

Jessie Shelton – Lecture 2 Questions

Questions marked in green were answered during the Q&A session. Original questions listed without correction for grammar/spelling. Where a slide number (or topic) was given it is shown.

- Q1 (singlet potential) Can the pure singlet piece in the potential be shifted away via field redefinition?
- Q2 (light scalar lifetime) What causes the steps in the decay length vs mass plot that you show?
- Q3 (dark Higgs) Does the dark Higgs give mass to dark matter?
- Q4 (Long-lived particles in dark sector) What's the rules for Z_D decays ? Similar to Z or can have very different BR ?
- Q5 (LLP) If LLP are observed at, eg, FASER, how will the parent process be identified?
- Q6 (Higgs decays to LLP) For the composition dark scalar G_0 decays, what's the decay rules for BR ?
- Q7 (LLP) Do LLP searches assume they are electrically neutral so that they can make it through the LHC detectors?
- Q8 (next to last) What hierarchy of lifetimes can we expect to observe?