

## Nuclear Lunch Questions for 29 January 2014

Follow up to the article:

**First measurements of electroweak boson fusion**, CERN Courier,  
Supplementary reading: **Measurement of the hadronic activity ...**, CMS  
Collaboration, JHEP 10 (2013) 62.

1. What is a t-channel diagram? Besides the t-channel, what other diagrams are possible? (Tyler)
2. What is a Drell-Yan (DY) process? Why does the DY background dominate compared to the other processes presented? (Shamim)
3. How does the simulation results remove the DY background of the data? (Brian)
4. How are jets formed? What is pseudorapidity? How is pseudorapidity related to jets? (Cody)
5. In VBF, is there a possibility of final state leptons other than that of muons and electrons? If yes, give an example. (Arbin)
6. From figure 2a of CERN courier (or the similar figures), why do the data points with high transverse momentum have larger error bars? (Andrea)
7. How do they separate Z's produced from weak boson fusion from other electroweak processes? (Sushil)
8. What are the ditop process and the ditop backgrounds? (Nick)