

# SNS2020: questions while preparing

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Why the Pink book is citing the scattering of:

- charged lepton  $\rightarrow$  charged lepton
- neutrino  $\rightarrow$  charged lepton

but not the scattering of neutrino  $\rightarrow$  neutrino? It should be different from the previous ones, since it should be mediated by the only  $Z$  boson and not the photon.

Is it because of experimental reasons (really hard to detect) or there is a theoretical explanation?

(Actually it is also not telling anything about charged  $\rightarrow$  to neutrino, maybe because it is really the same lepton tensor as the opposite, but maybe because neutrinos in the final state are hard to detect)