The density and location of the warm absorber in NGC 3516

Hagai Netzer(*School of Physics and Astronomy, Tel Aviv University*)

Abstract

We use new Chandra observations and several ASCA observations of NGC 3516 to investigate the spectral variations in this source over a period of 7 years. A comparison of the Chandra observations, when the source was almost at an all-time minimum, and the ASCA 1994 observations, close to the all-time maximum, indicates that the very large change (factor ~ 20 at 1 keV) in flux is entirely consistent with a change in ionizing flux seen through a constant column warm-absorber. Intermidiate cases are all fitted by the very same model including an episode of a factor ~ 2 flux drop over 60 ks. Our very detailed model allows us to put a strong upper limit on the density of the recombining gas and hence, together with the model parameters, the location of the warm absorber. We find that $n > 10^6$ cm^{-3} which is the best limit obtained so far on the conditions in the WA gas in AGN. It suggests a location outside but close to the BLR and a thin shell geometry. The analysis of the LETG data shows also a narrow 6.4 keV iron line probably originating in a cold torus.

CATEGORY: ACTIVE GALAXIES AND QUASARS