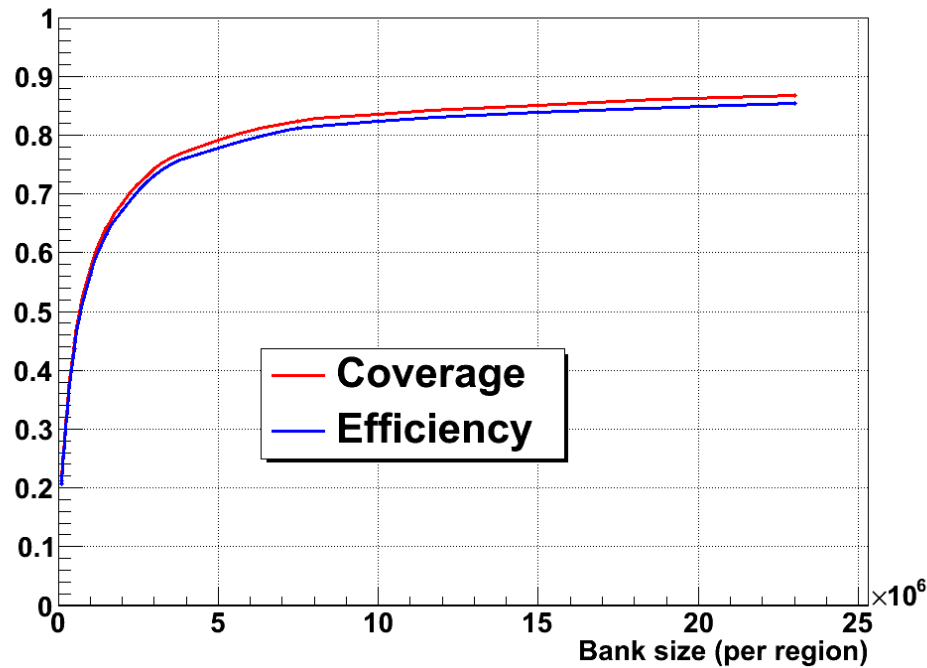
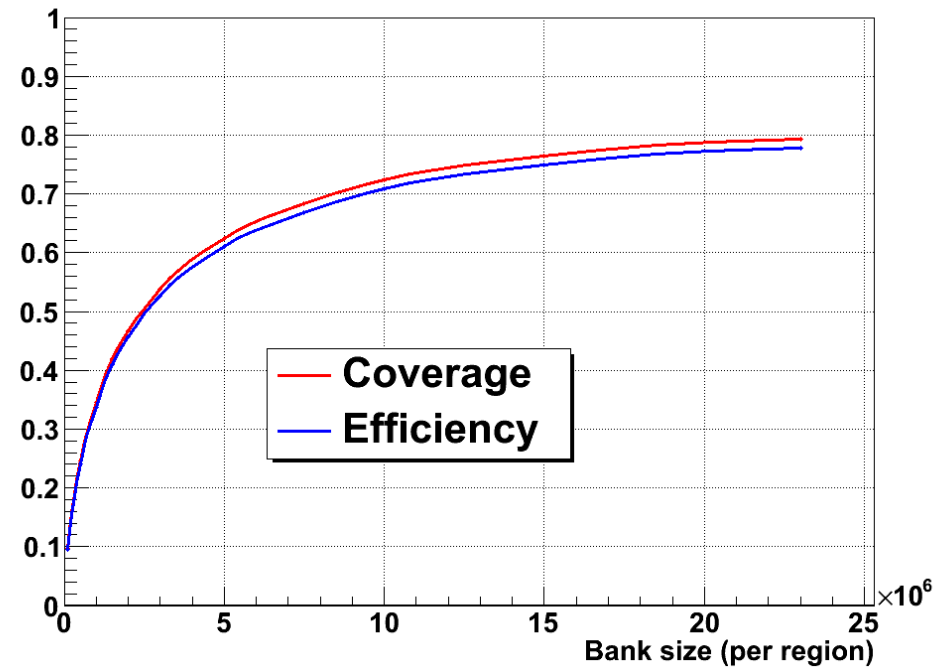


Recall: 4L bank efficiency over full eta is much worse than in central eta:

