

Questions Lecture 1:

- (1) What are the main sources of dileptons below 1 GeV in invariant mass?
- (2) What is vector meson dominance in simple terms?
- (3) What are the main sources of dileptons above 1GeV in invariant mass?
- (4) Without looking at the lecture: Draw the Feynman diagram for $\pi^0 \rightarrow \gamma\gamma^*$, $\rho^0 \rightarrow e^+e^-$, $\Delta \rightarrow Ne^+e^-$, $\omega \rightarrow \pi e^+e^-$.
- (5) How can you disentangle the 3body decay into 2 2body decays? Why is it useful?
- (6) For the brave ones: Show how t is related to the expressions at the lecture (slide 42 in the pdf version).
- (7) The chiral phase transition and the deconfinement phase transition happen at roughly the same temperature? How are they related to each other?
- (8) Why do you still see a contribution from the Delta Dalitz decay at invariant dielectron masses of 1GeV? Why is that even a question?
- (9) What is a Breit-Wigner curve? If you have time, discuss the difference between relativistic and non-relativistic Breit-Wigner distributions.
- (10) The big question: dileptons or di-leptons?