

Forward Tracking Simulation Performance

CVS1.17 vs Updated FstmGeo.xml

03/31/2021

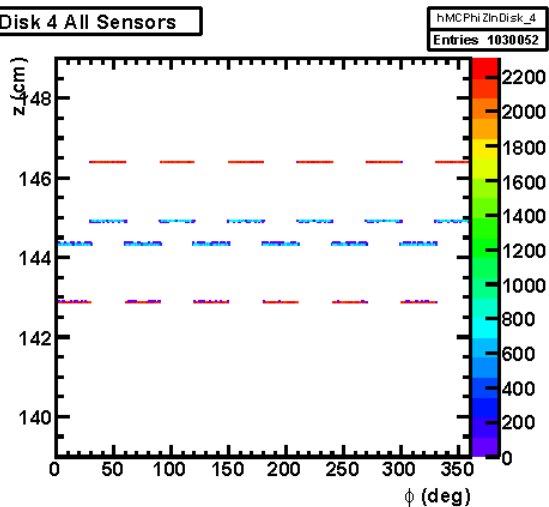
Updates to Geometry and Tracking Software

- FST geometry used is updated from CVS1.17.
 - File used located at
/star/u/videbaks/fst/StarVMC/Geometry/FstmGeo/FstmGeo.xml
 - Inner support rings are included.
 - Inner silicon sensors are shifted slightly further from overall FST disk z-location.
 - Inner and outer mechanical structure bases have greater dz.
 - Hybrid scaled to 0.35*original thickness.
- Tracking software uses z-location of individual inner and outer silicon sensors on FST.
 - CVS1.17 results used center z-location of FST disks.

