

Step IV absorbers: status and issues

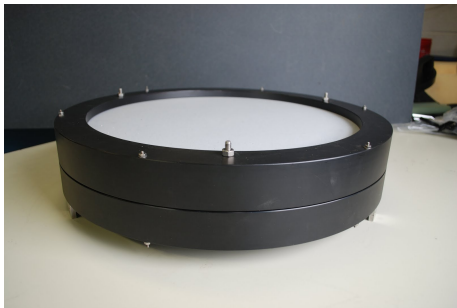
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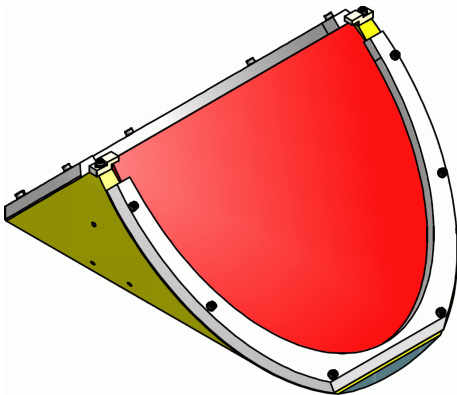


Step IV flat absorber



- Absorber disk is (still) ready to be shipped.
- Shipping procedure is (still) being arranged.
- Gene Kafka is working on the simulations of MICE Step IV.1 (next talk).

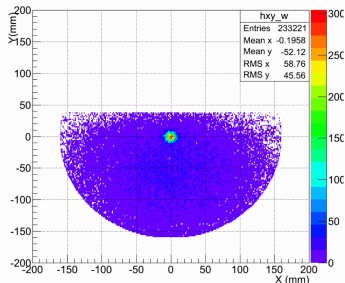
Step IV wedge absorber



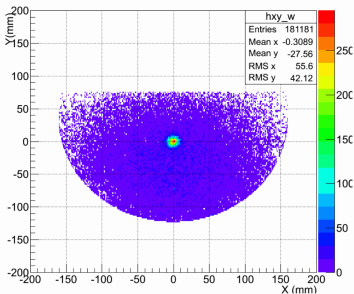
- Fabrication is (still) not complete.
- Despite DOE involvement, the process has not converged yet.
- Shipping will not be easy either.
- Suggestions?

Step IV wedge absorber

y:x 90° Wedge



y:x 45° Wedge



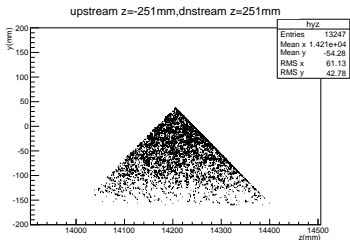
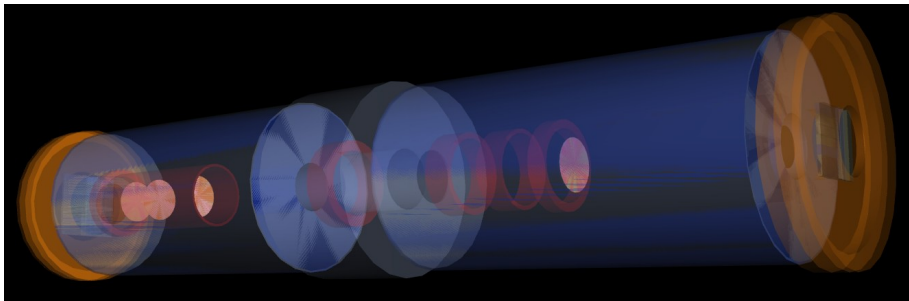
- Half-wedge is 37.7 mm higher than the full wedge (in order to have the same length of 75.4 mm at the beam centerline).
- Parts of the support are in the way of the beam.
- Replace two sets of SS screws with Tufnol (Delrin).
- The corresponding note is now on mice.iit.edu, MICE Note 398.
- If there are no other concerns, we can finalize the engineering drawings, send to US following the scheme for the flat absorber.

Updated Step IV geometries

```
snopok@vejur:~/dev/src/legacy/FILES/Models/Configurations
[snopok@vejur Configurations]$ ls
Stage1.dat          Stage4-Disk_LiH.dat      Stage5.dat
Stage2.dat          Stage4-Disk_PE.dat      Stage6.dat
Stage3.dat          Stage4-LH2.dat          Stage6_FieldsWithoutMaterial.dat
Stage4.dat          Stage4-Wedge_LiH_45.dat  Test.dat
Stage4-Disk_Al.dat  Stage4-Wedge_LiH_90.dat
[snopok@vejur Configurations]$
```

- All the new geometries for Step IV are implemented.
- All of the absorber files are in their dedicated folder `'/src/legacy/FILES/Models/Modules/Absorbers'` (legacy for now).
- The default Step IV configuration is with no material in the channel whatsoever (empty channel).
- Geometries merged into the MAUS trunk now (thanks, Durga).
- Geometries use D2 apex as a reference point for easier intergration with beamline.
- (Still) not integrated with the CAD-based beamline geometry.
- Simulation issue: don't have standard particle distributions at a well-defined hand-off point.

Visualization issue and mitigation



- Visualization does not work properly for the wedge (Geant4 known issue).
- Both the full wedge and the half-wedge will look like a cylinder.
- Despite that, the simulation should be correct.
- To ensure the geometry is correct, “x-ray” plot is used (left).

Long-standing and burning issues

- Fabrication of the wedge.
- Shipping LiH to RAL.
- Wedge support fabrication.
- Simulation: geometry.
- Simulation: particle distribution.
- MICE schedule: any solid absorber runs before the long shutdown?

Thanks!