**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:** Furtherpreparatory 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:** 
   1. 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.
   2. 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:

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

* 1. A similar challenge was performed on real Data with very encouraging results.

1. **PXL and IST software review:** The PXL software review is progressing and the IST packages are undergoing an internal review before submission to STAR.
2. **AOB**
   1. We participated in a half a day HFT meeting during the STAR collaboration meeting at LBNL.
   2. Some modifications to the Pxl simulation structures were completed and tested.