Qeios

Peer Review

Review of: "Time-Resolved Hubble Space Telescope UV Observations of an X-Ray Quasi-Periodic Eruption Source"

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This paper presents a first-time coordinated UV and X-ray analysis of a QPE from a galactic nucleus, which is a topic of current interest. The results of the analysis put new constraints on the physical nature of these sources, and the conclusions of the work are accurately presented and justified.

I would recommend the authors make a few changes to add clarity:

- “The middle panels of Figure 1 show the XMM-Newton observations (blue) and the on-source periods of the HST observations (orange shaded regions).” I don’t know if it’s a webpage rendering problem, but I see the XMM-Newton points as grey/red/green, not blue.
- Fig. 2: I would suggest changing the shape of one of the downpointing triangles in the right panel (maybe one filled and one empty); currently, they look identical when on a grey scale.
- Fig. 3: The decay phase might be added in an additional figure in the Appendix, for those interested.
- Fig. 4: The orbiter radius is magenta, not green.
- 2.4 – The SED fitting value of E(B-V) = 0.5 is mentioned here, but the discussion happens in 2.5, so it can be a bit confusing on the first read. I would mention the value at the end of 2.3 and then discuss the method to retrieve the value in 2.5.
- One general comment has to do with the choice of the thin disc model; how much do the final results depend on the choice of a specific disc model, and could other ones also explain the SED (like an ADAF, for example)? Or is it the data quality such that more complex models would be degenerate? I think it would be useful to include some discussion about it.
- Again, about the disc model, what are the expected degeneracies between the parameters given the model, and how do/can they affect the final results? From Figure A1, some of the contour plots are

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very asymmetric, so I believe the full covariance between parameters needs to be included in the uncertainties.

Declarations

Potential competing interests: No potential competing interests to declare.