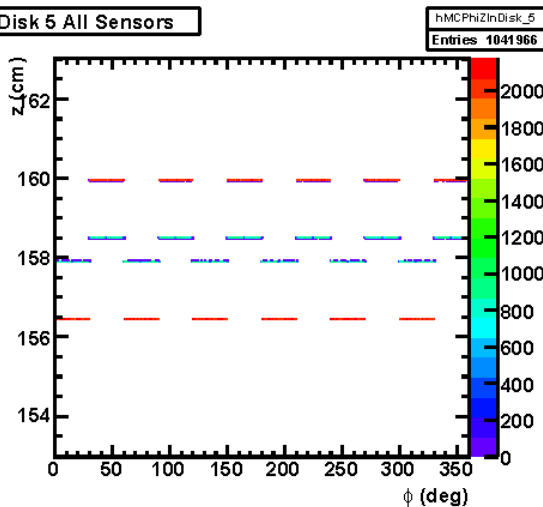
MC FST Hit Maps

CVS1.17

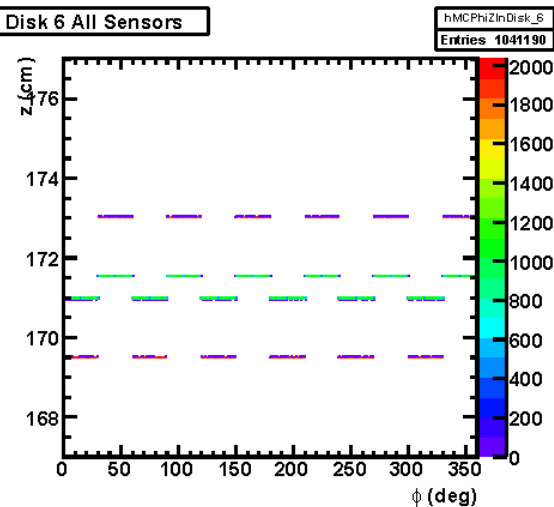
Disk 4 All Sensors



Disk 5 All Sensors

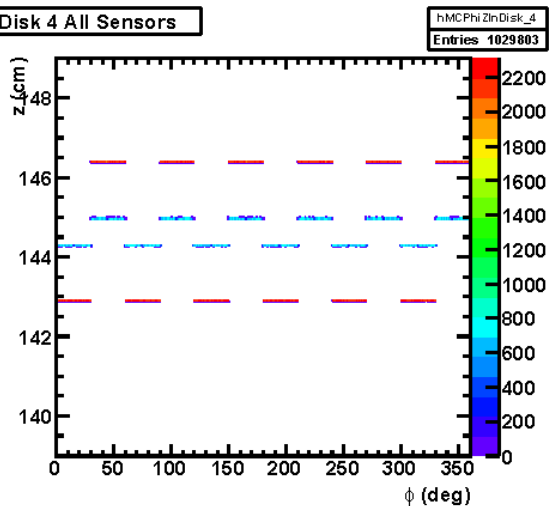


Disk 6 All Sensors

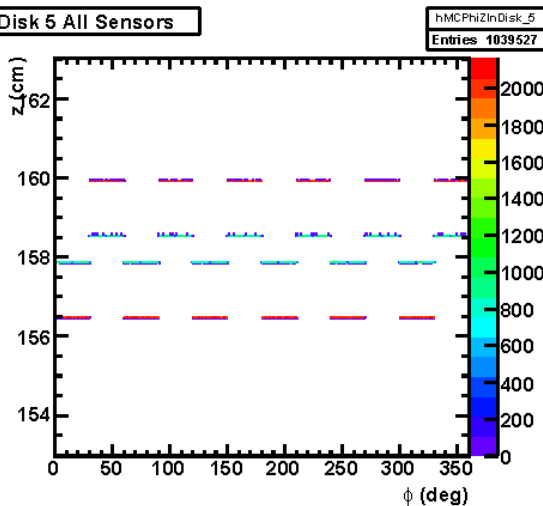


Updated Geometry

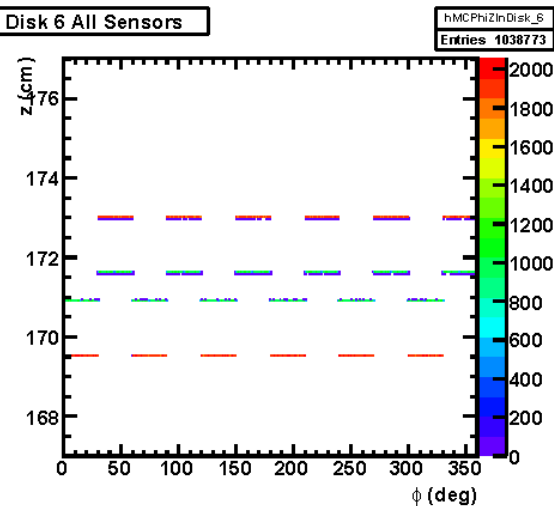
Disk 4 All Sensors



Disk 5 All Sensors



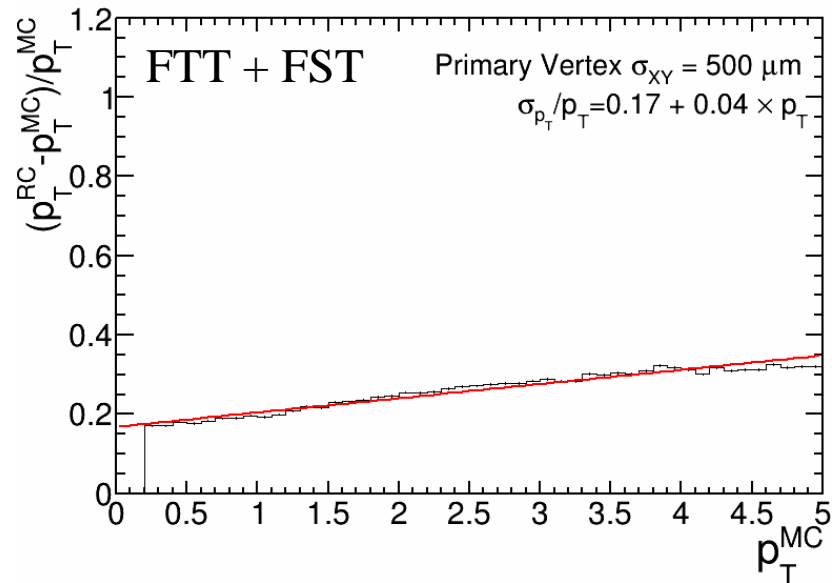
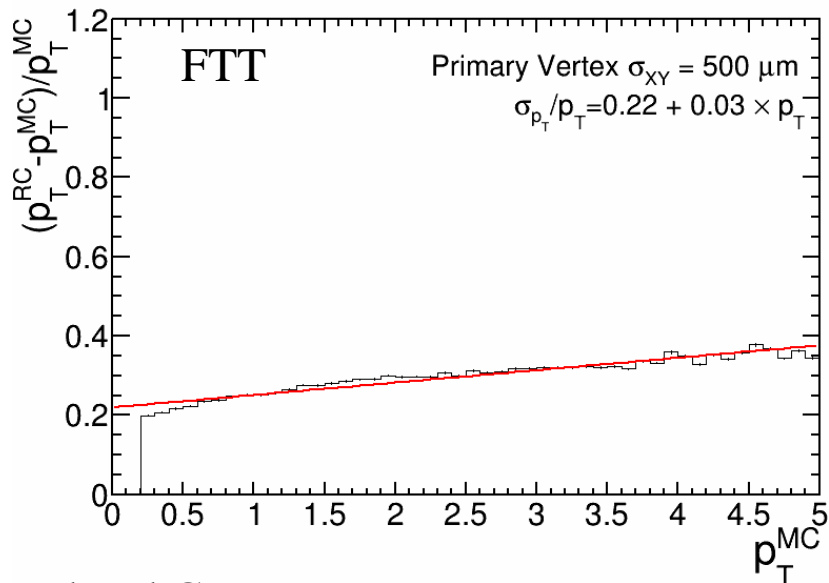
Disk 6 All Sensors



