

Abstract Submitted
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Variable Nature of Accretion-Disk Wind Structure in NGC 3783¹

MARY OGBORN, KEIGO FUKUMURA, James Madison University — Seyfert galaxies are a sub-class of active galactic nuclei (AGNs) that are bright sources of UV and X-Rays in which outflows are ubiquitously observed and are thought to be produced from accretion disks around supermassive black holes (SMBHs). These ionized outflows manifest themselves as blueshifted absorption features in X-ray (aka. warm absorbers), allowing for spectroscopic analysis to learn more about the physical conditions of the plasma as well as the AGN itself. NGC 3783 is a Type 1 Seyfert galaxy at redshift $z=0.00976$ hosting a SMBH of $3e7$ solar-masses. By using multi-epoch data obtained with Chandra X-Ray Observatorys High Energy Transmission Grating Spectrometer (HETGS), we analyze the archival HETGS data and model the detected warm absorbers based on the magnetically driven disk-wind scenario by the action of a global magnetic field. The proposed study constrains two primary model parameters: wind density and the inclination angle for a given density slope that also help determine the warm absorbers property (e.g. velocity, column density, ionization state and distance). Our goal is to determine the physical conditions of the observed warm absorbers in each epoch for NGC 3783 and further explore its potential time variability over multiple epochs.

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