Astronomy Seminar

Prof. Bin Liu（刘彬）

(Zhejiang University)

Binary Mergers in Tertiary-induced Channel

Time: 15:00-16:00, March 19th (Tuesday), Shanghai time

Venue： N602（李所路1号 李政道研究所）

Host: Zhen Pan

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Abstract:

The detections of gravitational waves (GWs) from merging binary black holes (BHs) have motivated extensive research on the dynamical formation of such compact black hole binaries (BHBs). Recent studies have highlighted the potential role of tertiary-induced mergers via von Zeipel-Lidov-Kozai (ZLK) oscillations in generating the BHBs detected by collaborations like LIGO/VIRGO/KAGRA.I will discuss the dynamics of a compact binary influenced by a tertiary companion, including how the ZLK effect in the tertiary channel can lead to merger events and enhance the merger fraction if the tertiary companion is a rotating supermassive BH. Additionally, I will present a novel dynamical effect for coplanar triple systems, offering a distinguished approach to uncover hidden BHBs through the orbital evolution of nearby visible companions.

Biography:

Dr. Bin Liu (刘彬) is a research professor at the Institute for Astronomy at Zhejiang University.
Dr. Bin Liu received his Ph.D. in Astronomy from the University of Science and Technology of China (USTC) in 2016.
After that, he worked as a postdoc fellow at the Shanghai Astronomical Observatory a research associate at Cornell University since 2018 and a Marie-Curie Fellow at Niels Bohr Institute (NBI) since 2021.
Dr. Bin Liu's primary research interests include the formation of merging black hole binaries, gravitational waves, nuclear star cluster dynamics, and exoplanet formation.