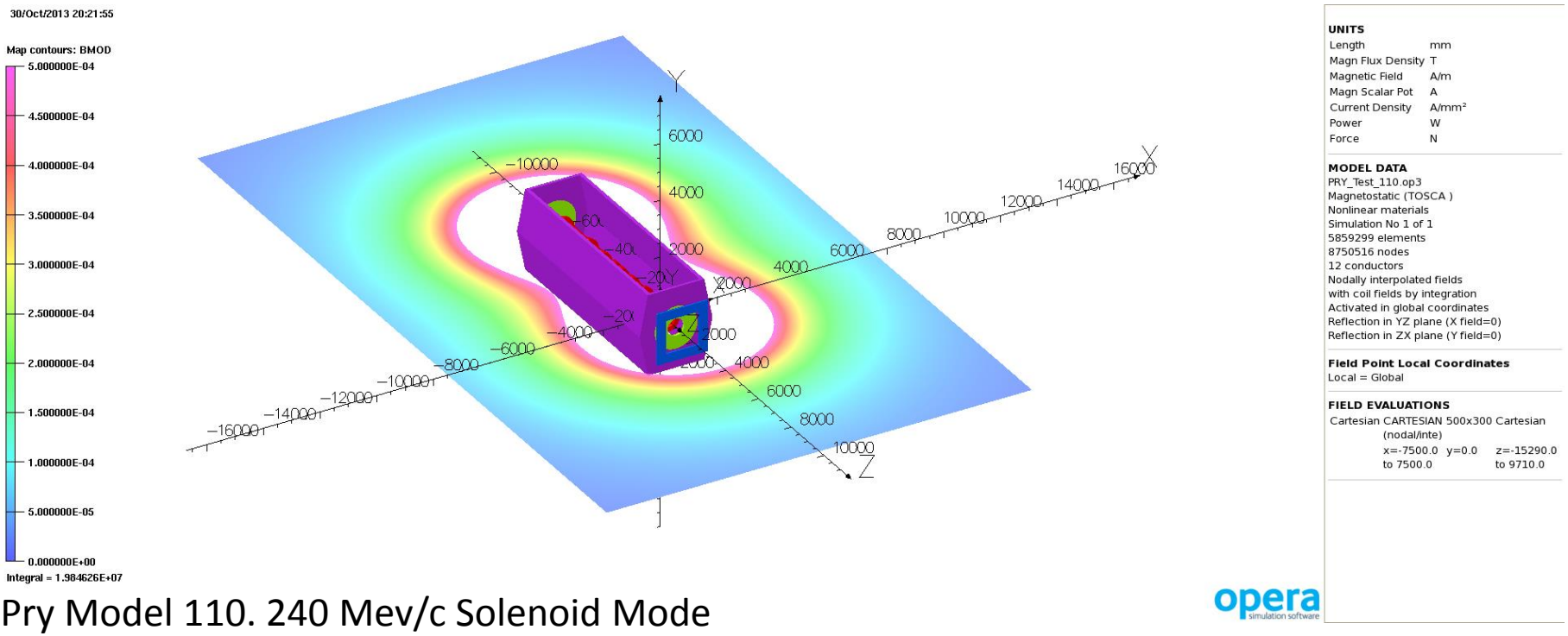
Quick PRY comparison:
A new PRY geometry and a simpler model



