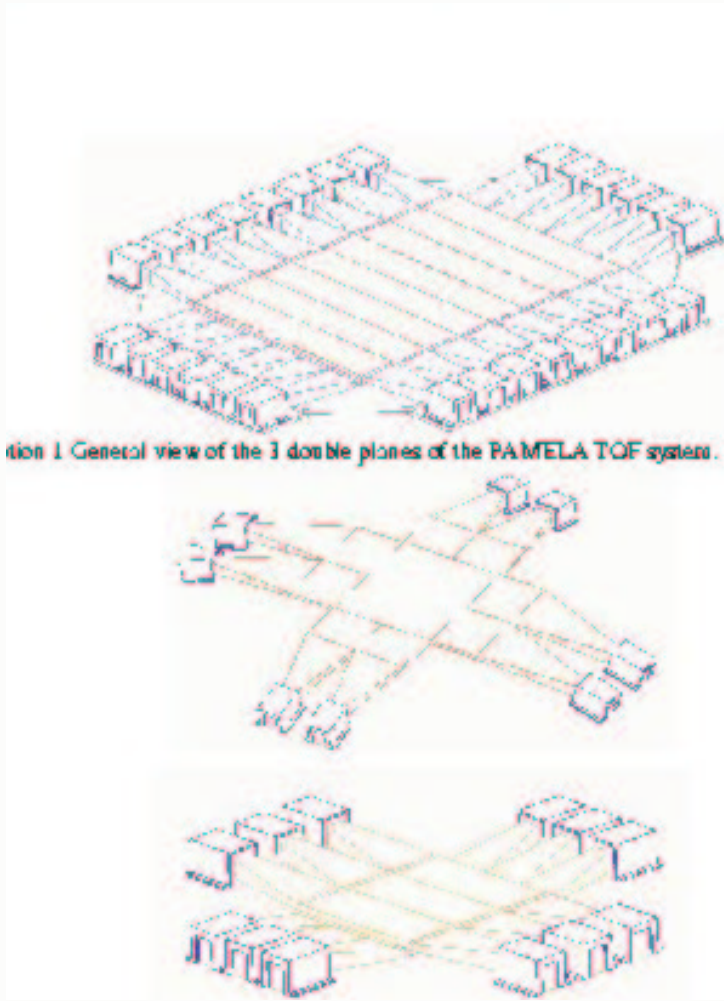


TOF Software for the Simulations

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Sketch from Detector Chapter



Assumptions:

- Each Station has two planes
- Planes are oriented at 90° from each other
 - In Station 1 each plane is segmented in 10 strips
- In Stations 2 and 3 each plane is segmented into 8 strips
- Station 1 has 10×10 cm planes
- Stations 2, 3 have 40×40 cm planes

Other Assumptions

- Assume that the material is scintillator similar to that used in the SciFi. (This is probably false, but it can be easily changed.)
 - That is the C:H ratio is 10000:9938 and the density is 1.05 g/cc.
 - No other material is present.
- I have assumed that longitudinal thickness is 2 cm for TOF1 and 2.5 cm for TOF2 and TOF3. Since there are two planes at each station the thickness should be doubled (I may have to change that.)

TOF Classes for GEANT

- **Geometry Description:**
 - TofStation – mother volume for each TOF station (1, 2, 3)
 - TofPlane – one for each plane (x, y). This also handles the segmentation into strips.
 - TofGeomParameters – reads the database (whatever that is, ie dataCards at this moment) and supplies the parameters to the other TOF geometry classes.
- **Hit Description:**
 - TofHitBank – variables of the track at the position and time of transit.
 - These are basically the same as used in the SciFi.
 - Some of these variables will not be experimentally known for the TOF.
 - TofHit – Manager of the TOF hit collections.
 - TofSD – Fills the TOF hit collections.
 - Only one hit will be save for each track traversing a plane. All of the deposited energy is summed in that hit.

TOF Classes (Continued)

- Digitization Description (to be done soon)
 - TofDigits – responsible for TOF digitizations.
 - Will digitize position with respect to previously mentioned segmentation.
 - Will add time resolution.

Virtual Detector

- Similar classes have been written for the Virtual Detector
 - They are on my own workstation. I will enter them shortly when they are finished.
 - However Yagmur does not want me to mention this since I have not actually entered it into CVS.
- The virtual detector is a detector that should be able to be located anywhere for the purpose of viewing the beam variables at that location.
 - It could put out the variables for an emittance (or calculate it).
 - It could also be used to interface to ROOT for histograms or Ntuples.