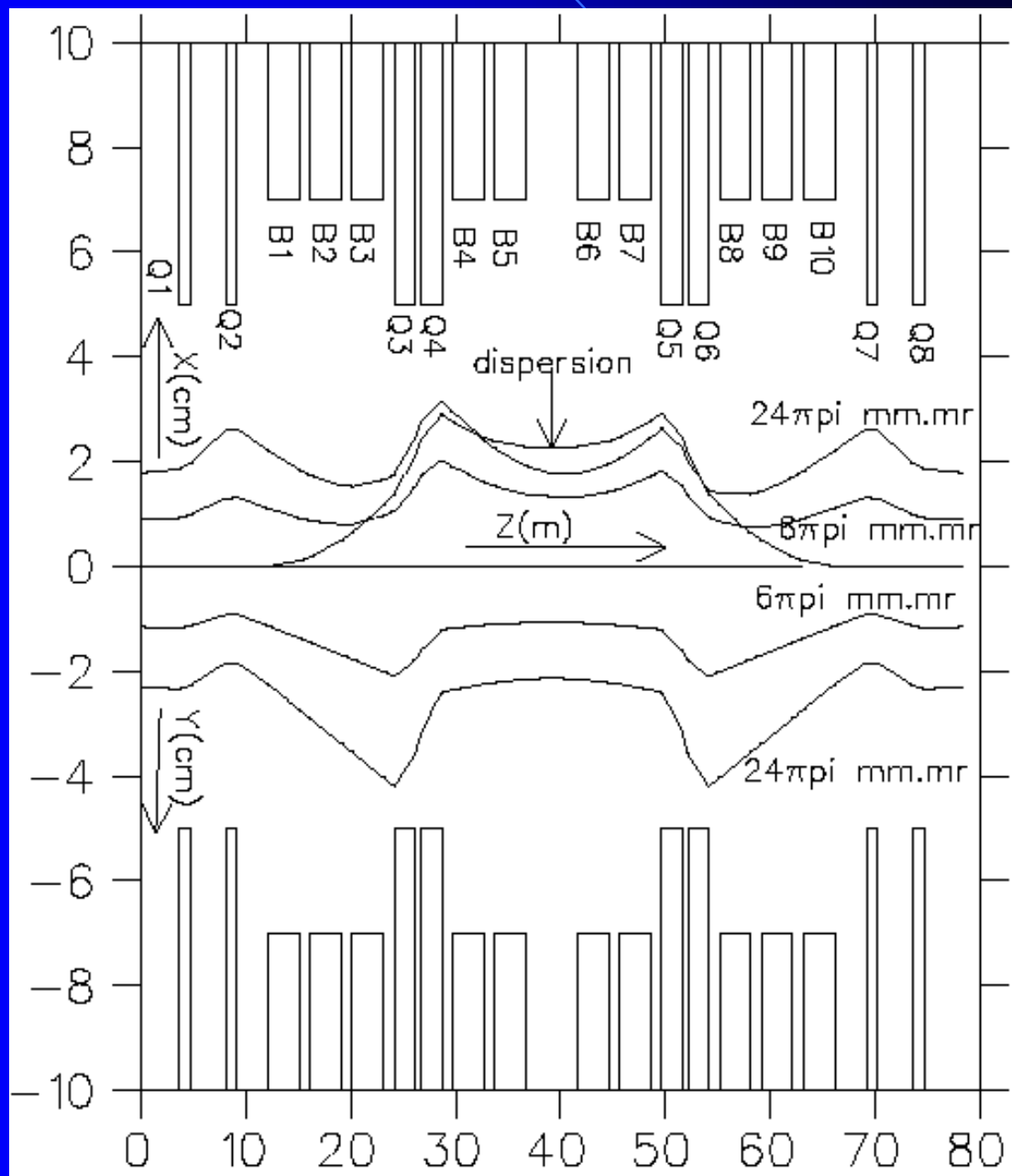
# Arc w/ three 26.88 degrees bending



Better optics.

Tighter spacing. (0.4 m)

# Arc w/ two 40 degrees bending



Slightly worse optics.

Wider spacing. (1 m)

# Summary

With the present design,  
the beam fit well within the magnet apertures.

The beam power ( $\sim 1$  MW) can easily  
cause the quenching of the supercond.  
magnet.

Further study to control the beam  
is necessary, such as collimators  
in the preparation section.

The supercond. magnet will be discussed  
lately.