# List of Tasks

PF

10/21/2019

## SVT Alignment code survey for 2019 data analysis

- Mostly reading the current track reconstruction chain and GLB Refit
- Updates:
  - Found and fixed Millepede IP mis-match for 2019
  - Found issue with missing hits in GBL Refits (Thin scatters are added only for hits-on-track, not for holes).
  Check how GBLPoints are formed: seems different in GBL hps-java port wrt GBL Svn Code
  - Started working on an UnbiasedResidual driver:
  - GBLStripClusters of a GBLTrack refit are persisted in LCIO event and used to refit track => extrapolated

  positions needs to be checked

```java
// Find scatter points along the path
MultipleScattering.ScatterPoints scatters = _scattering.FindHPSScatterPoints(htf);

for (TrackerHit stripHit : stripHits) {
    HelicalTrackStripGbl strip;
    if (stripHit instanceof SiTrackerHitStrip1D) {
        strip = new HelicalTrackStripGbl(makeDigiStrip((SiTrackerHitStrip1D) stripHit), true);
    } else {
        SiTrackerHitStrip1D newHit = new SiTrackerHitStrip1D(stripHit);
        strip = new HelicalTrackStripGbl(makeDigiStrip(newHit), true);
    }
    HpsSiSensor sensor = (HpsSiSensor) ((RawTrackerHit) stripHit.getRawHits().get(0)).getDetectorElement();
    MultipleScattering.ScatterPoint temp = scatters.getScatterPoint(((RawTrackerHit) strip.getStrip().rawhits().get(0))
    if (temp == null){
        temp = getScatterPointGbl(sensor, strip, htf, _scattering, _B);
        if(temp == null){
            return null;
        }
    }
    GBLStripClusterData stripData = makeStripData(sensor, strip, htf, temp);
    if (stripData != null)
        stripClusterDataList.add(stripData);
```

# Current things on my table - Which I am trying to work on

- **Revive Robert's KF code in a newer hps-java branch**
  - Should work with a rebase, as seems to be pretty standalone code
  - need to spend a little bit of time to check
  - Extend KF to all its and not only tracks from GBLRefitted tracks
  - Check X2 distribution difference: Can be the treatment in missing hits MS? Not sure.

- **ACTS for LDMX**
  - Compiled LDMX code wrt acts-core library
  - Generated a 1000 e- file => Want to understand how to feed to ACTS for a first seeding / track finding / fit?
  - In general run ACTS examples to learn how to use it.

- **Hipster development - 2016 analysis**
  - Write VertexCandidate class
  - Implement 2016 event selection drivers and refit analysis drivers
  - Use that to check 2016 Cut optimization requested by MattS