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# X-Ray Spectroscopic Mapping of Three Unusual Active Galaxies

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Poster Presentation 12

**X-RAY SPECTROSCOPIC MAPPING OF THREE UNUSUAL ACTIVE GALAXIES**

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Active galactic nuclei (AGN) are galaxies in which massive black holes sit at the center and accrete matter. Along with Dr. Cynthia Hess, I have studied three unusual active galaxies labeled NGC 4258, NGC 1097, and NGC 1068 in an attempt to learn more about their structures. 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 black hole. NGC 1097 has observable emission jets, while NGC 1068 is a known source of maser activity. In order to probe the physical structures of the maser- and jet-producing regions of these objects, I used X-ray observations from the Advanced Satellite for Cosmology and Astrophysics (ASCA), obtained from NASA archives. I extracted images and spectra of NGC 4258, NGC 1097, and NGC 1068 and have fitted the spectra in order to probe the source of the X-ray continuum. I then used a computer code called `xstar1` to determine the temperatures at which the emitting plasmas are thermally stable within the AGN. Using line emission models generated for those stable temperatures, I then refit the spectra in order to find at what temperature or temperatures the line emission arose. From these fits I then determined the gas density and location of the X-ray emitting gas.