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## Probing Protoclusters and Galaxy Mergers during the Epoch of Reionization with JWST

**Time:** 10:00-11:00, 3 December (Tuesday), Shanghai time

**Venue:** N600 (TDLI)

**Host:** Ying Zu (祖颖)

**Join Tencent Meeting:** <https://meeting.tencent.com/dm/L9V0HgdZEsxz>

**Meeting ID:** 202777150

### Abstract:

JWST has produced a revolution in using photometric redshifts and/or multicolour selection criteria to find galaxies at the extreme redshifts, offering a unique opportunity to answer questions regarding the formation of galaxies in the early Universe. In this talk, I'll present our latest discovery of protoclusters and mergers during the Epoch of Reionization using JWST. We'll discuss the environmental effects on these galaxies' properties and characteristics, such as their stellar mass history, star formation activities, and interstellar medium properties. Furthermore, I will show how we use NIRCcam deep imaging data for a quantitative study of the galaxy environment. It is the first systematic investigation of highredshift mergers and their evolution with redshift at  $z > 5$ . On a larger scale, I will introduce the study of highredshift clustering, mapping the Universe's dense regions on the Mpc scale. We have also quantitatively identified potential protocluster candidates. This marks the first step in identifying protoclusters within JWST's wide field based on photometric data, offering valuable insights to advance our understanding of cosmic structure formation in the early Universe. AGNs consistently coexist with dense galaxy environments. I will also show how the combination of NIRCcam and deep MIRI photometry offers a reliable method for AGN identification.

### Biography:

Dr. Qiong Li is currently a postdoc researcher at the University of Manchester. She received her PhD degree in 2020 at Peking University. Her recent research focuses on using JWST photometric and spectroscopic data to study first-generation galaxies and their environments.

