Correction to: The X-ray corona in the black-hole binary GRO J1655–40 from the properties of non-harmonically related quasi-periodic oscillations

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This is a correction to 'The X-ray corona in the black-hole binary GRO J1655–40 from the properties of non-harmonically related quasi-periodic oscillations' (Rout, Méndez & García 2023). While calculating the rms spectra of the QPOs, the values of the rms amplitude in the $2.06-5.71$ keV energy band got inadvertently replaced with the values in the $24.0-29.97$ keV energy band. Fig. 1 [which is fig. 3 in Rout et al. (2023)] shows the correct rms spectra in which the fractional rms monotonically increases with energy for both QPOs. This results in a slight improvement in the fit for all three model variants. Table 1 shows the best-fitting parameters for the three model combinations. Since the model was not able to fit the wrong rms values in the original work, the effect of this correction on the results is minimal. The only change worth mentioning is a marginal increase in the size of the vertically elongated corona, although the new and old values are consistent at the $1.5\sigma-2\sigma$ level. Finally, we show the confidence contours of the best-fitting geometrical parameters of the corona for the correct rms spectra in Fig. 2.
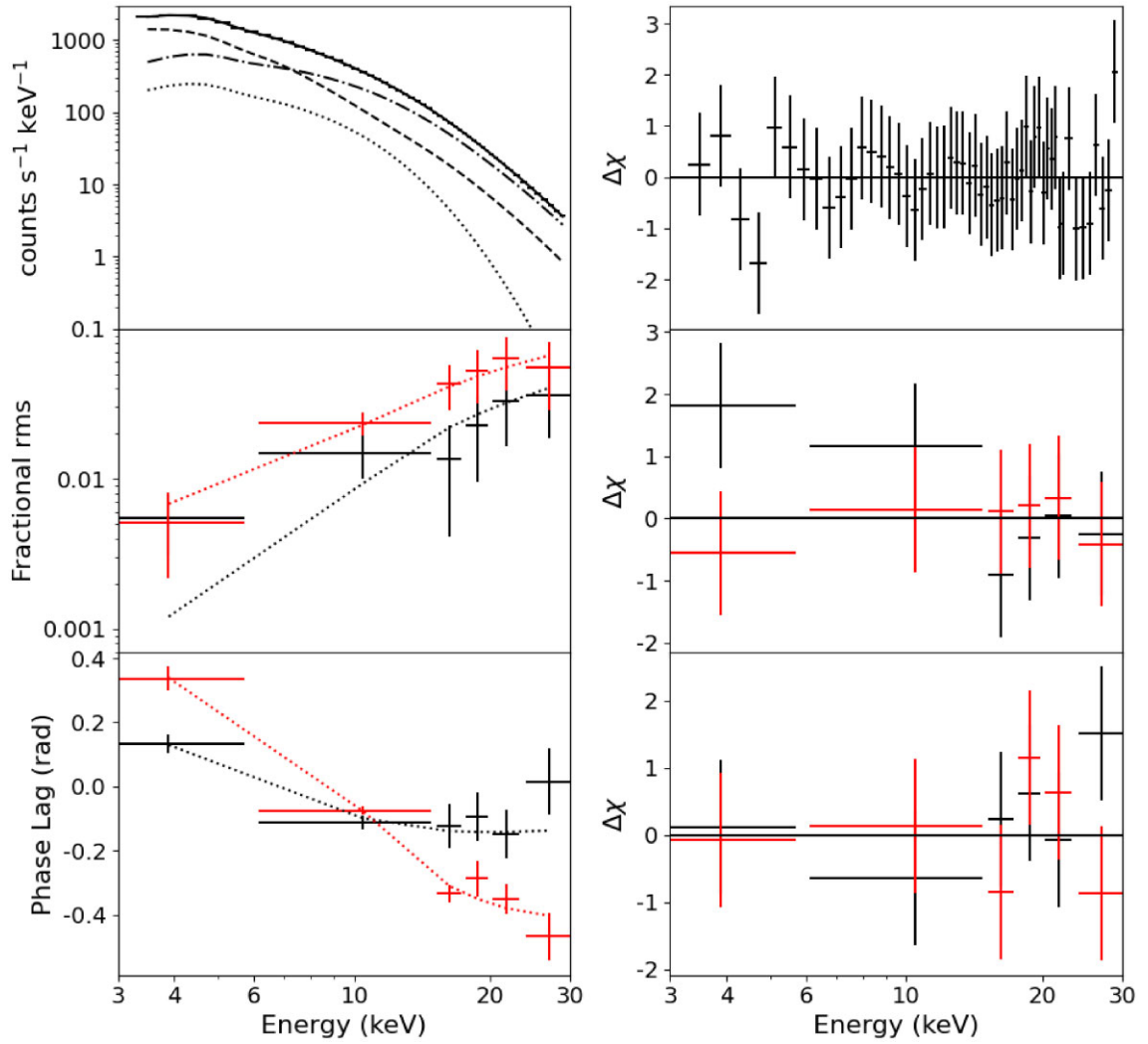
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Figure 1. From top to bottom, the left-hand panels represent, respectively, the time-averaged spectrum of the source and the fractional rms and phase-lag spectra of the QPOs. The corresponding panel in the right-hand column are the residuals. The black and red points in the middle and bottom panels represent the type-B and C QPO, respectively. The dotted lines are the best-fitting models. In the top left panel, the dotted, dashed, and dot–dashed lines represent the disc, Comptonization, and reflection components, respectively.

