



Contribution ID: 23

Type: **Invited talk**

High Resolution X-ray Spectroscopy in Black Hole X-ray Binaries

Black hole X-ray binaries sometimes show powerful outflows along the accretion disk, which is called the disk winds. They often appear in X-ray spectra as blueshifted, highly ionized absorption lines. Previous observations suggest that the mass loss rate due to disk winds is comparable to the mass accretion rate onto black holes, and therefore the disk winds are thought to have a significant impact on the disk structure and the surrounding environment. However, the their launching mechanism and changes in the wind structure associated with variations in mass accretion rate are not yet fully understood.

The X-ray Imaging and Spectroscopy Mission (XRISM), launched in September 2023, carries Resolve, a new technology detector (X-ray micro-calorimeter) that achieves unprecedented energy resolution. Resolve has achieved a resolution of ~ 5 eV @ 6 keV, which is an order of magnitude better than previous detectors. Resolve enables us to measure the fundamental wind parameters such as the velocity and the wind launching radius and is expected to dramatically advance our understanding of the wind launching mechanism and affects of the winds to the accretion disk and environment.

In this talk, I will review previous studies of outflows in black hole X-ray binaries, present the latest results from XRISM observations, and discuss future prospects.

Affiliation

Ehime University

E-mail

shidatsu.megumi.wr@ehime-u.ac.jp

Author: SHIDATSU, Megumi (Ehime University)

Presenter: SHIDATSU, Megumi (Ehime University)

Session Classification: High resolution spectroscopy (BH, NS)

Track Classification: Invited talk