

# 7/12-7/26 Updates

Shaun Alsum

# Cosmology Reading

- Finished working through the cosmology section of  
<ftp://ftp.physics.uoc.gr/pub/tmp/TasosK/Relativity,%20Gravitation,%20and%20Cosmology.pdf>
- Friedmann Eqs
- Evolution of RDU, MDU
- Big bang, relation of Temperature to scale factor a
- Primordial Nucleosynthesis, Photon decoupling
- CMB
- Introduction of cosmological constant/dark energy
- Inflation, solving the flatness + horizon problems
- Accelerating Universe

# $(\alpha, n)$

- $\alpha$  particles from radioactive decays knock neutrons out of materials making up the detector, creating a neutron background.
- Small effect, not yet implemented fully in LUX background model

# DD simulations

- Began looking at how to start doing DD simulations.
- Ran a test simulation, no results yet, as I ran into LUXSim problems yesterday/this morning
  - Resolved problems, but haven't looked yet at the data
- Dongqing wants simulations for S2 only events, have to think about how to do that.

# DD data

- Began trying to look at the DD data.
- Got some guidance from Dongqing about what RQs to use
- Again, ran into problems loading it in, troubleshooting with Aaron.

# Thinking about Prelim

- Title says it all, thinking...
- Sometime late august?
- What all do I need to include?