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## Probing the Structure of Active Galaxies Using X-Ray Spectroscopy

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Poster Presentation 15

**PROBING THE STRUCTURE OF ACTIVE GALAXIES  
USING X-RAY SPECTROSCOPY**

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One class of astronomical objects whose geometries have only recently been explored are active galactic nuclei (AGN). These are galaxies in which massive black holes sit at the center and accrete matter. Along with Dr. Cynthia Hess, I have begun to study an unusual and dramatically-bright active galaxy, NGC 4258, in an attempt to learn about its internal structure. NGC 4258 is known to exhibit maser activity in the region surrounding its warped accretion disk, and it also emits jets of energetic radiation from its supermassive central black hole. In order to study this object, I use X-ray observations from the Roentgen satellite (ROSAT), obtained from NASA archives. I have extracted images and light curves which reveal the overall structure of the galaxy as well as time variability in the X-ray-emitting region. I have also extracted, fit, and analyzed spectra of NGC 4258, which provide insight into the global physical processes occurring within the galaxy. In the future, I will analyze the thermal stability of the X-ray-emitting gas in order to determine geometric information in unprecedented detail.