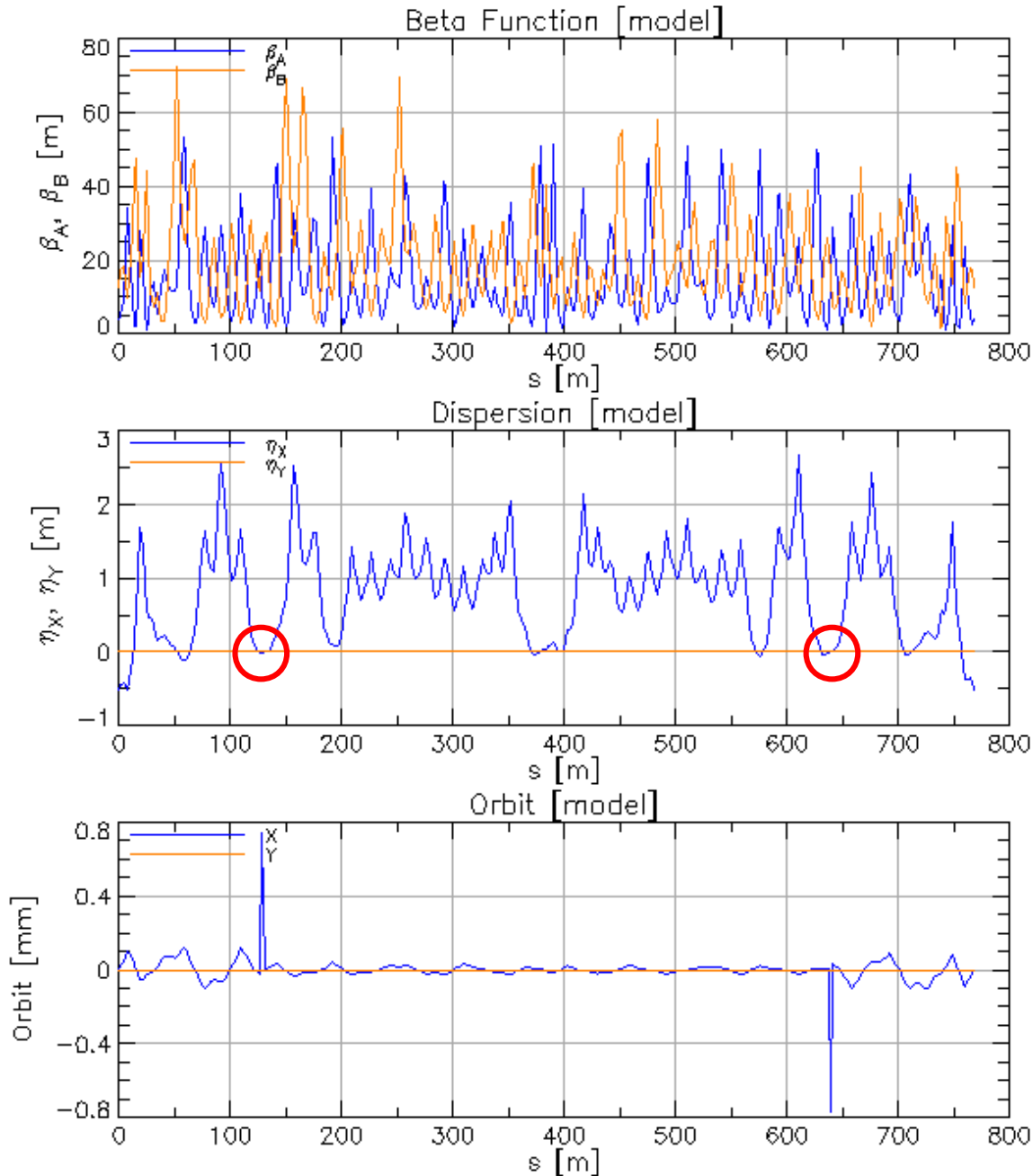


# OSC low energy test lattice

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## 2.1 GeV with 6 wigglers

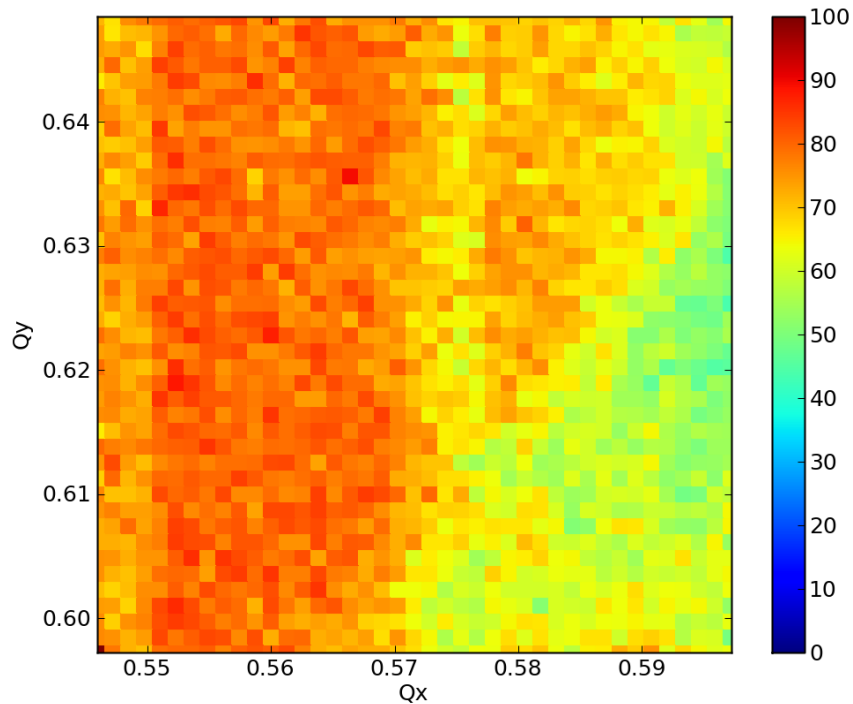


- Derived from CTA eta free lattice (2012.11.17)
- 6 Wigglers at 18W/E are used
- 6 Wigglers at L0 are off
- Minimize  $\eta_x$  at 6 wigglers
- Free constraints on  $\eta_x$  at RF
- $\epsilon_x = 4.6$  nm
