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Modeling AGN Accretion-Disk Winds[1] MARY OGBORN, KEIGO FUKUMURA, James Madison University — Type 1 Seyfert galaxies are bright sources of ultraviolet light and X-Rays that also host active galactic nuclei (AGNs). Outflows can be observed from these galaxies and are thought to be produced from the accretion disk around the AGN due to the presence of a global magnetic field. These ionized outflows show as X-Ray warm absorbers, which allows analysis of the X-Ray spectrum to learn more about the structure of these outflows, as well as the AGN itself. In the context of magnetohydrodynamics (MHD), we utilize a magnetically-driven disk-wind model where accreting plasma is magnetically launched and accelerated by the action of a global magnetic field around supermassive black holes in AGNs. Being coupled to photoionization calculations with XSTAR code, we have constructed a grid of absorption spectra, which can then be convolved with a continuum spectral component to easily facilitate spectral analysis with XSPEC package. As part of our ongoing investigations in spectral modeling of X-ray warm absorbers, we have applied the wind model to 3 exemplary Seyfert 1 AGNs (NGC 3783, MCG-6-30-15 and NGC 3516) in an effort to constrain the strength of the observed winds using multi-epoch Chandra X-Ray Observatorys High Energy Transmission Grating Spectrometer (HETGS) data.

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Mary Ogborn
James Madison University

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