

Z213a XRISM Observation of Nearby Seyfert 1 Galaxy MCG–6-30-15

Shoji Ogawa (ISAS/JAXA), Laura Brenneman (CfA), Ken Ebisawa (ISAS/JAXA), Matteo Guainazzi (ESAC/ESA), Dan Wilkins (KIPAC), Erika Hoffman (U. of Maryland), Erin Kara (MIT), Hirofumi Noda (Tohoku U.), Javier Garcia (Caltech), Jelle Kaastra (SRON), Noa Keshet (Technion), Makoto Yamauchi (Miyazaki U.), Miasaki, Mizumoto (U. of Teacher Education Fukuoka), Daniele Rogantini (U. of Chicago), Rozenn Boissay-Malaquin (GSFC/NASA), Takashi Okajima (GSFC/NASA), Yuichi Terashima (Ehime U.), Anna Ogorzalek (GSFC/NASA), Ehud Behar (Technion)

MCG–6-30-15 is the archetypical Seyfert 1 galaxy showing a very broad Fe $K\alpha$ emission feature, which is an indicator of the inner radius of the accretion disk and thus of the black hole spin. However, it has been difficult to study this line profile because previous X-ray missions had limitations in sensitivity and energy resolution, making it hard to distinguish distinct spectral features.

The X-Ray Imaging and Spectroscopy Mission (XRISM) observed MCG–6-30-15 for ~ 120 ks in February 2024 and provided us with the X-ray complex spectral features with the revolutionary spectral resolution of the Resolve. A narrow Fe $K\alpha$ emission line at 6.4 keV from a distant reflector and blueshifted narrow absorption lines such as Fe XXV/XXVI of highly ionized outflows are clearly detected in the Resolve spectrum. It also shows a broad Fe $K\alpha$ emission line feature originating from the accretion disk. In this talk, we present the initial results of our XRISM observation and discuss the physical picture of MCG–6-30-15.