- Minimize the vertical beta at CCUs  
 $\beta_{y_{mid}} = 4.5$  m
- Tunes set to CTA working point  
 $(Q_x, Q_y) = (0.573, 0.623)$ ,  
 $(223, 243)$  kHz
- No constraints on colimators  
 $\beta_{y_{Q43w}} = 23$  m,  $\beta_{y_{Q43e}} = 14$  m
- Constraints at injection points  
 $\beta_{x_{Q34w}} = 44$  m,  $\beta_{x_{Q34e}} = 52$  m
- Largest horizontal beta @ Q10W

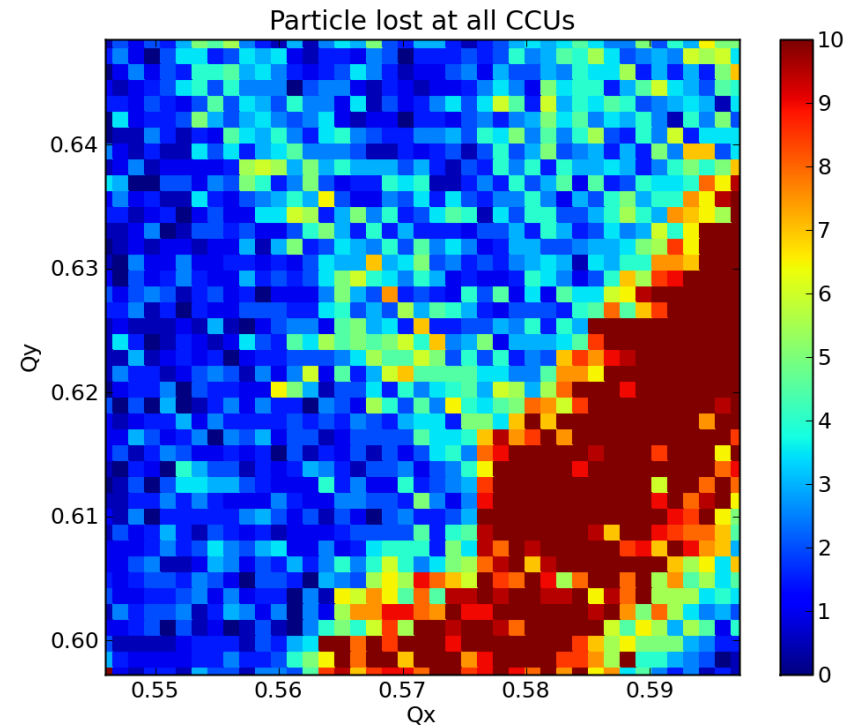
Injection simulation:

