Fits without photon-induced background

Louis

23.02.2026, Zoom

Universität Hamburg
DER FORSCHUNG | DER LEHRE | DER BILDUNG

CLUSTER OF EXCELLENCE
QUANTUM UNIVERSE

Bundesministerium
für Forschung, Technologie
und Raumfahrt

Treatment

- Photon-induced background provided by Laurent

- In the first bins: 1.4%, 0.20%, 0.13%, 0.10%, 0.11%, ...

- Subtracted from data

- Two uncertainties:

  - 10% on normalization, separately for ElEl, InelEl, InelInel, correlated between bins
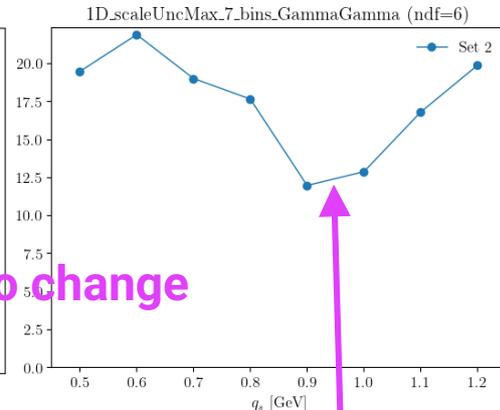
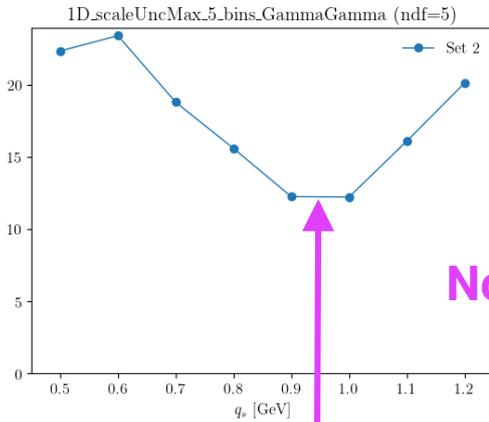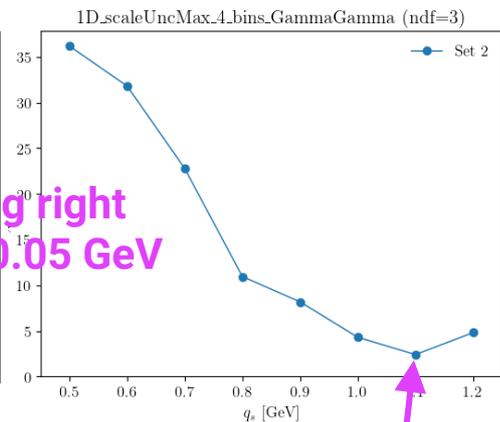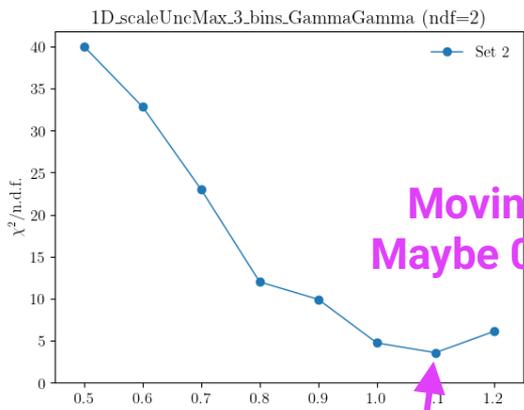 - MC stat, uncorrelated between bins

Comparison

Plots for the **1D** distribution with ɣɣ removed (first row) or not (second row)
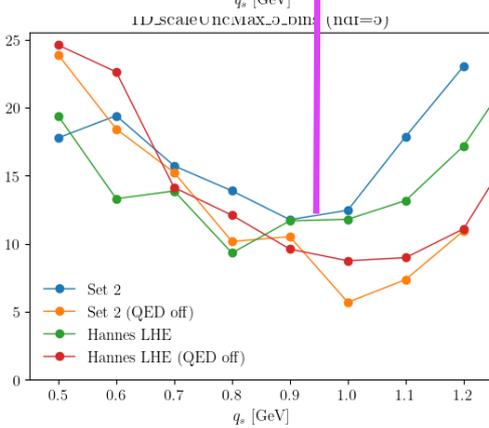

