LZ Weekly Meeting March 16, 2014

## Background

- Would like to have a uniform E field (at least in direction).
- Field shaping rings are meant to accomplish this, but despite the rings, the field in LUX still became distorted.
- Possible solution: make rings smaller to expose metal to the interior.
- Possible problem: rings are not as reflective as the teflon, so we will lose sensitivity.
- How much?

## Method

 Simulate Wimp interactions (using Wimp Generator which seems to put the Xenon into an excited state)

\* \* G4Track Information: Particle = Xe131[0.0], Track ID = 1, Parent ID = 0 \*\*\*\*\*\* Step# X(mm) Y(mm) Z(mm) KinE(MeV) dE(MeV) StepLeng TrackLeng NextVolu me ProcName -427 -204 0 0 -140 0.00732 0 0 InnerLiqu idXenonBottomGridHolder initStep -427 -204 0 0.00732 0.000169 0.000169 InnerLigu 1 -140 idXenonBottomGridHolder ionIoni -427 -204 -140 0 0 0 0.000169 InnerLiqu 2 idXenonBottomGridHolder S1

 Starts with Xenon (or possibly some code unseen not native to geant) and just dumps energy into S1 which will be handled by NEST.

- Vary Teflon reflectivity (currently just the part in liquid as they are different) and monitor how many photons reach the top PMTs
- Unfortunately, the NEST code for propagating the S1 and S2 signals is not working yet, so we can't see how many photons reach the surface just yet.



## And the Z direction...

## **Primary Z Position**

