Chandra Observations of Microlensing of the Accretion Disk of the Radio-Loud Quasar MG 0414+0534.

G. Chartas, M. Eracleous (*PSU*), E. Agol (*Caltech*), G. Garmire (*PSU*), M. W. Bautz , P. L. Schechter , N. D. Morgan (*MIT*)

[Contributed talk, 15min.]

Abstract

We present results from *Chandra* monitoring of the lensed quasar MG 0414+0534. Our analysis of the spectra and light-curves of the lensed images suggest strongly that microlensing events are present in two of the lensed images. The *Chandra* light-curve of MG 0414+0534 indicates significant fluctuations for the faintest image C and not in the other images. The double-peaked light-curve of image C is suggestive of a double-caustic crossing. Constraints on the geometry of the continuum source based on fits of microlensing models to the light-curve of image C will be discussed. During the last two observations of our monitoring program a strong Fe Kα line with an equivalent width of $\sim$ 640 eV was detected in image B and not in the brighter image A, whereas image C is too faint for detection of the line. We propose that the sudden increase in the line strength in only one of the images can be explained with a caustic crossing that selectively enhances a strip of the reprocessing region of the accretion disk. We present microlensing models that predict the observed magnification of the iron-line without any corresponding enhancement of the continuum. The prospects of constraining the geometry of the accretion disk of distant quasars with microlensing of reprocessed Fe Kα lines is discussed.

This research was support by NASA grant NAS 8-38252.

CATEGORY: ACTIVE GALAXIES AND QUASARS