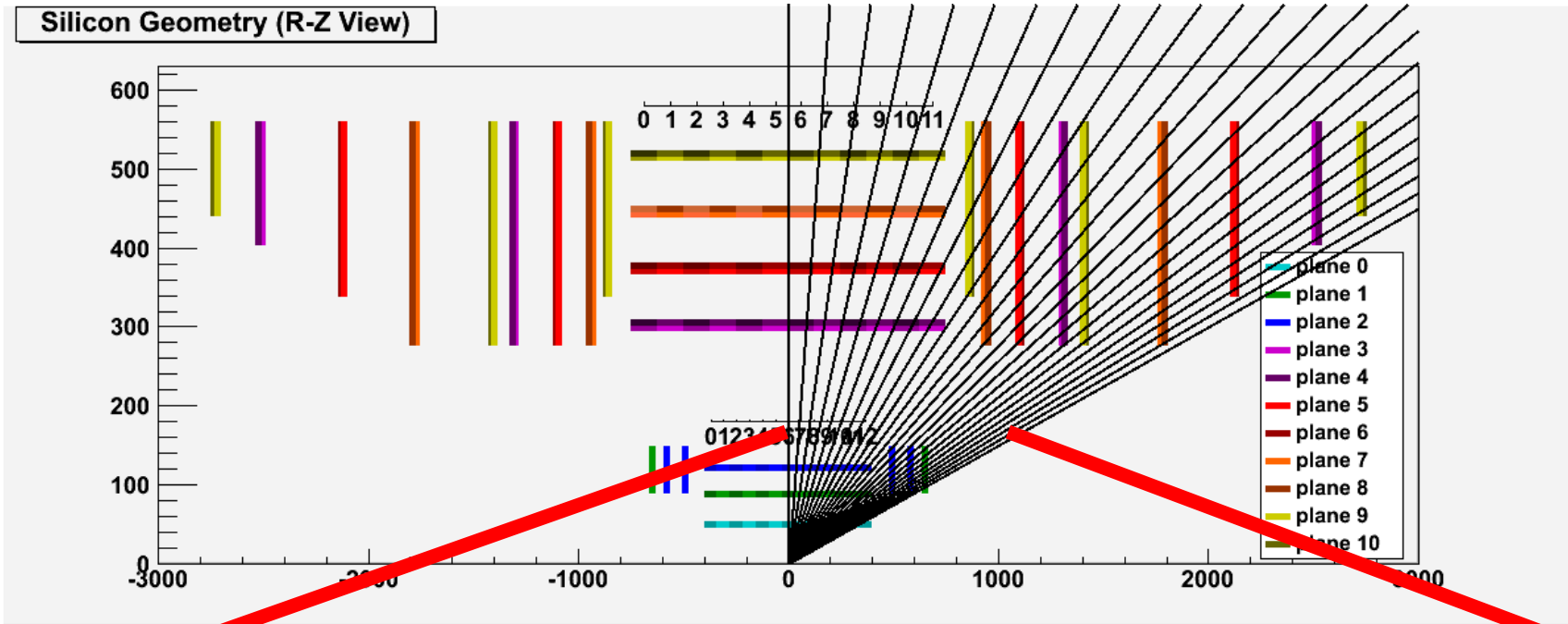
Coverage and efficiency: 4L ss=20x25sigma6 bank ($|\eta| < 1$)



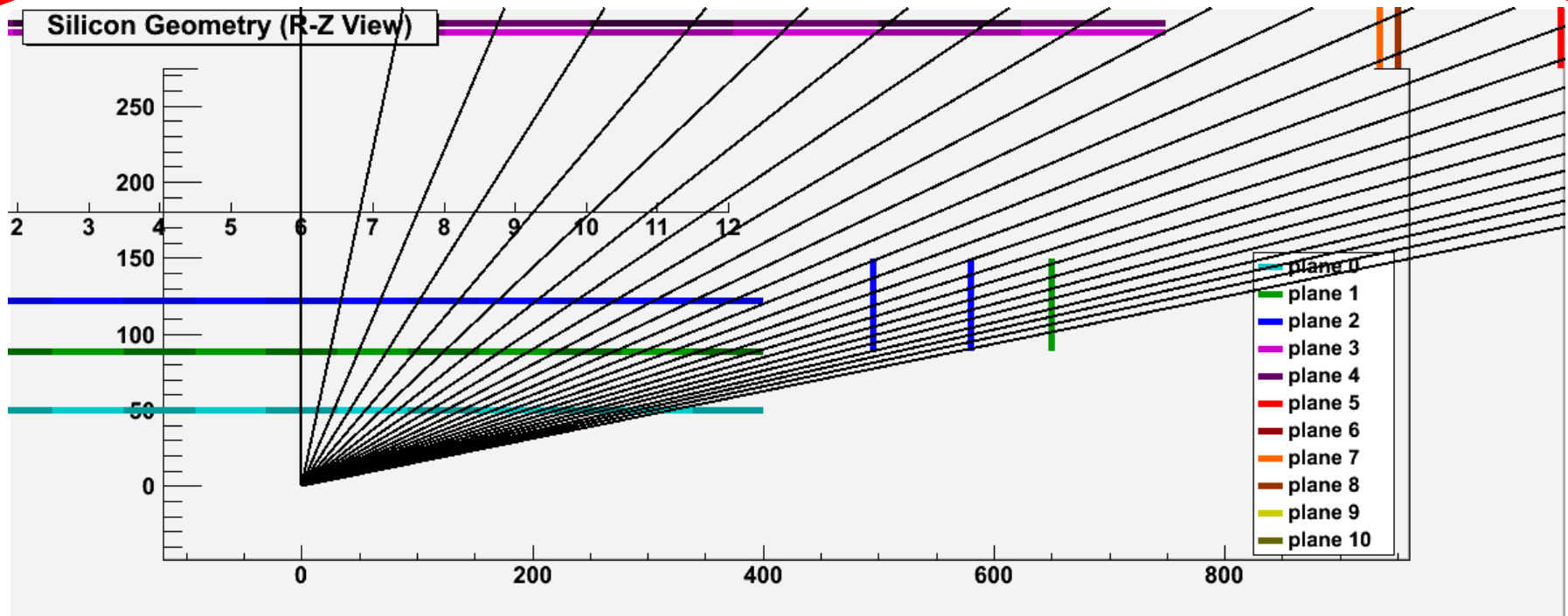
Coverage and efficiency: 4L ss=20x25sigma6 bank



