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X-raying Active Galaxies Both Near and Far: Exploring the Environments of Supermassive Black Holes

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X-ray emission appears to be a universal property of active galactic nuclei (AGN). This emission originates primarily in a supermassive black hole's immediate vicinity, and X-ray investigations probe the accretion processes by which black holes grow as well as their larger scale environments. I will review some of the recent dramatic advances made in supermassive black hole studies, obtained using data from NASA's Chandra X-ray Observatory and ESA's X-ray Multi-Mirror Mission-Newton. Specifically, I will discuss (1) X-ray spectroscopy of AGN accretion disks and outflows, (2) ultra-sensitive X-ray surveys that have discovered the highest density and diversity of supermassive black holes throughout the Universe, and (3) X-ray studies of the first supermassive black holes to form in the Universe. Upcoming X-ray missions and some long-term prospects for X-ray astronomy will also be described. Research funding from NASA and NSF is gratefully acknowledged.