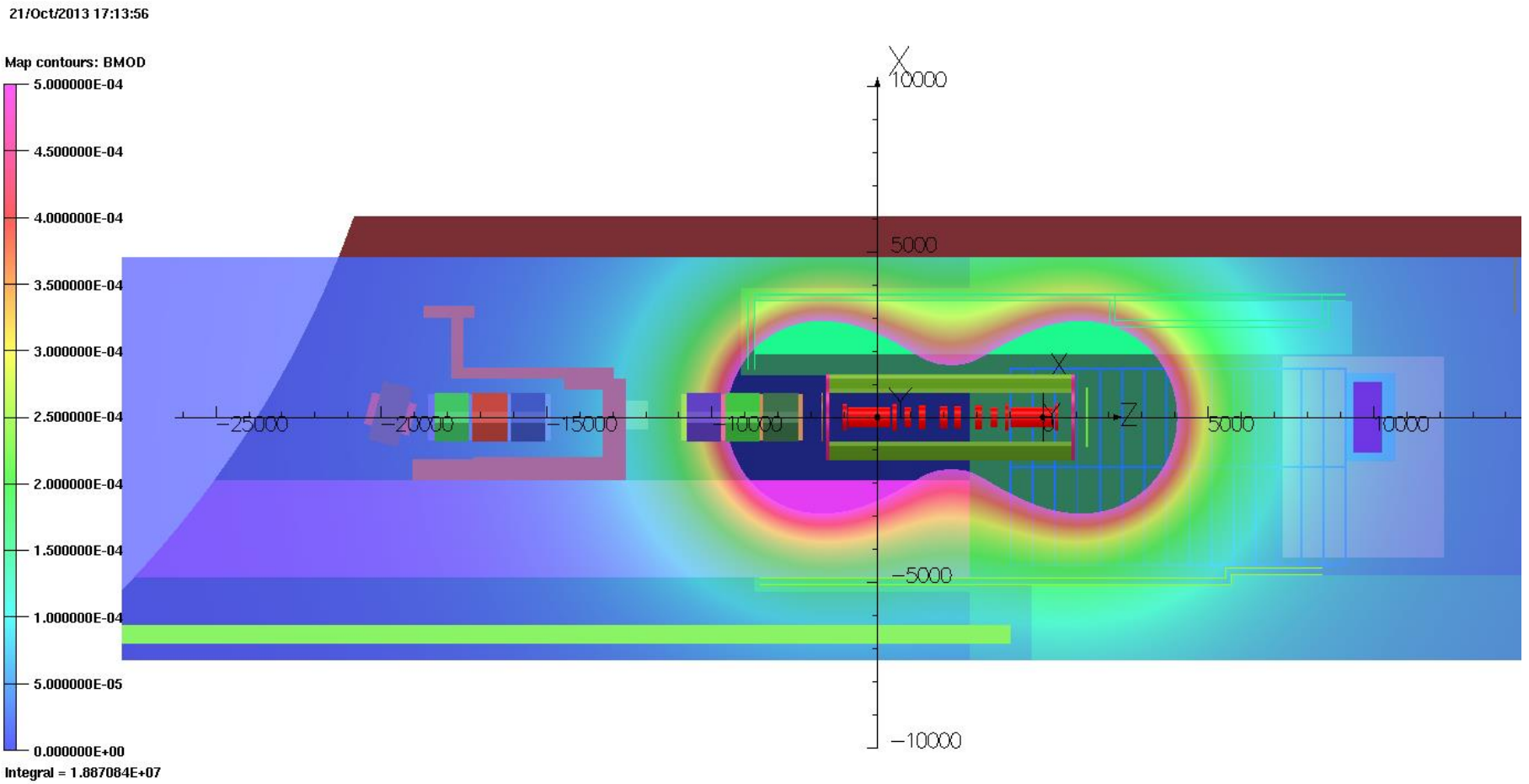
Pry Model 110. 240 Mev/c Solenoid Mode

I've been running a series of PRY only models that run in quarter symmetry. (Can be run in half/full symmetry if necessary.)

These models need carefully comparing with Holger's output which we have agreed to do.