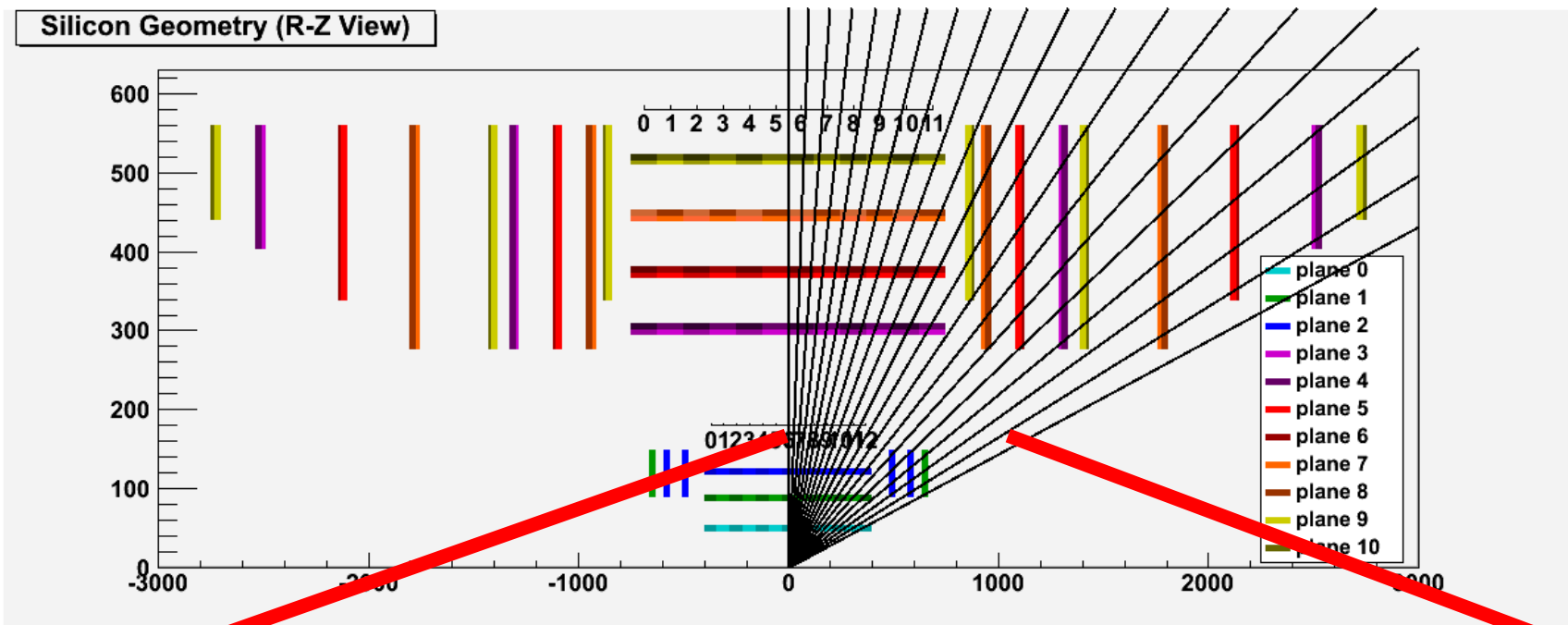
Mel's suspect: pseudolayer partitioning flat in $\cot(\theta)$ too narrow in forward regions:



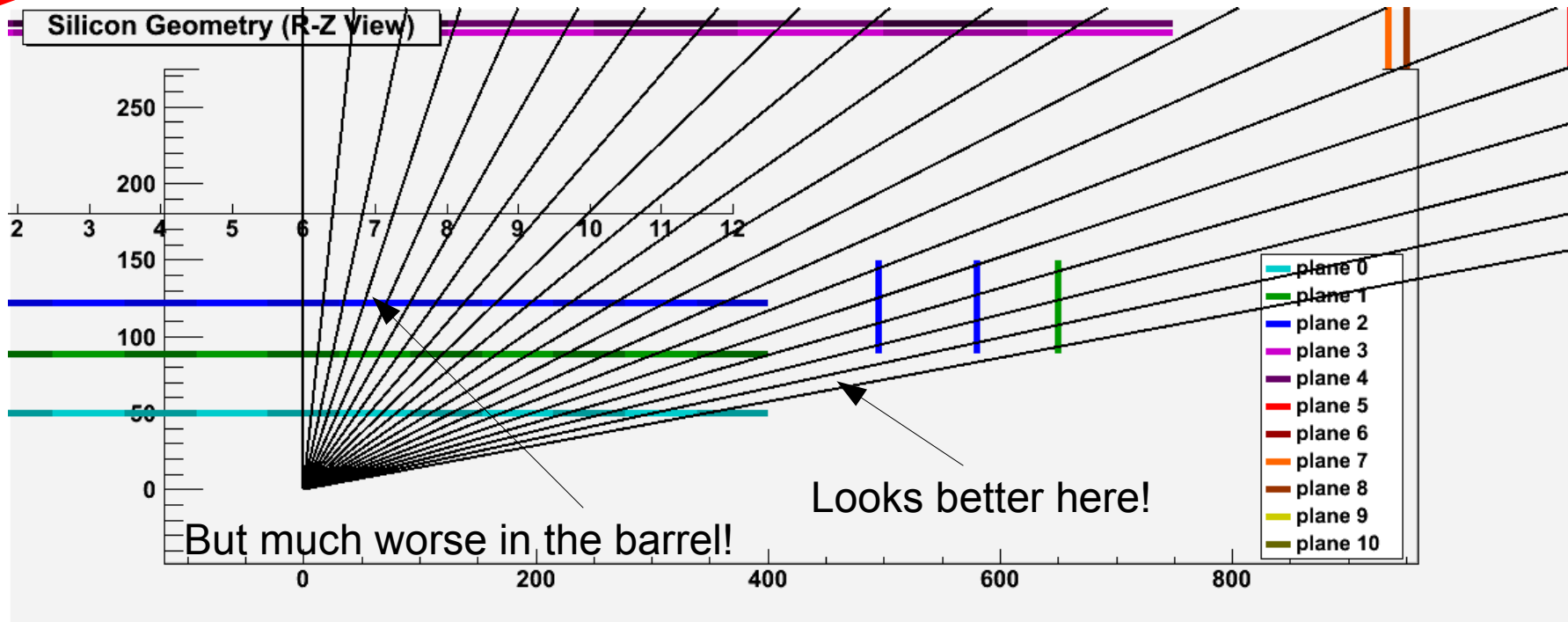
Zoom in



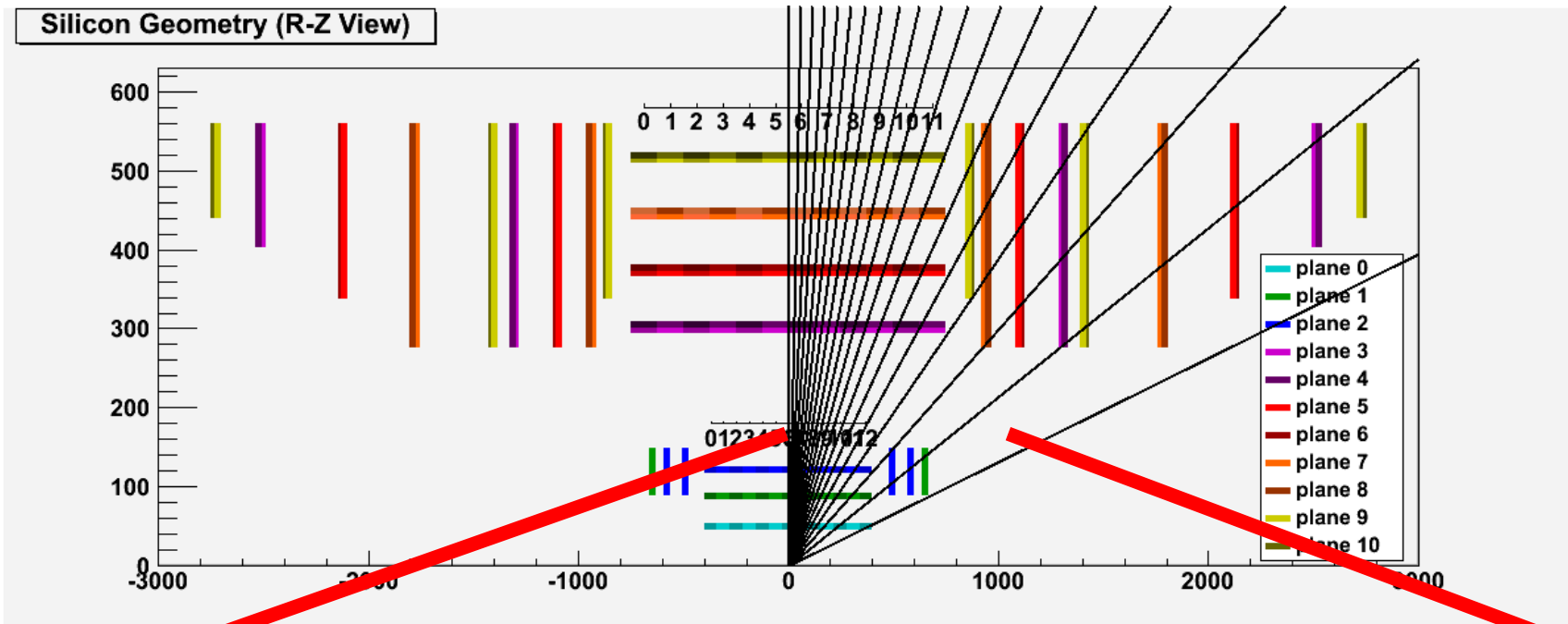
What if we partition flat in eta?