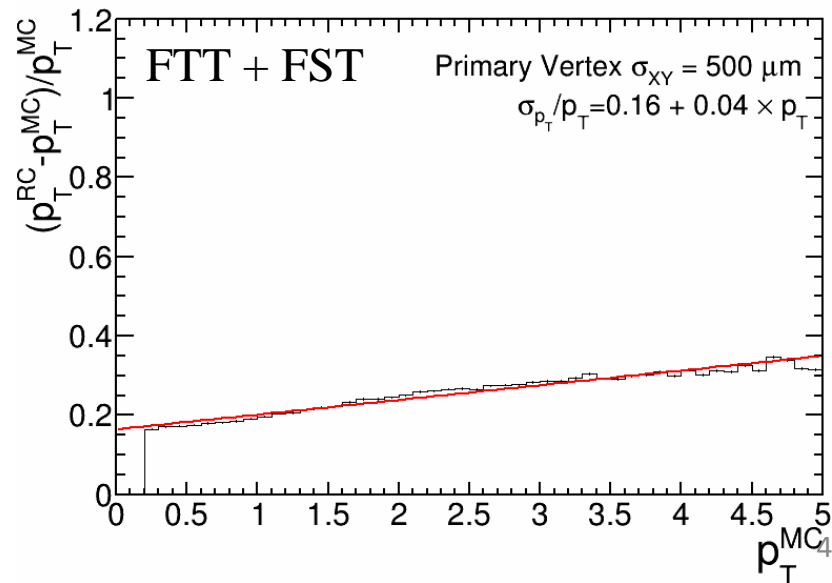
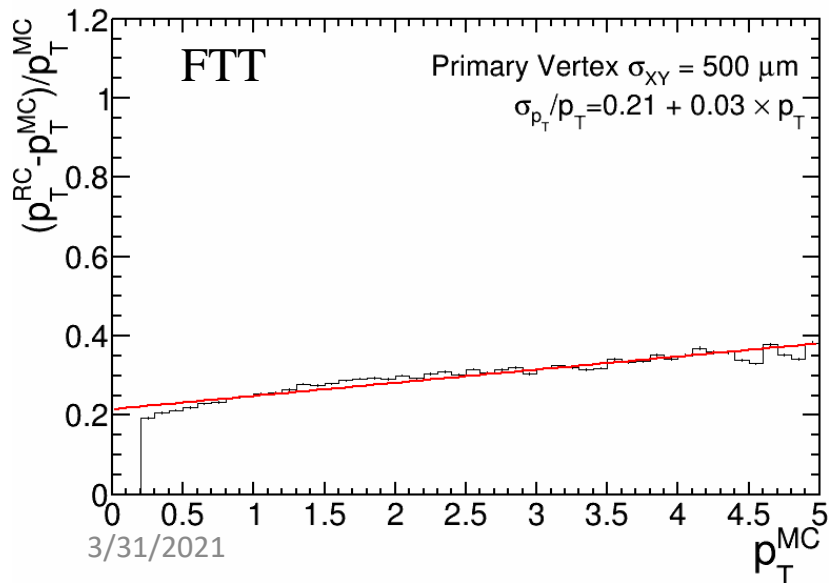
3/31/2021 • Inner silicon sensors are shifted slightly further from z-center.

