Abstract. There are four major X-ray satellites currently in operation (RXTE, Chandra, XMM-Newton, INTEGRAL), with two more shortly to follow (Astro E II, Swift), and several very ambitious observatories in various stages of planning (Constellation-X, MAXIM, XEUS). This very rich period of X-ray observation is leading to great advances in our understanding of the accretion flow onto the black hole, although we are quickly learning (or perhaps better put, remembering) exactly how complicated this flow can be. This review was meant to assess future prospects for X-ray spectroscopy of black hole binaries; however, I first look backward to the observations and theories that helped us arrive at our current ‘paradigm’. I then discuss current and near-future spectroscopic studies, which increasingly (and very fruitfully) treat X-ray spectroscopy as part of a larger, intimately connected picture along with radio, optical, and gamma-ray spectroscopy. Equally importantly, and in large part thanks to the success of RXTE, there is now a strong realization that spectral-temporal correlations, even across wavelength bands, are crucial to our understanding of the physics of these systems. Going forward, we are well-poised to continue to advance our knowledge via X-ray spectroscopy, both with existing satellites that have a long lifetime ahead of them (Chandra, XMM-Newton, INTEGRAL), and with the next generation of instruments. If there is any ‘hole’ in this bright future, it is the potential loss of RXTE, with no designated follow-up mission. Studies of multi-wavelength spectral-temporal correlations will become more difficult due to the loss of two important attributes of RXTE: its fast timing capabilities and its extremely flexible scheduling which has made many of these studies possible.

The Future of X-ray Spectroscopy of Galactic Black Hole Binaries

Michael A. Nowak

I LOOKING BACKWARD

Those who forget history are condemned to repeat it. – George Santayana

There are a number of reviews describing theoretical models and observations of galactic black hole candidate (GBHC) binaries [?, e.g.,] done:01b, rebnolds:03a. It is interesting to look back, however, and note that many of the components incorporated into models today had their origins some time ago, with many important insights made using very sparse data. Some ideas have come into and out of consideration several times over the past thirty years. See [Reynolds and Nowak(2003)], for example, for a brief description of the history of the fluorescent Fe line in GBHC, which has gone from being interpreted as broad to narrow, and back and forth again, several times [?, etc.] b:85a, fabian:89a, kitamoto:90a, done:92a. I myself have been on both sides of this issue [Wilms et al.(1999), Nowak et al.(2002)], although I am certainly not alone in this regard [Done et al.(1992), Done and Zycki(1999)].

The seminal theoretical work that helped usher in the “modern era” of the study of accretion flows was that of Shakura & Sunyaev [?, ] see Fig. 22?shakura:73a. Theories, aided by observations, quickly added com