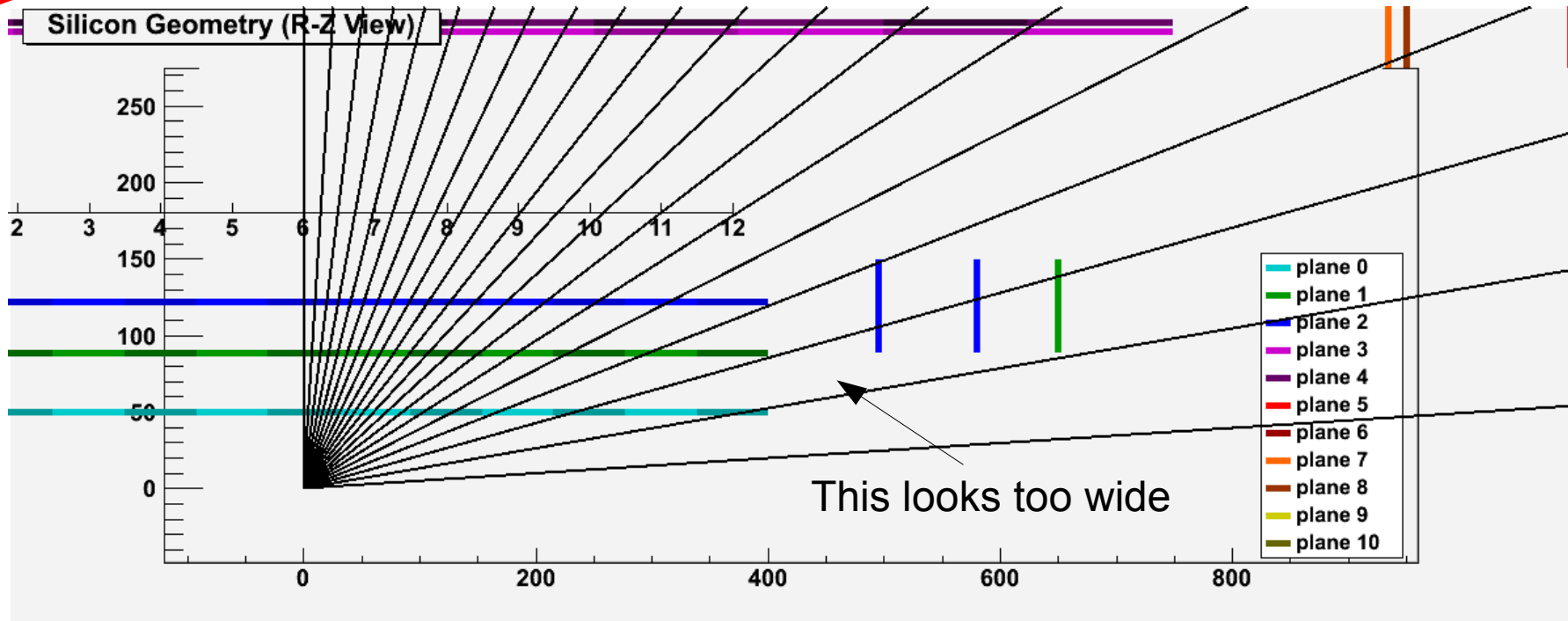
Zoom in



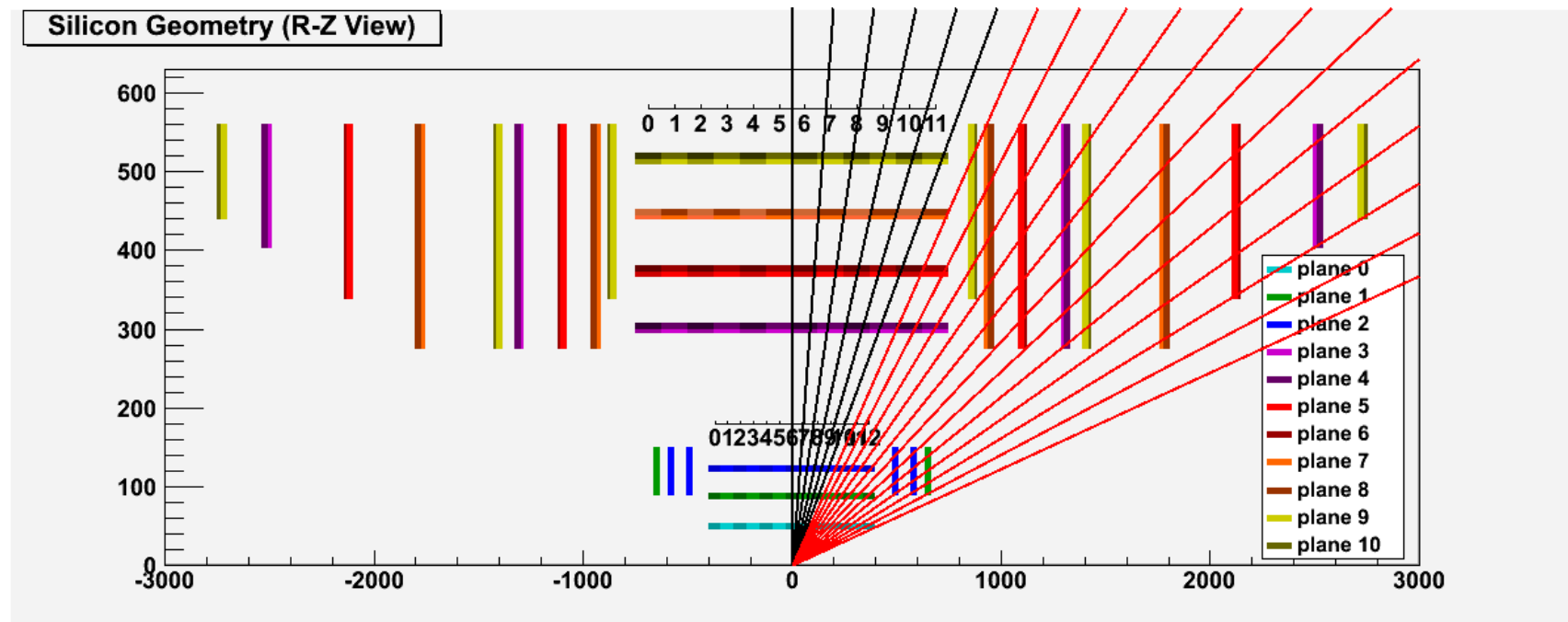
What if we partition flat in theta (angle itself)?