Table 1. The best-fitting parameters from the simultaneous fit to the time-averaged spectrum of the source and the rms and lag spectra of the QPOs. The three models correspond to the three choices of spin and inclination as mentioned in the top row. The η_{int} is not a model parameter and it is computed separately. The errors represent the 1σ uncertainty.

| Component	Parameter	Model 1 $a = 0.3$ i free	Model 2 $a = 0.9$ i free	Model 3 a free $i = 70°$
diskbb	kT_{in} (keV)	2.33 ± 0.04	2.43 ± 0.04	2.44 ± 0.03
	norm	23.3 ± 1.4	24.6 ± 1.3	$32.2^{+3.2}_{-2.6}$
nthComp	Γ	2.74 ± 0.01	2.74 ± 0.01	2.76 ± 0.01
	kT_e (keV)	160^{+46}_{-24}	>190	>202
	norm	3.45 ± 0.18	2.97 ± 0.19	2.9 ± 0.1
relxillCp	i (°)	18.9 ± 3.1	51.6 ± 1.4	–
	a	–	–	0.990 ± 0.001
	$q1$	3.5 ± 0.2	$7.8^{+1.1}_{-0.8}$	>9.7
	$\log \xi$ (erg cm s^{-1})	4.5 ± 0.1	4.3 ± 0.1	3.5 ± 0.1
	$\log N$ (cm^{-3})	16.5 ± 0.1	16.4 ± 0.1	16.7 ± 0.1
	norm	0.72 ± 0.03	1.30 ± 0.05	2.7 ± 0.1
vkompthdk	L (km)	963^{+153}_{-128}	849^{+157}_{-109}	660^{+92}_{-67}
(Type-B QPO)	η	0.20 ± 0.03	0.21 ± 0.03	0.15 ± 0.01
	η_{int}	0.041 ± 0.003	0.057 ± 0.009	0.057 ± 0.007
	$\delta \dot{H}_{ext}$	0.05 ± 0.01	0.06 ± 0.01	0.07 ± 0.01