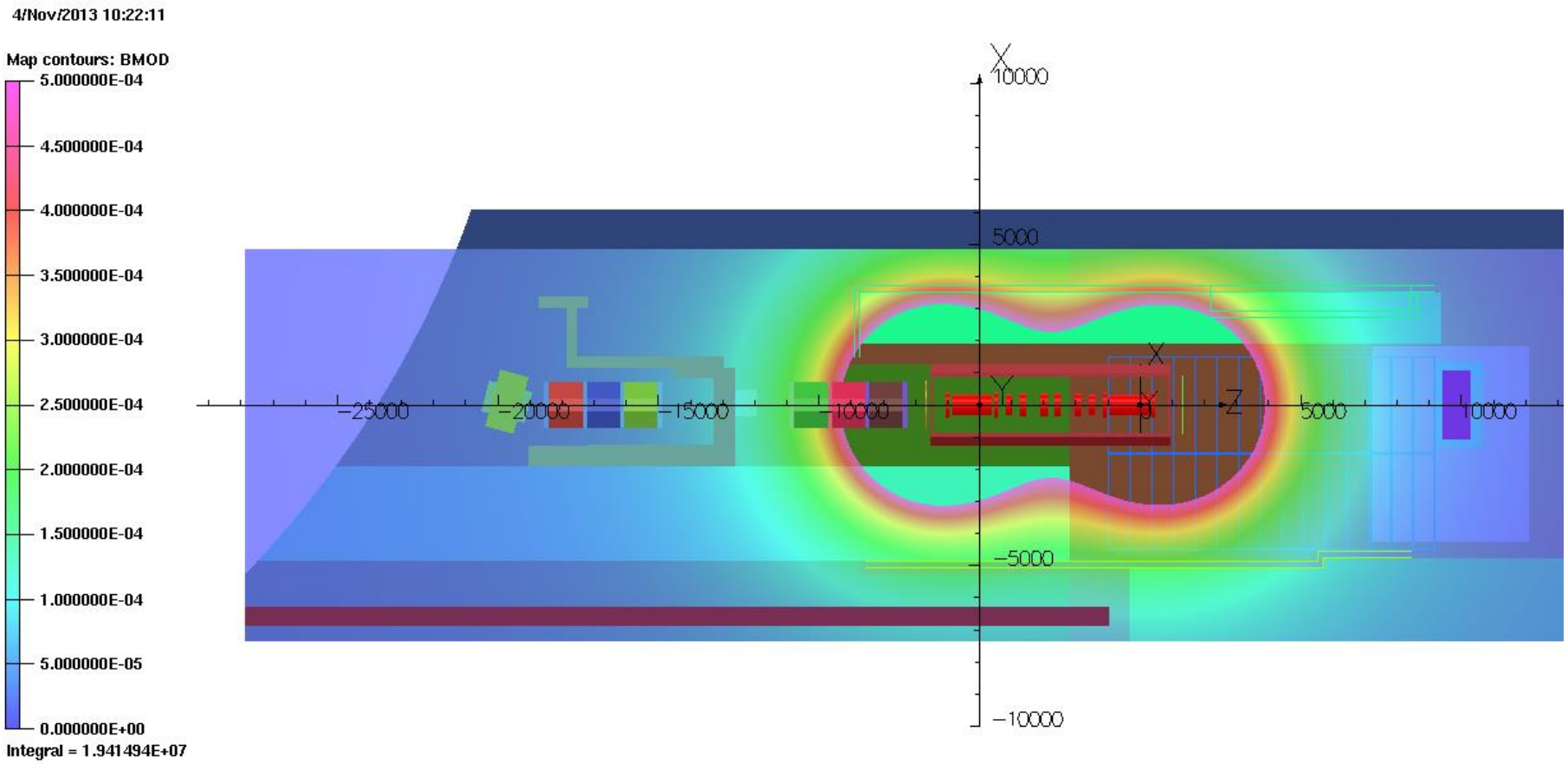
But how do they compare with the hall model output?

The first plots from the PRY model roughly agreed with the Hall model but showed small differences. Were these due to the mesh or due to the updated PRY geometry?