p_T - resolution vs p_T^{MC}

CVS1.17

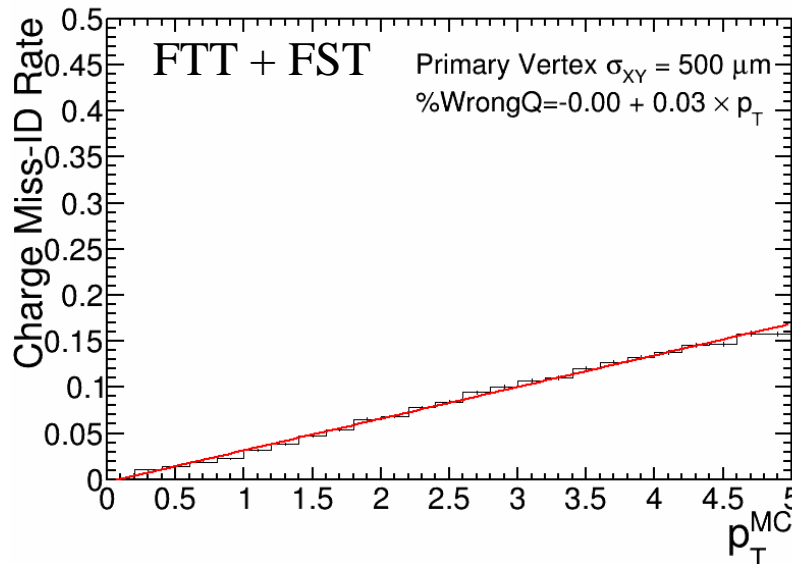
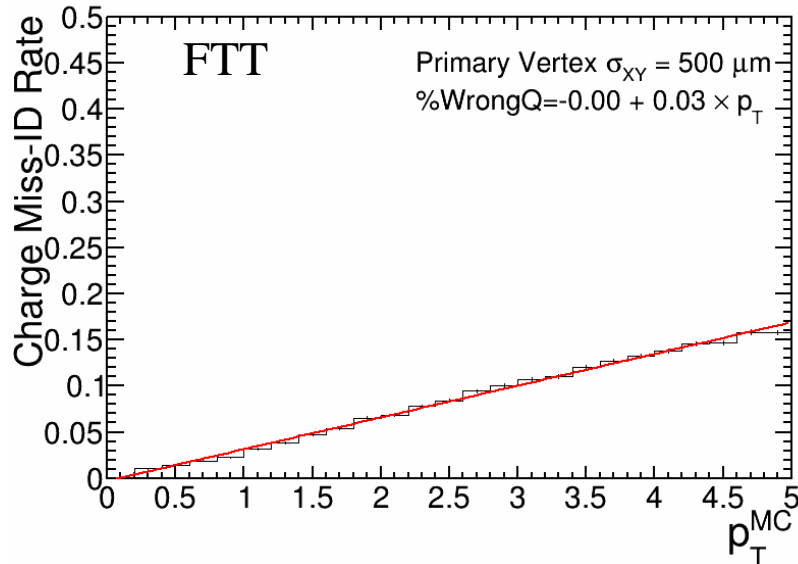


