

## WBS 1.6 Software

- 1) **Remaining Software Task-list:** A draft task-list of tasks and associated manpower (or needed manpower) for completing the HFT software and Run14 readiness.
- 2) **Full System Simulations:** Further preparatory work to do a detailed full system simulation for KPP and physics performance is progressing well, including better and more realistic geometry and pileup estimates.
- 3) **Alignment:**
  - a) Code has been developed to perform iterative, PXL Sector alignment based on LHC-CMS work. The new element is that alignment parameters can be determined for a Sector as a single object.
  - b) An “Alignment” challenge was performed on a Simulation sample with an unknown mix of rotations and translations. Both sector-based and ladder-based approaches reported results within 20 microns from input and 0.2mrad in rotations (corresponding to less than 20 microns maximum shifts). The Table below summarizes the reported results:

	<b>d-alpha (mrad)</b>	<b>d-beta</b>	<b>d-gamma</b>	<b>dx (mm)</b>	<b>dy</b>	<b>dz</b>
<b>Ladder-based</b>	-5+-0.2	7.4+-0.2	13+-1	NA	NA	115+-15
<b>Sector-based</b>	-5.0	7.3	13.3	-710	508	118
<b>Input</b>	-5	7.47	13.0	-750	500	100

- c) A similar challenge was performed on real Data with very encouraging results.
- 4) **PXL and IST software review:** The PXL software review is progressing and the IST packages are undergoing an internal review before submission to STAR.
- 5) **AOB**
  - a) We participated in a half a day HFT meeting during the STAR collaboration meeting at LBNL.
  - b) Some modifications to the Pxl simulation structures were completed and tested.