	reflag	0.32 ± 0.06	$0.35^{+0.06}_{-0.09}$	$0.98^{+0.32}_{-0.36}$
vkompthdk	L (km)	1160^{+69}_{-74}	1134^{+72}_{-69}	1135^{+59}_{-52}
(Type-C QPO)	η	0.60 ± 0.05	0.57 ± 0.05	0.58 ± 0.04
	η_{int}	0.157 ± 0.008	0.16 ± 0.01	0.15 ± 0.02
	$\delta \dot{H}_{ext}$	0.09 ± 0.01	0.09 ± 0.01	0.10 ± 0.01
	reflag	0.44 ± 0.04	0.46 ± 0.04	0.45 ± 0.03
χ^2/dof		$38.87/60$	$35.50/60$	$42.99/60$
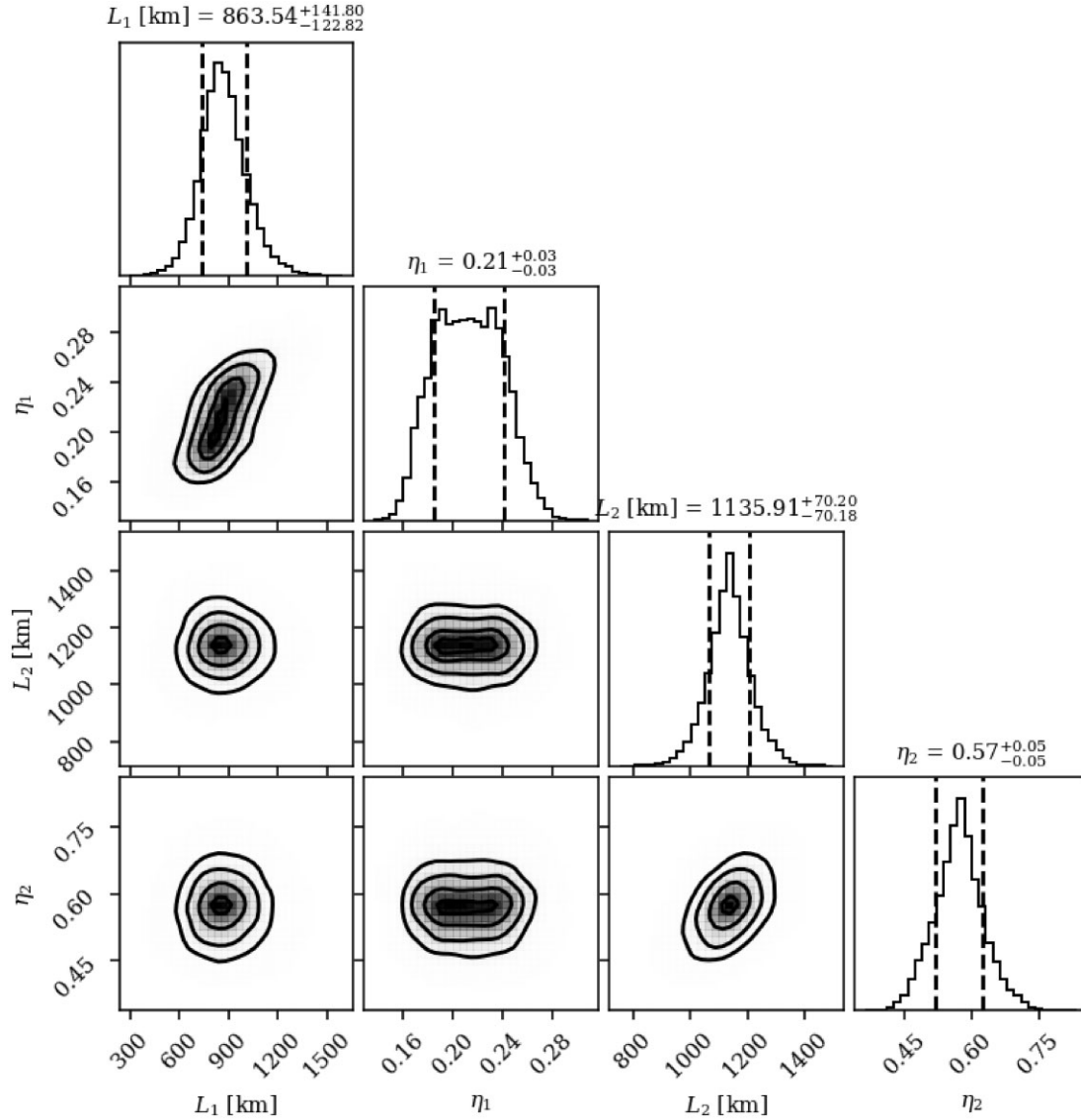
Figure 2. The confidence contours of the geometry parameters (size, *L*, and feedback fraction, *η*) from the best fit with the VKOMPTHDK model 2. The 1 and 2 subscripts represent the type-B and C QPO, respectively.

DATA AVAILABILITY

The X-ray data used in this article are accessible at NASA's High Energy Astrophysics Science Archive Research Center https://heasarc.gsfc.nasa.gov/. The time-dependent Comptonization model and the generator of the MCMC corner plot are available at the GitHub repositories https://github.com/candebellavita/vkompth and https://github.com/garciafederico/pyXspecCorner.

REFERENCE

Rout S. K., Méndez M., García F., 2023, MNRAS, 525, 221

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