Updated Geometry

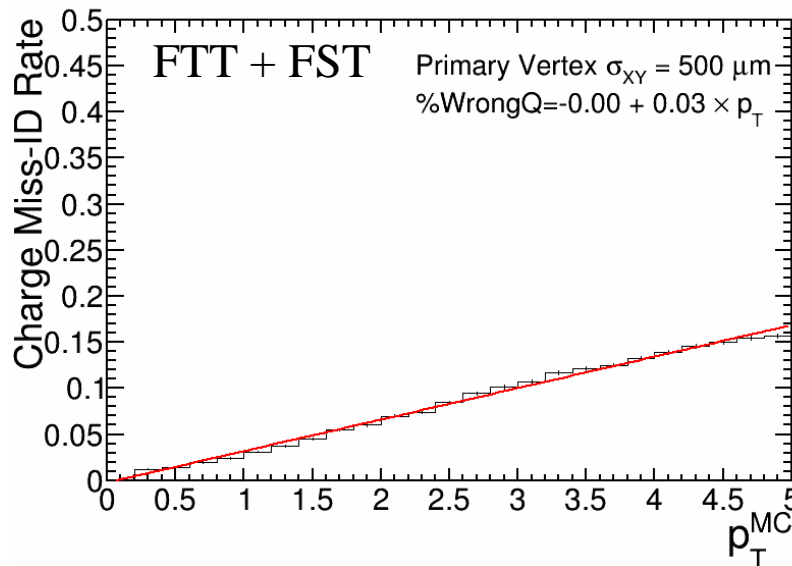
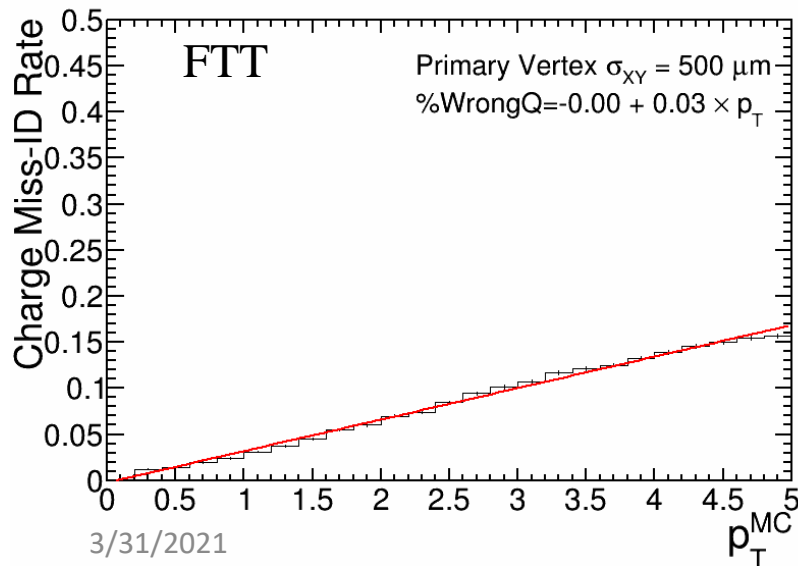


Charge miss-ID rate vs p_T^{MC}

CVS1.17

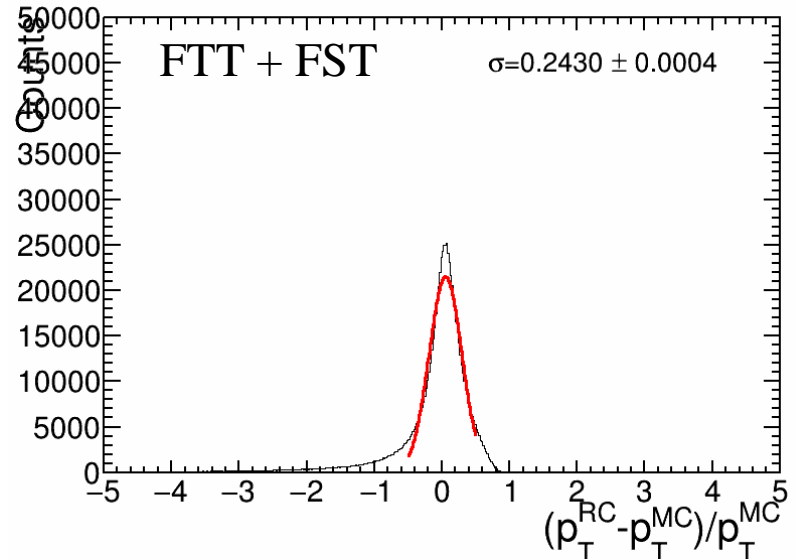
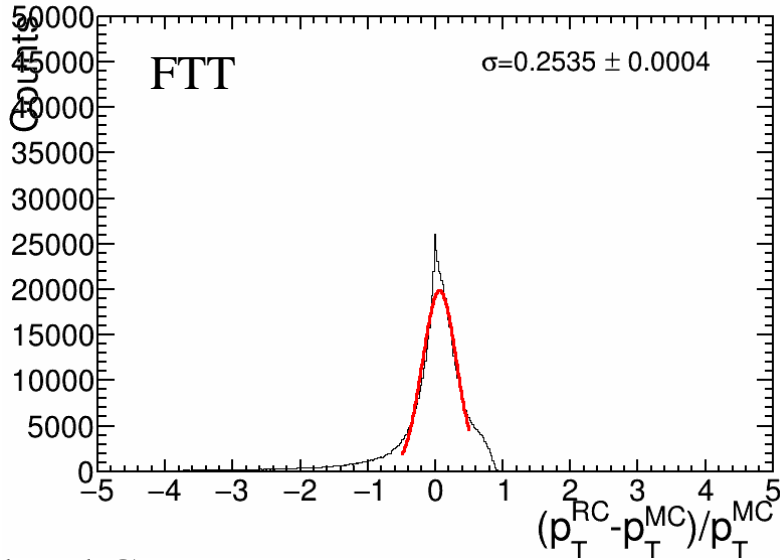