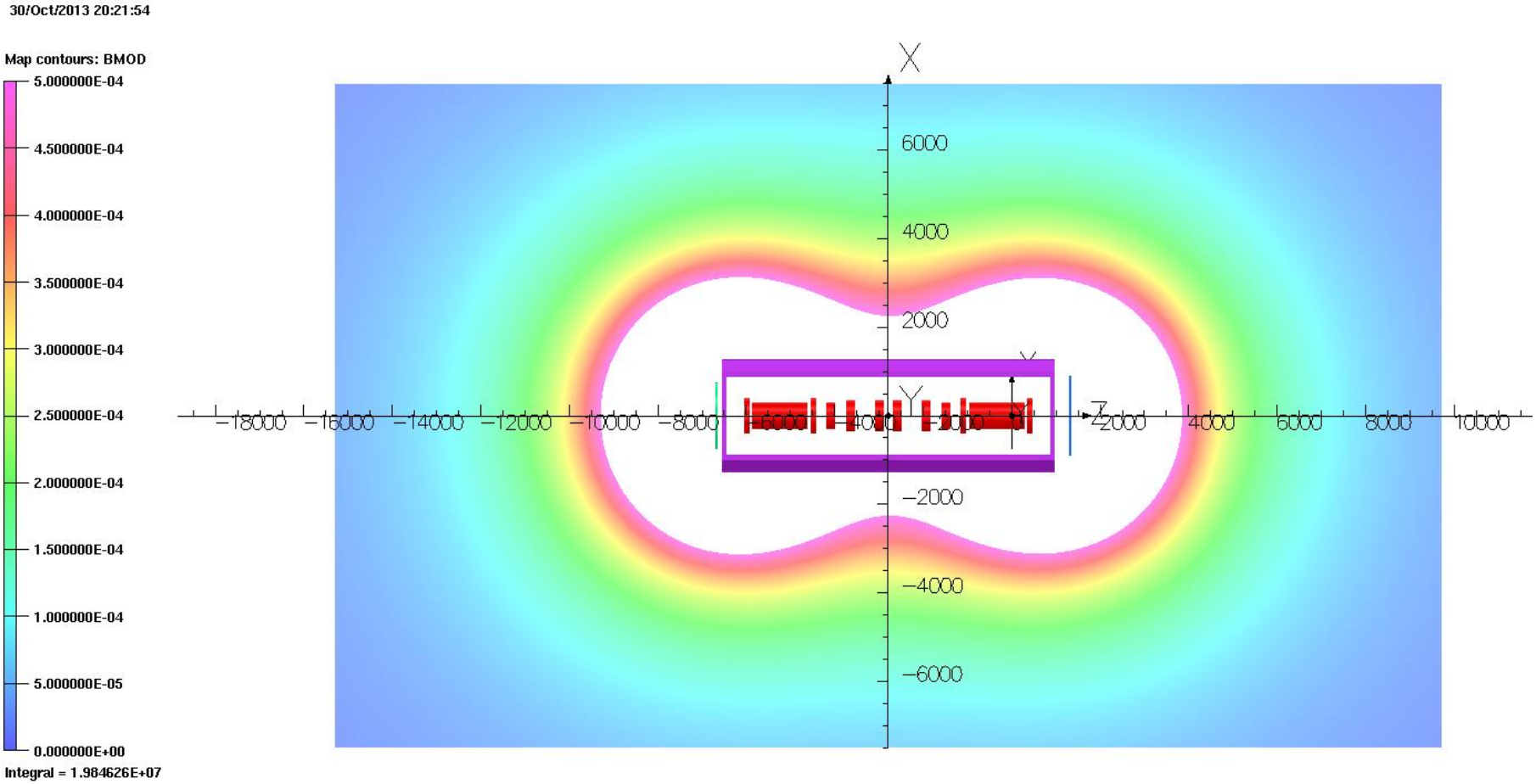
Model 122 - Cylindrical PRY. 240 Mev/c Solenoid Model
Full Hall model with all modules set to air with exception of PRY and Virostek Plates.

This shows the old PRY geometry – Note that the 5 gauss line pinches in towards the centre.



