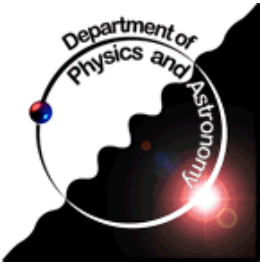


*An online seminar series organized jointly by SFU, UBC and UVic.*



# PHYSICS AND ASTRONOMY SEMINAR

**Jinyi Shangguan**

Max-Planck Institute for Extraterrestrial Physics

## **Science of VLTI/GRAVITY near-infrared interferometer and the studies of luminous AGNs**

The VLTI/GRAVITY instrument has enabled a major step forward to observe faint astronomical targets of infrared interferometry. The powerful 10-100 micro-arcsecond astrometry precision produces many exciting discoveries in different fields. In this talk, I will give an overview of the instrument and the key scientific results including the observations of the Galactic Center and the exoplanets from the first three years of operation. I will focus on the observations of the active galactic nuclei (AGNs). GRAVITY has spatially resolved the kinematics of the broad line region (BLR) of three AGNs. Their black hole masses and BLR properties are found consistent with traditional reverberation mapping method.

Moreover, GRAVITY interferometric measurement is promising to provide a comprehensive view of the galactic nuclei including the dusty interstellar medium and binary black hole system. Combining the interferometry and reverberation mapping data, we can not only better constrain the BLR properties, but also measure the geometric distance to the AGN, which makes the AGN an intriguing probe of the cosmology. I will end the talk with the prospects of the ongoing upgrades of GRAVITY, which will allow us to probe black hole evolution out to the cosmic noon.

**Wednesday, June 2, 2021**

**10:00 a.m. PST**

**For more information:** <https://www.sfu.ca/~jwa304/seminars.shtml>