Zoom in



Proposed solution: equal $\cot(\theta)$ bins in barrel, equal η bins in endcaps:



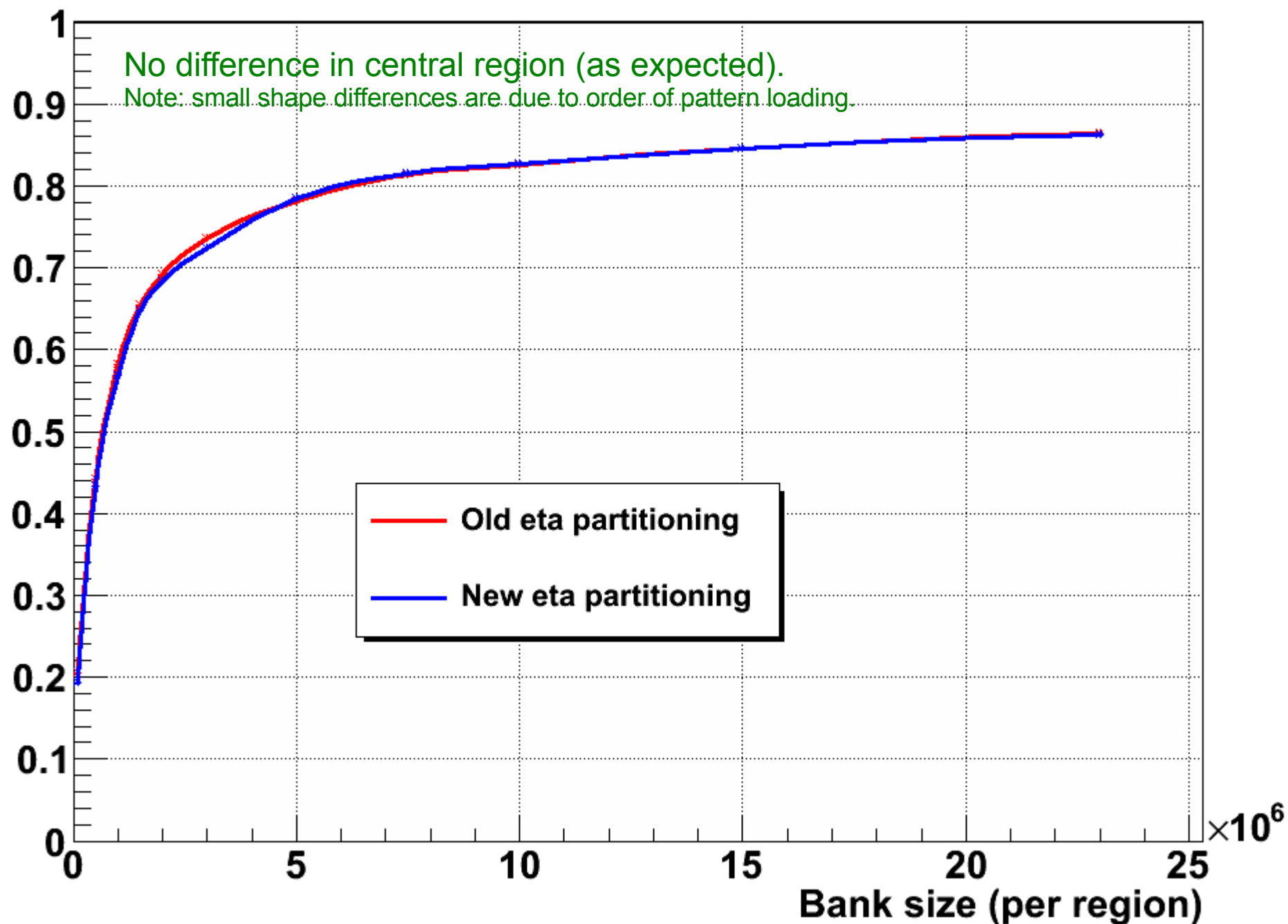
This partitioning would **exactly** preserve barrel performance, but has the potential to improve in the endcaps due to wider sectors.

I implemented and simulated this partitioning – see results on next pages.

