

Lyman- Alpha Galaxies in the Epoch of Reionization

Abstract:

High redshift Ly α emitting galaxies (LAEs) provide a powerful probe of cosmological reionization. LAEs can be efficiently detected with deep narrowband imaging surveys. However, up to now few $z > \sim 7.0$ narrowband selected LAEs have been spectroscopically confirmed; whereas hundreds of LAEs have been identified at $z = 6.5$. Does the redshift $z \sim 7$ represent the epoch of reionization when Ly α photons from galaxies are severely scattered by the neutral IGM, or is the lack of $z > \sim 7$ objects due to technical difficulties in finding them because of a decline in CCD sensitivities at 1 micron? Our on-going work, the largest narrowband LAE survey project at $z \sim 7.0$ – Lyman Alpha Galaxies in the Epoch of Reionization (LAGER) – will help to answer these questions. With the Dark Energy Camera (DECam) and an optimally designed narrowband filter NB964, LAGER will select over a hundred $z \sim 7.0$ LAE candidates in a total survey area of 12 deg² (4 fields). We have obtained narrowband data with sufficient depth in one of the field. Observations for imaging more fields and spectroscopic followup are been requested. Multi-band observations of confirmed LAEs are also needed in the near future. To accomplish the scientific goals of LAGER project, we seek for a new China-CONICYT postdoc to join in.

Project proposers:

Prof. Junxian Wang (USTC)

Prof. Leopoldo Infante (PUC)