



Illinois Wesleyan University
Digital Commons @ IWU

John Wesley Powell Student Research
Conference

1997, 8th Annual JWP Conference

Apr 12th, 9:00 AM - 10:30 AM

Probing the Structure of Active Galaxies Using X-Ray Spectroscopy

Jeremy Kotter
Illinois Wesleyan University

Cynthia Hess, Faculty Advisor
Illinois Wesleyan University

Follow this and additional works at: <https://digitalcommons.iwu.edu/jwprc>

Kotter, Jeremy and Hess, Faculty Advisor, Cynthia, "Probing the Structure of Active Galaxies Using X-Ray Spectroscopy" (1997). *John Wesley Powell Student Research Conference*. 15.

<https://digitalcommons.iwu.edu/jwprc/1997/posters/15>

This Event is protected by copyright and/or related rights. It has been brought to you by Digital Commons @ IWU with permission from the rights-holder(s). You are free to use this material in any way that is permitted by the copyright and related rights legislation that applies to your use. For other uses you need to obtain permission from the rights-holder(s) directly, unless additional rights are indicated by a Creative Commons license in the record and/ or on the work itself. This material has been accepted for inclusion by faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.

Poster Presentation 15

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

Jeremy Kotter and Cynthia Hess*, Department of Physics, IWU

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.