2.1 GeV with 6 wigglers

Injection efficiency



Radiation at undulators



Magnet Multipoles are included.  $X_{inj} = 25$  mm

Undulator vertical aperture: 4.5 mm

CESR Apertures are included in the simulation.

Many particles are lost at Q10W.

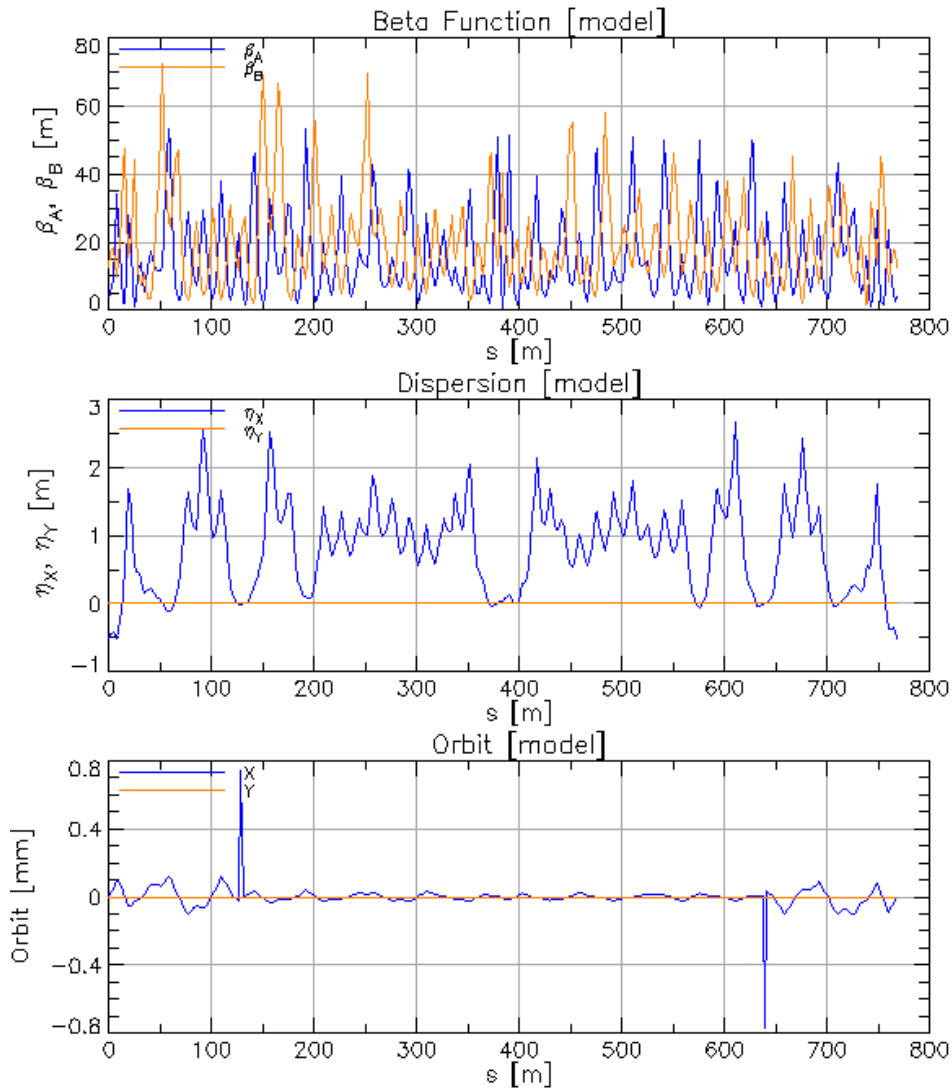
Undulator radiation is high compared to current CHESS run.

