

Nuclear Lunch Questions
“Cosmic Ray Radiography of the Damaged Cores of the Fukushima Reactors”
March 27, 2013

1. What information about the core can be obtained from cosmic ray radiography? Why does it help the cleanup/remediation/decommissioning to determine this information? **[Bing]**
2. How are muons detected? Do you need the trajectory of the muons to do the imaging? **[Youngshin]**
3. What sort of a detector will be best for use in this kind of experiment? What has been used for similar projects? **[Dilu]**
4. Where are the before and after detectors located? How do they reconstruct the path/number of muons hitting and interacting? **[Linda]**
5. How does scattering imaging work? Why is the sensitivity/resolution of scattering radiography better than transmission radiography? **[Azamat]**
6. Can you compare different materials in cosmic ray muon imaging? How do you determine the material composition? **[Nowo]**
7. How do you determine L and L_0 in the case of multiple scattering? [Ref. 6 of the paper] **[Anthony]**
8. How long will the effects of Fukushima last? (e.g. on the environment) Is there any estimate for time? **[Brian]**
9. Describe the meaning of a level 7 on the INES scale. **[Harsha]**
10. Since Chernobyl is also a level 7, is it safe at Chernobyl? How long will it take for the radiation to return to safe/normal levels? **[Sushil]**

Extra References:

- AIP Advances **2**, 042128 (2012); <http://dx.doi.org/10.1063/1.4766179>
- Rev. Sci. Instrum. **74**, 4294 (2003); <http://dx.doi.org/10.1063/1.1606536>