

Peer Review

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

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The work is on a topic of high current interest, i.e., quasi-periodic eruptions (QPE) from galactic nuclei. The results include a number of useful constraints on the nature of the QPE with the shortest known period. The comments I have for the authors are for clarifications of the data selection mainly, and a few about the modelling and results.

Detailed comments:

Abstract: What does $0.13_{-0.07}$ mean (4th from last line)?

No brackets are needed for "(depending on the intrinsic extinction)."

Section 2.1: "(ra, dec)" is traditionally written "(R.A., Dec.)"

My main comment concerns the time resolution of the plotted HST light curve (Fig. 1): it should not be difficult to show the light curve on the same timescale as the XMM-Newton light curve. This would show if the HST data tracks the outburst or not, whereas the current plot does not seem to give much useful information.

Section 2.5: Were the data for the Quiescent phase for FUV and X-ray selected to be the same time intervals (this was not clear from the text)? I think visit 1 is the left panel of Fig. 1 and visit 2 is the right panel: it would be useful to clarify this. It certainly looks like both intervals contain quiescent and outburst data, contrary to what you say. Please clarify this. You would not be able to have simultaneous FUV and X-ray data if the time resolution of the FUV is the same as shown in Fig. 1.

Section 2.5.1, first line: "self-consistently" does not add anything - better to remove it.

Fig. 3: Why omit the decay phase? Please show it: if it makes the figure too crowded, it would be better to add an extra panel. On the top of the figure: Quiescent is labelled grey, but none of the panels show

the Quiescent SED. Can you show it on the panels?

Fig. 4: The orbital radius is in magenta (not green). (Same for the 6th line in section 3.3). It is okay to defer the description of panel 4 to the text, but not the definition of the lines – give the definitions of the blue and green lines here.

Section 3.3: Last 2 lines: "the orbital radius must be smaller than the disk outer radius." This is confusing because you spent much of the paper arguing the UV source was not variable. Do you mean the eruption caused by the star interacting with the disk must start at a radius well inside where the UV radiation is produced in the disk? How much inside the outer disk radius must this be? The disk model should give this: is it less than half the outer radius?

Declarations

Potential competing interests: No potential competing interests to declare.