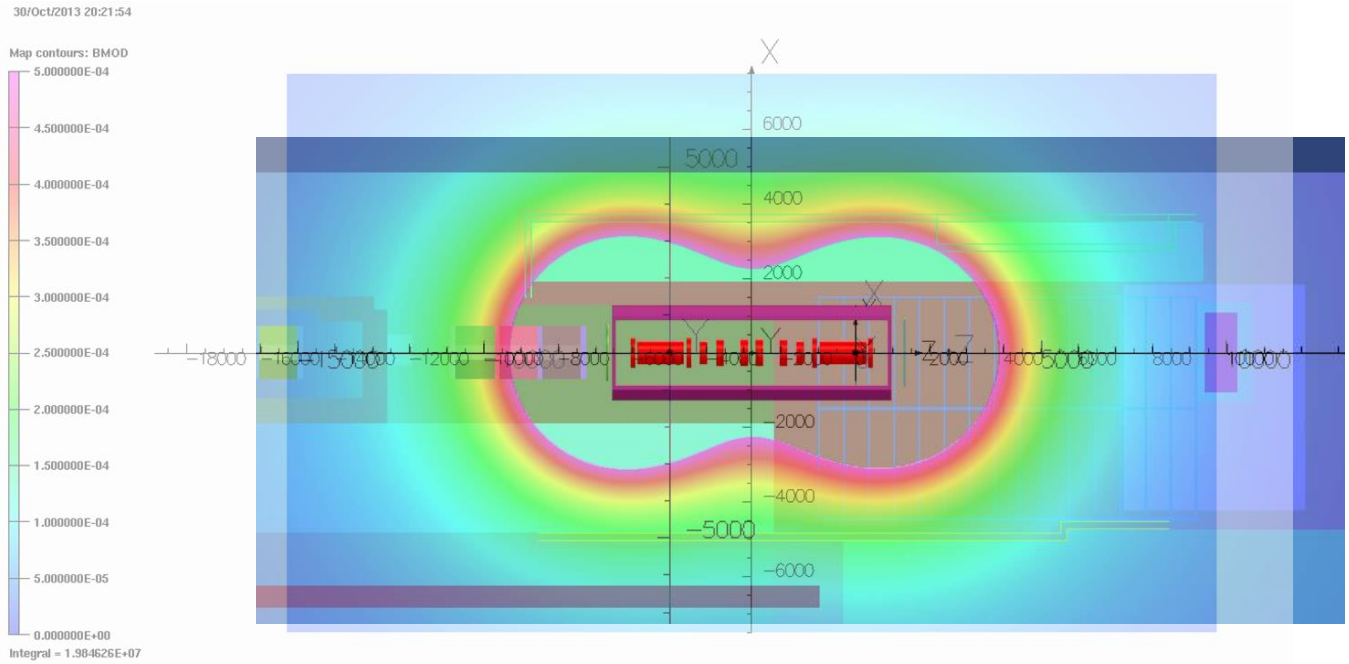
Model 124 - Plated PRY. 240 Mev/c Solenoid Mode
Full Hall model with all modules set to air with exception of PRY and Virostek Plates.

The new PRY geometry sees the 5 gauss line move out slightly towards the centre of the PRY.



Pry Model 110. 240 Mev/c Solenoid Mode – 5 gauss line

PRY only model – Solve time about 2 hours. (Quarter symmetry assumed)

