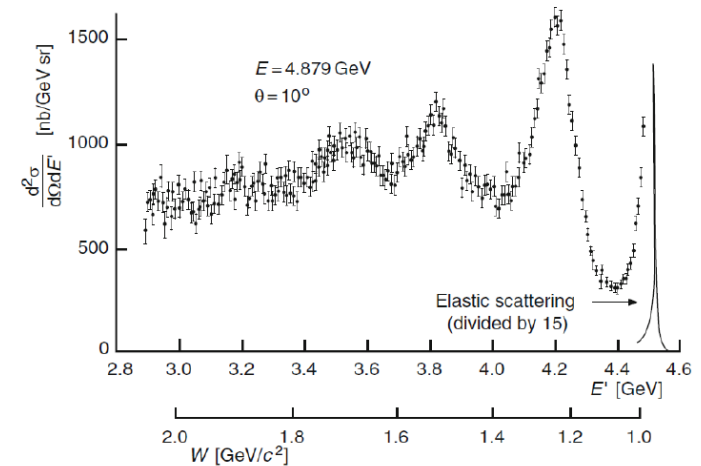


Warm-up question 1

In a scattering experiment, electrons are scattered of protons. The plot on the right shows hadronic resonances for electron scattering on protons.

Which statements are correct?

- A) Hadronic resonances decay via the strong interaction.
- B) The life-time cannot be determined because it is too short
- C) If a resonance is produced, the electron must have transferred energy to the proton.
- D) The electron interacted strongly with the nucleon.



Warm-up question 2

The plot on the right shows the momentum fractions of a proton carried by different types of quarks for given x .

Which statements are correct?

- A) Curve A corresponds to the momentum fraction carried by sea quarks.
- B) The total momentum fraction of the proton which a specific quark q carries can be calculated by $f_q = \int_0^1 xq(x) dx$
- C) Gluons are not included in the plot because they do not contribute to the proton's momentum.
- D) It is unlikely to find a valence quark that carries more than 50% of the proton momentum.

