

# Erratum: Predicting ULX demographics from geometrical beaming

by Matthew J. Middleton<sup>1★</sup> and Andrew King<sup>2,3,4</sup>

<sup>1</sup>*Department of Physics and Astronomy, University of Southampton, Highfield, Southampton SO17 1BJ, UK*

<sup>2</sup>*Theoretical Astrophysics Group, University of Leicester, Leicester LE1 7RH*

<sup>3</sup>*Anton Pannekoek Institute, University of Amsterdam, Science Park 904, 1098 XH Amsterdam, Netherlands*

<sup>4</sup>*Leiden Observatory, Leiden University, Niels Bohrweg 2, NL-2333 CA Leiden, Netherlands*

**Key words:** errata, addenda – accretion, accretion discs – black hole physics – stars: neutron – X-rays: binaries.

The published version of our paper ‘Predicting ULX demographics from geometrical beaming’ was originally published in MNRAS, 470, L69 (2017), contains two transcription errors detailed below. These do not affect its conclusions.

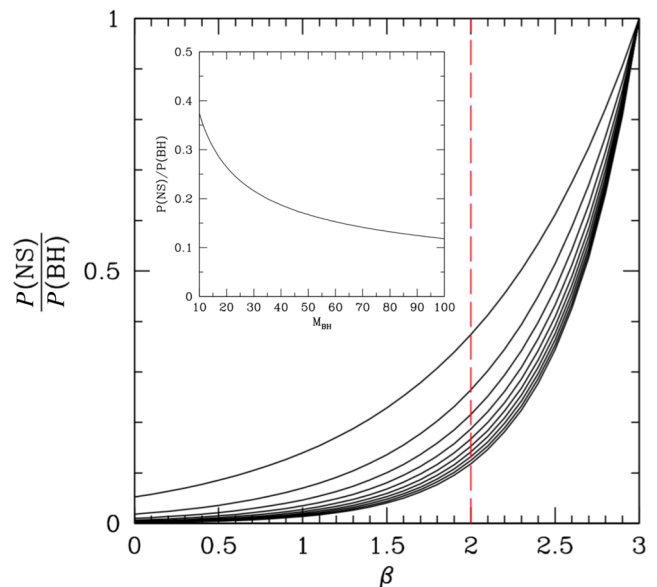
1. Equation (4) has a missing index on the trailing term, and should read:

$$\frac{P_{\text{NS}}}{P_{\text{BH}}} = \frac{n(\text{NS})}{n(\text{BH})} \left( \frac{M_{\text{NS}}}{M_{\text{BH}}} \right)^{(3-\beta)/2} \left( \frac{1 + \ln \dot{m}_{0,\text{NS}}}{1 + \ln \dot{m}_{0,\text{BH}}} \right)^{3/2} \quad (4)$$

The equations following (4) remain unchanged.

2. The label on the vertical axis of Fig. 1 should read  $P(\text{NS})/P(\text{BH})$  (the ratio of observing probabilities), rather than as currently,  $n(\text{NS})/n(\text{BH})$ , (the ratio of true space densities). The corrected Fig. 1 and its caption are shown below where we also include “ratio” to make it clear to the reader that we refer to the ratio of spatial densities. Where the figure is referred to in the text (§3), it should therefore read ‘in Fig. 1 we also show the range in observed population ratio ( $P_{\text{NS}}/P_{\text{BH}}$ )’.

The conclusions of the paper are unaffected by these transcription errors.



**Figure 1.** Main panel: observed population ratio ( $P_{\text{NS}}/P_{\text{BH}}$ ) in a flux-limited survey versus beaming index ( $\beta$ ) for a range in black hole mass ( $10\text{--}100 M_{\odot}$  from top to bottom curve) assuming a ratio of neutron star to black hole spatial density of unity, and  $M_{\text{NS}} = 1.4 M_{\odot}$ . Whilst the spatial density ratio almost certainly deviates from unity, this is only a multiplicative scaling factor and the overall trend remains unchanged. This demonstrates that the observed population ratio is a relatively steep function of black hole mass (as highlighted in the inset for  $\beta = 2$  – the vertical red dashed line in the main panel); as a consequence, even a rough estimate of the spatial density ratio and observed population will constrain the mean black hole mass in ULXs.

\* E-mail: [m.j.middleton@soton.ac.uk](mailto:m.j.middleton@soton.ac.uk)

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