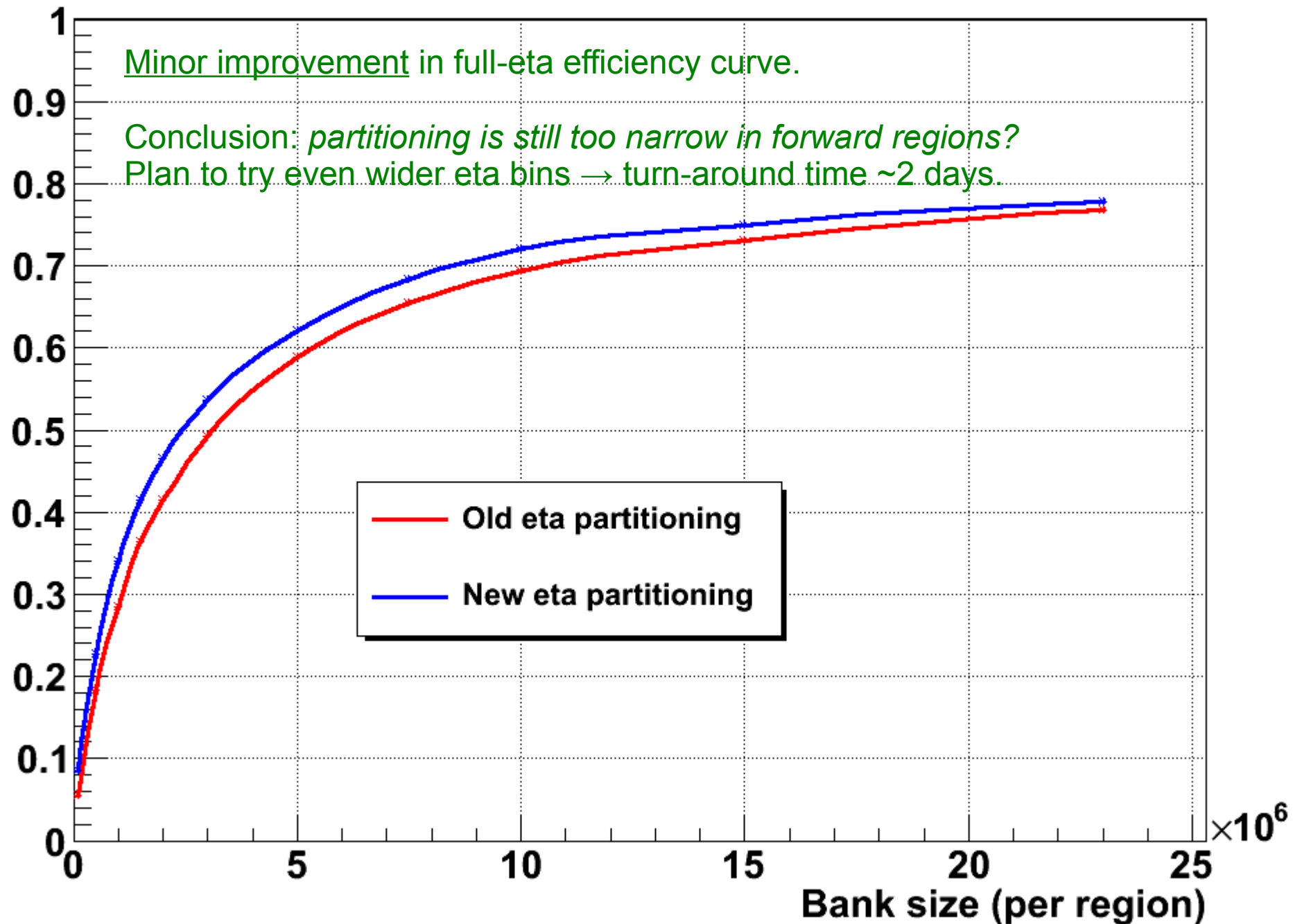
To be more general, I coded the ability to specify general (arbitrary) pseudolayer partitioning:

- Uses an explicit lookup table of $\cot(\theta)$ pseudo-module bounds
- In 1 minute, can change the partitioning in any way wanted.

Efficiency for 4L ss=20x25sigma6 bank: old and new eta partitioning ($|\eta| < 1$)



Efficiency for 4L ss=20x25sigma6 bank: old and new eta partitioning



Effect on 3E34 dataflow – negligible

- This is for $\text{pix}=20 \times 25$, $\text{pseudo}=6\sigma$ bank
 - Non-TSP bank!
 - 4M patterns used at 8L stage
 - 8L $\chi^2/\text{dof} < 4.0$
 - This is our working point for split-arch 3E34 runs
- # 4L roads out of AM (non-TSP): 43k \rightarrow 44k
- # total fits: 72k \rightarrow 76k
- # of full fits: 1800 \rightarrow 2000
- # of final tracks: the same (60)

Split arch TSP banks – next step?

- We now have capability to run patterns-from-constants for both 8L and 4L stage!
 - 8L is done via bootstrapping-from-11L patterns
 - 4L can be done in two ways (Constantinos):
 - Directly using 4L constants [under study]
 - Bootstrapping from 11L [will use if (1) has too many fakes]
 - Updated grid scripts to generate pconst on the grid
 - A few-day timescale to generate 8L/4L TSP banks
- Note: new TrigFTKLib code not committed yet