

Thank you for the revised manuscript and for providing detailed responses to the previous questions. The paper reads much more clearly now. The flow from the physics setup, to the NLOF method, to the numerical results and comparisons is well structured. The added parts: the complexity comparison between NLOF and LOF, the robustness checks, and the background-only threshold study definitely improve the work.

I have a few remaining suggestions:

1. About the “unsupervised” terminology:

I still think the wording in the Abstract/Introduction should be softened a bit. LOF itself is an unsupervised algorithm, but the overall pipeline used here (threshold optimisation, coefficient extraction, etc.) is clearly not fully unsupervised.

It would help if the authors explicitly said something like “unsupervised anomaly score, with supervised optimisation for EFT sensitivity” at least once, just to avoid giving the impression that the entire analysis is model-agnostic.

2. Connection to autoencoder-based approaches:

Since the paper already mentions using dimensionality reduction or latent-space methods, it would be good to briefly note (e.g. in the Introduction or Outlook) that NLOF could naturally be combined with the AE-based aQGC studies already in the literature (such as Ref. [21]). A short remark on how NLOF might behave in a learned latent space would make the paper more complete.

3. Detector realism and systematics:

I would encourage adding a more explicit paragraph on detector effects and systematics. In particular:

- State clearly that the results are purely statistical and do not include detector systematics or beam-induced backgrounds.
- Add a short qualitative comment (with references) on photon-ID efficiency, resolutions, and how these could affect the chosen observables.

This can be done textually — no need for new MC — but the current “we neglect these backgrounds” is too brief.

4. Minor editorial corrections:

- “a tradition counterpart” → “a traditional counterpart”
- “compare of NLOF” → “comparison of NLOF”
- “exhibit a spin comparable” → “exhibit a span comparable” (I assume “span” is meant)

Thank you very much.