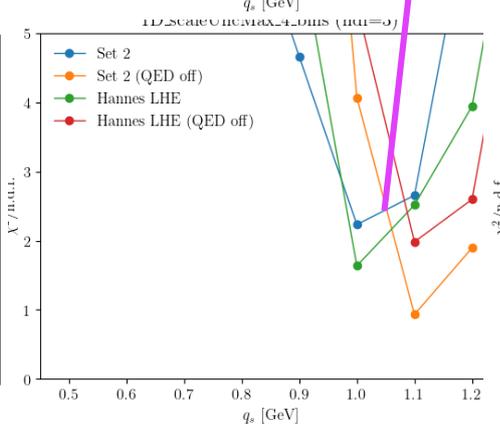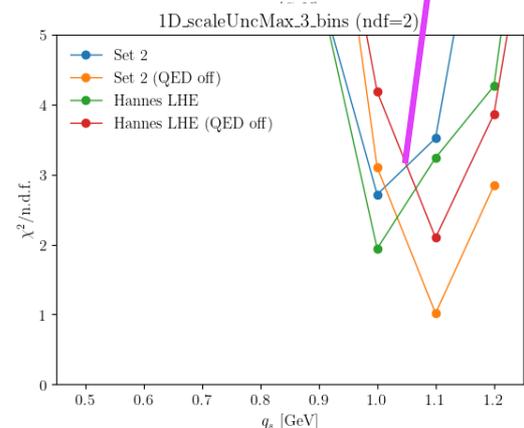3 bins   4 bins   5 bins   7 bins

Moving right
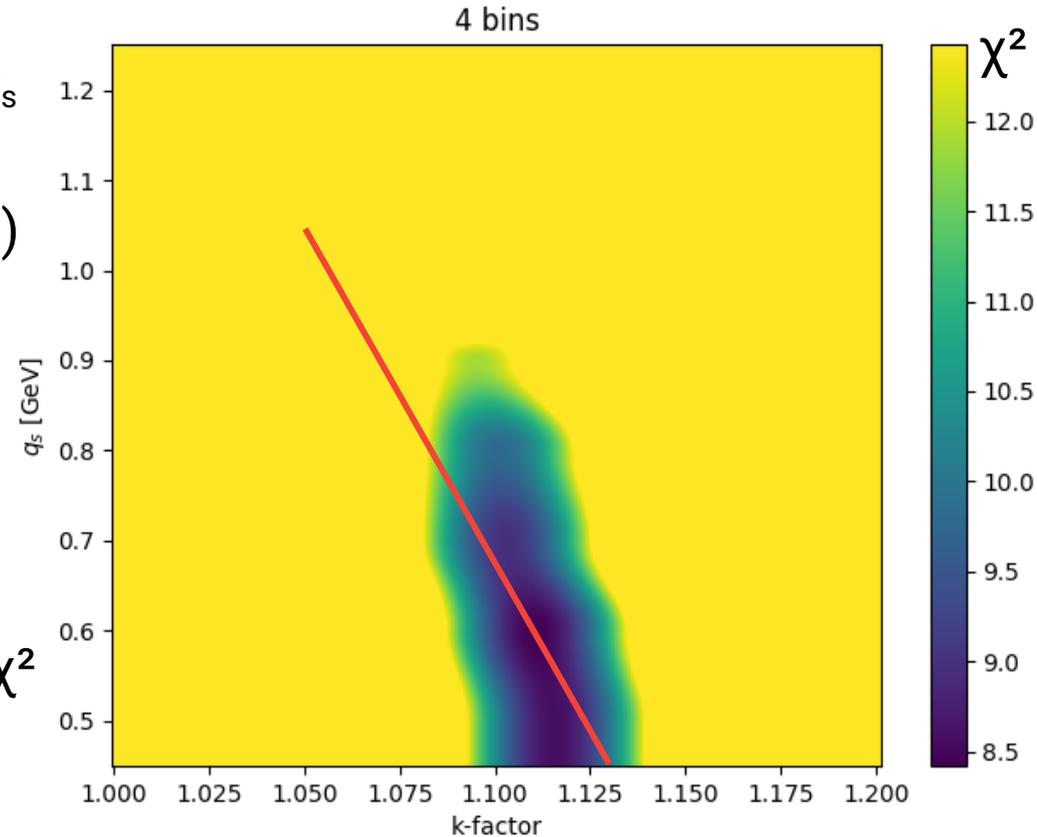**Maybe 0.05 GeV**

No change

3
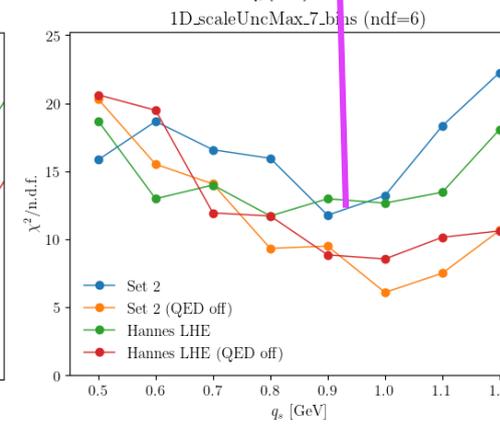
Normalization

- Normalization affects the χ^2

- "Post-fit" correlation between k and q_s

- So far: k-factor = $\sum \text{data}(q_s) / \sum \text{MC}(q_s)$

- Not necessarily optimal

- Use profiling:

$$\chi^2(q_s, k) \rightarrow \chi^2(q_s, k_{min}(q_s))$$

- I.e., always use k that minimizes the χ^2

- This is my new default

Bin selections