



Does galaxy interaction affect the black hole growth in the galaxy center? Insights from statistical and case studies

Date: February 21, 2024 (Wednesday)

Time: 5:00 p.m.

Venue: CYP2, LG1/F, Chong Yuet Ming Physics Building, Main Campus, HKU



Prof. Yu Sophia Dai
National Astronomical Observatories of China

Abstract:

The interaction of galaxies is known to regulate the star-formation activities in the merging systems, or galaxy pairs, however, whether and how such interactions affect the central supermassive black hole (aka. active galactic nuclei---AGN activity) is still under debate. Controversies exist as to whether AGN activities are enhanced or suppressed during the different merging phases. In addition, during the merging process, whether AGNs boost or suppress the star formation through the so-called 'positive' or 'negative' feedback is still an open question. The answer to this question involves understanding of the physical properties of galaxy pairs in various scales, from the supermassive black hole at the galactic center to ionized gas, molecular gas, atomic gas, and the dust contents throughout the galaxies and towards their close vicinities. Based on statistical samples of emission line selected galaxy pairs with MaNGA and HST, we study the AGN fraction evolution in various merger cases, and compare to isolated galaxies the global and resolved stellar mass, star formation rate, emission line, and AGN luminosity properties. Then through case studies of the HI environment of galaxy pairs with FAST, we further demonstrate the power to combine observations of significantly different scales and resolutions, and their insights on the role of AGNs during galaxy interaction.

Biography:

Prof. Y. Sophia Dai is now working at National Astronomical Observatories of China (NAOC) on the subject of galaxy formation and evolution. Her expertise lies in the observational study of active galactic nuclei (AGNs), and their connection to the host galaxies. Dr. Dai studied at Peking University for her BSc, and then at Harvard-Smithsonian Center for astrophysics (CfA) for her her PhD. She then worked as a postdoc fellow at Caltech and UCLA, before moving to NAOC in 2017 as a professor.

Anyone interested is welcome to attend!

Phone: 28592360 Fax: 25599152