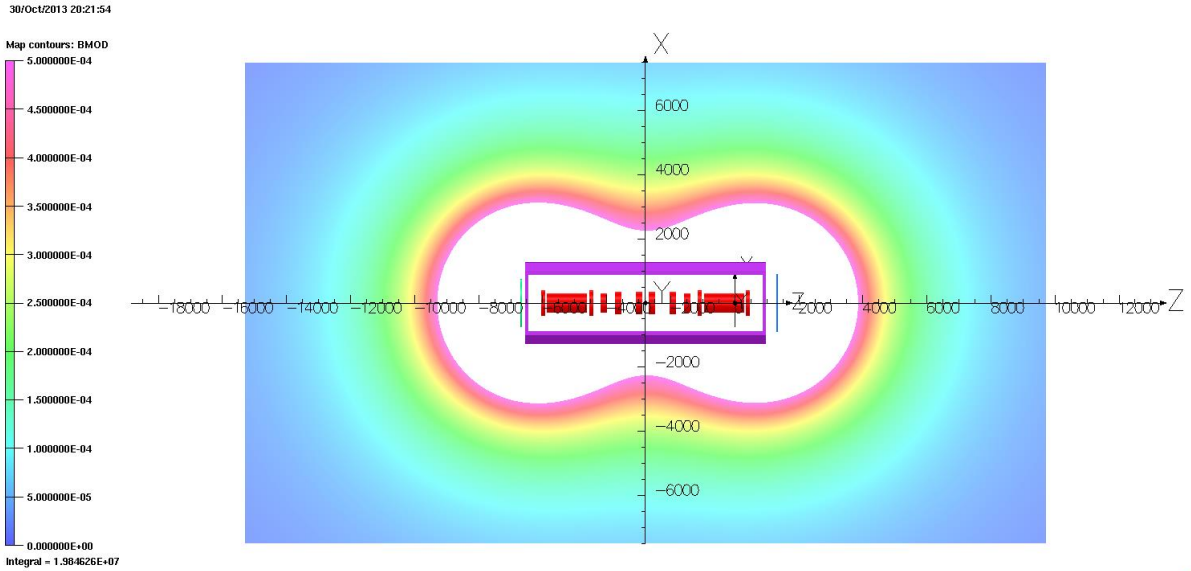


An overlay of the Pry only model result Model 110 (quarter model) onto the full hall model result – Model 124.

The 5 gauss lines agree very well (within the accuracy that I can scale and place these two drawings using power point). I agree it would be better to take line plots and take the difference but I did this quickly.

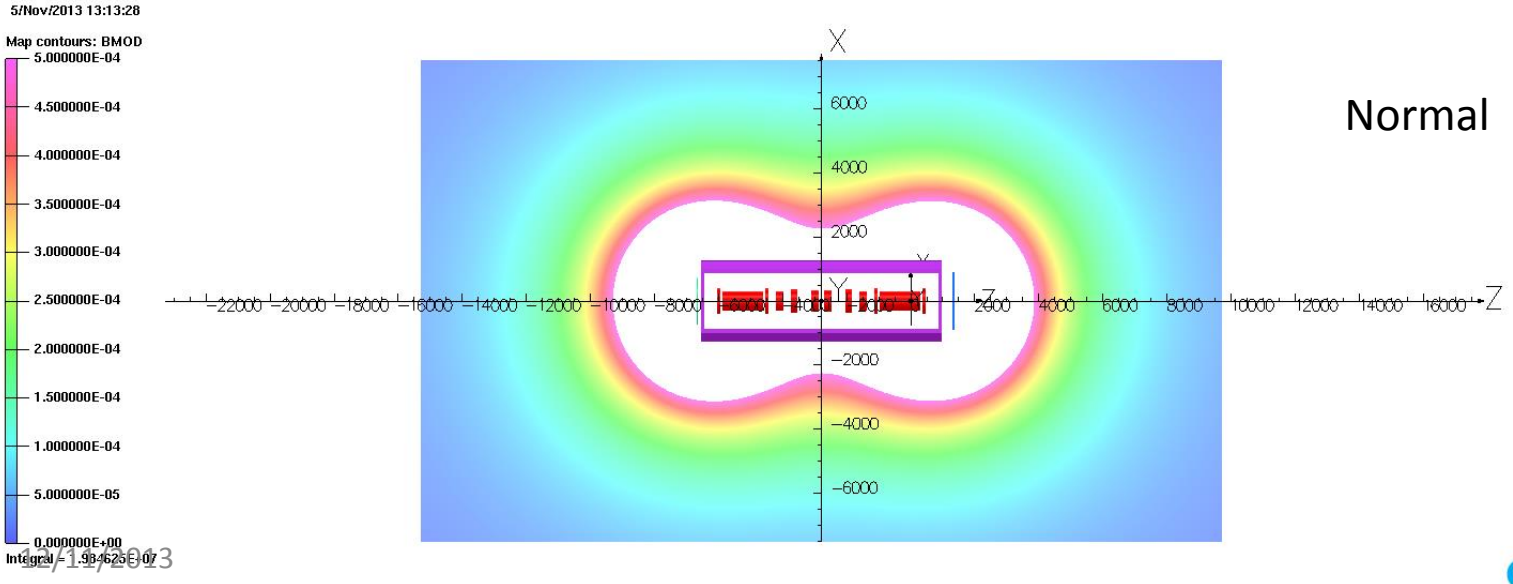
As these models are based on the same code this indicates that removing the mesh associated with the external objects has had no influence on the results; some indication of mesh independence.