Updated Geometry

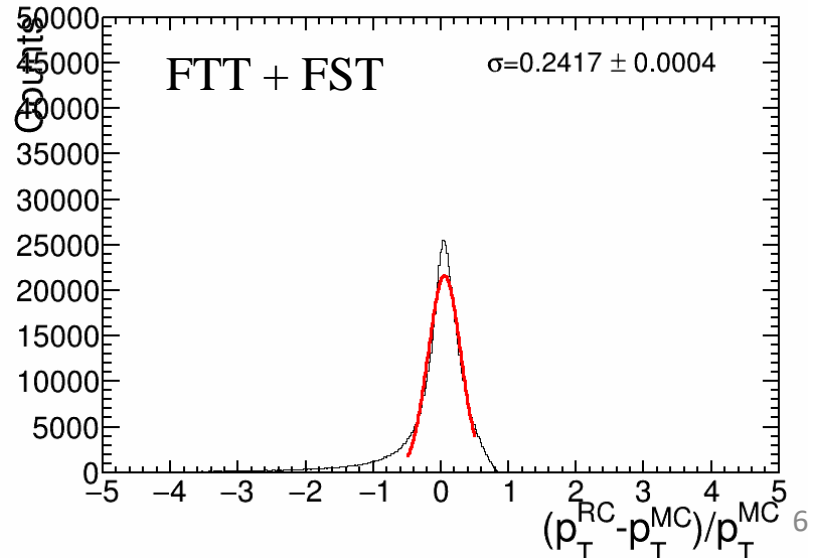
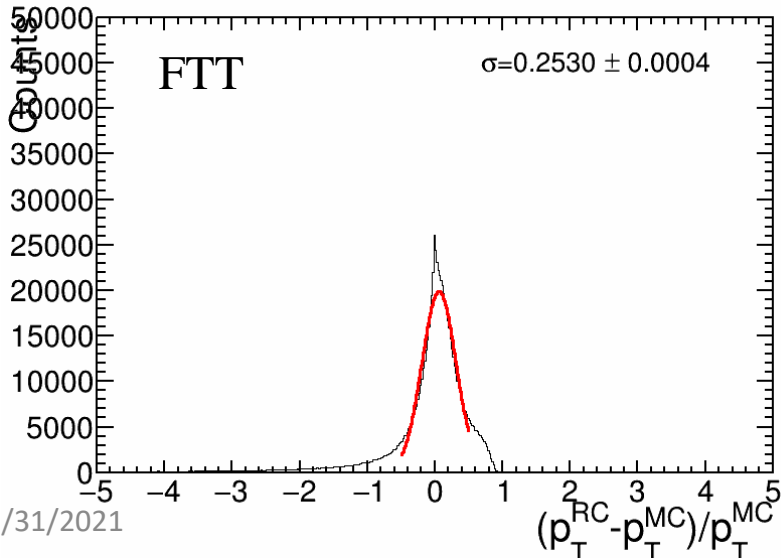


p_T - resolution

CVS1.17



Updated Geometry



3/31/2021