

Nuclear Lunch 30 October / 6 November 2013 Questions

November 1, 2013

1. What is the BESIII detector? In the process of separating muons from electrons, what is Bhabha scattering and why do electrons deposit more energy than muons in the EMC? **Linda**
2. Is there a theoretical reason why we do not see so many 4-quark systems, in particular for heavy quarks? What evidence presented in the paper supports the idea of a bound state of four quarks? **Sushil**
3. What is lifetime and what is its physical importance, how is it calculated? What would be the lifetime of $Z(3900)$? And do we expect these exotic nuclei to occur in nature? **Shamim**
4. What is a Dalitz plot? How is it useful in these kind of experiments? **Norman**
5. What do we mean by energy levels of charmonium and bottomium? Why are the energy levels so important in studying transitions? **Cody**
6. What would happen if the signal shape was not assumed to be an S -wave Breit-Wigner function? Would this change the results seen in figures 3 and 4? **Arbin**
7. Can the $c\bar{c}$ be just a gluon or the whole thing be a glueball? **Bijaya**
8. Talking about 4-quark systems, have they been observed yet? How stable are they and why? **Brian**
9. What is the meaning of $\Psi(4040)$, $\Psi(4160)$ and $\Psi(4515)$? Is the reverse reaction possible? That is, $\pi^+p^-J/\psi \rightarrow e^+e^-$. **Sai**
10. What is the dilepton branching fractions of the J/Ψ . **Anthony Paul**