Normal vs Tangential Boundary on PRY only model: - No observable difference, once again one would prefer line plots but probably overkill.



Tangential

opera



Normal

At the CM:

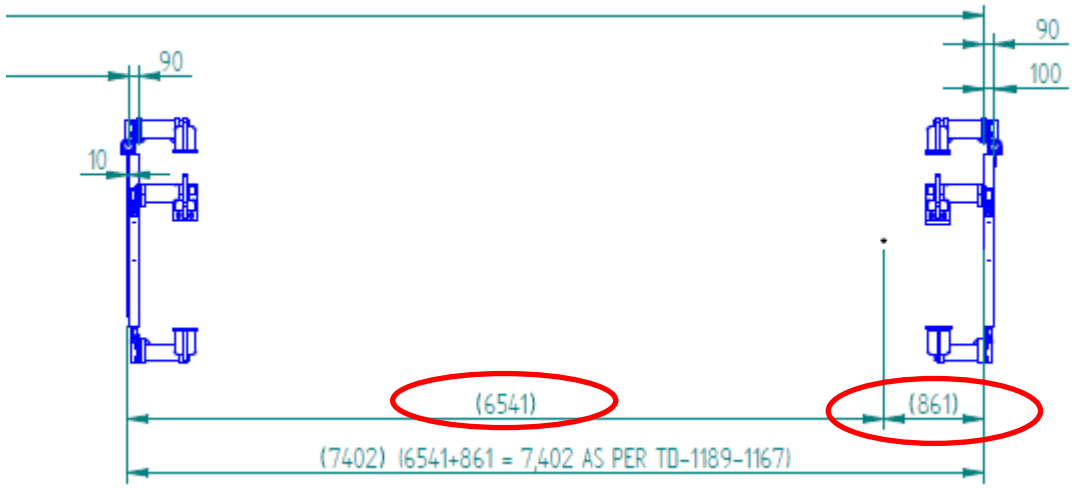
Holger and I agreed to:

Double check the geometry in our models.

Cross check our output from our PRY models.

Once we have established independent agreement I will then use this PRY model as a secondary check on Holger's models where that is possible.

This includes re-running the simulation with the JFE BH curve and if possible incorporating some of the slots into the PRY model.




```
// ****************************************
//    Virostek Plates
//    TD-1189-1167
// ****************************************

$CONSTANT #VP_Outer_Radius 750
//$CONSTANT #VP_Outer_Radius 2000
$CONSTANT #VP_Tube_ThicknessUS #VP_Outer_Radius-210  | // 750-540 = 210 = 420 OD of bore
$CONSTANT #VP_Tube_ThicknessDS #VP_Outer_Radius-300  | // 750-450 = 300 = 600 OD of bore
$CONSTANT #VP_Depth 100

// Defined as the upstream face of the upstream VP
$CONSTANT #VP_z -6541

// Comment:  The conductor file puts the step IV centre at -2750mm
// THe math here means that the Step IV centre should be at -2790 -6541+((6541+961)/2)
// The 961 comes from adding 100mm to the 861 to ensure dimensions run from topside of upst

// Length of end caps
$CONSTANT #VPEndCapDepth 400

// How much further downstream is plate 2 from plate 1 - Step 4
$CONSTANT #VP_Z_Transform 6541+861

$IF #Step EQ 5
   // Mistake Should be 2651!
```