May try to included collimators for simulation again.

Simulation with CCUs included are undergoing.

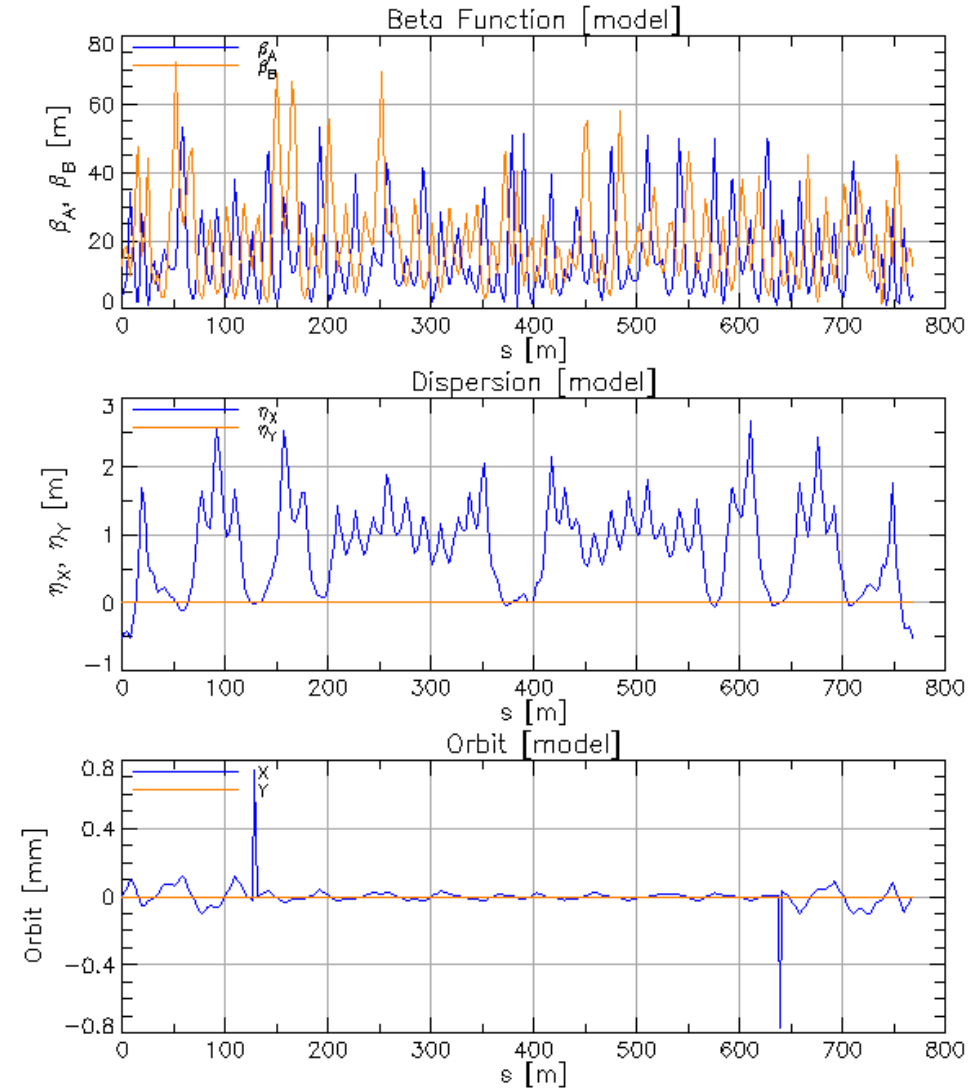
# Scaled the 6 wigglers field with energy

1.5 GeV



$\epsilon_x = 2.38$  nm

1.0 GeV



$\epsilon_x = 1.06$  nm

Without undulators, beta functions, dispersion, tunes do not change much.  
Will find out the impact of undulators to the lattices.