

Questions for Nuclear Lunch, December 5, 2012: discussion of dark-matter annihilation cross-section bounds from the Fermi LAT

Moderator: Anthony Paul Ramirez

1. What is/are the evidence/s for the existence of dark matter? **Buddhini**
2. What is a WIMP and why is it the leading candidate as a dark matter particle? **Dilu**
3. Are there other alternative explanations as to what dark matter is other than WIMPs? If yes, what are they? **Linda**
4. Solid-state detectors generally have better resolution. Why does the Fermi LAT use scintillation detectors, instead of solid-state detectors, in measuring the energy?
Harsha
5. Using Fermi LAT, how do they distinguish gamma rays from WIMP processes from those from astrophysical sources? **Sushil**
6. What is a likelihood function? **Azamat**
7. How is J_i calculated/measured? What is the difference between the $\log_{10}J_i$ in Eq. (1) and the $\langle \log_{10}J_i \rangle$ in Eq. (1)? **Brian**
8. Where does the 2.71 in the criterion for determining the 95% C.L. come from? **Rakitha**
9. If the WIMP is not yet “directly” observed or fully understood, why do they suppose that it is a Majorana particle? **Bijaya**
10. What are dwarf spheroidal satellites (dSphs) and why are they good grounds for detecting dark matter? Is it possible to identify more dSphs to use when looking for signals? **Shamim**
11. What are some differences in the analysis of arXiv:1204.2797 that led him to identify a dark-matter signal when the Fermi LAT people did not? **Cody**