

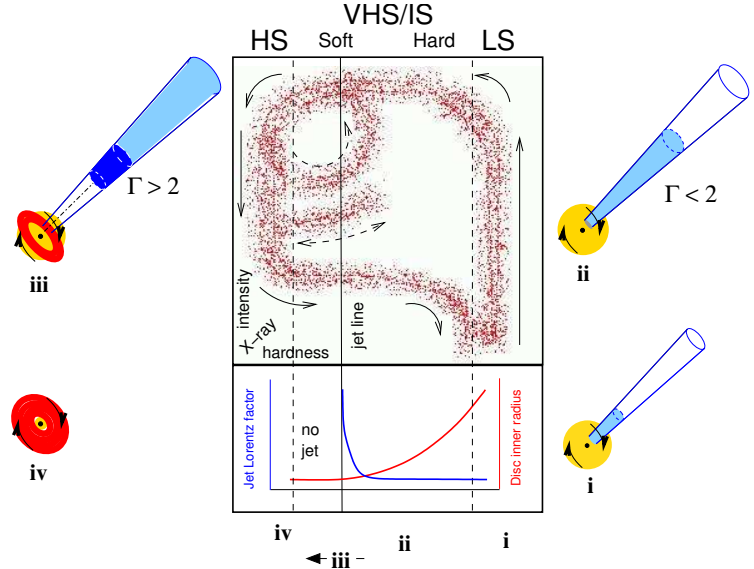


Figure 3: A schematic representation of the model for disk-jet coupling in black-hole binaries from Fender et al. (2004). The top panel shows evolutionary tracks in a HID, which is a plot of X-ray intensity versus X-ray hardness. (These quantities increase upward and to the right, respectively.) The bottom panel gives a qualitative impression of how the jet’s bulk Lorentz factor (*blue curve*) and the inner disk radius (*red curve*) vary with X-ray hardness. The X-ray states are labeled at the top in the old nomenclature (i.e., HS = high/soft state; VHS/IS = very high and intermediate states; and LS = low/hard state.)

counts at 3.8–7.3 keV.

The vertical source track on the right side of Figure 3 corresponds to the low/hard or hard state with $HR > 0.8$ for GX 339–4 (see Belloni et al. 2005). The vertical track on the far left (and most observations of GX 339–4 with $HR < 0.2$) are in the high/soft or thermal state. Thus, the HID state classifications and the McClintock & Remillard (2006) classifications agree very well in these two regimes. However, for the intermediate values of HR , which fall between the dashed lines, the states are described differently. The states in this region are further divided by Belloni et al. (2005) into “soft intermediate” and “hard intermediate” states, based on the HR values and the properties of the PDS power continuum. This completes a description of the four X-ray states defined in the unified jet model. Further comparisons of the HID state classifications and the McClintock & Remillard (2006) classifications are given in §5.

The unified model for X-ray states and radio jets provides opportunities to study the disk-jet coupling explicitly, and the HID format is very easy to apply to observations. On the other hand, the state definitions of McClintock & Remillard (2006) are more quantitative, and they provide spectral information that is more directly applicable to physical models. In §5, we present outburst data for selected BHB/BHC systems using both depictions for X-ray states.