

[XGC-21] Current Status of the High Redshift Quasars Selection from Infrared Medium-deep Survey

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A high redshift quasar is useful to investigate the early part of our universe. Since they are one of the brightest objects in the early universe, they can provide us with clues of the growth of super massive black holes and the early metal enrichment history. To discover the high redshift quasars, we designed a survey of wide area and moderate depth; Infrared Medium-deep Survey (IMS), a J-band imaging survey of ~ 200 deg² area where the multi-wavelength data sets exist. To obtain the J-band data, we are using the United Kingdom Infra-Red Telescope (UKIRT), and so far we have covered ~ 40 deg² with Y- or J-bands over 36 observing nights. We used color-color diagrams of multi-wavelength bands including i, z, Y, J, K, $3.6\mu\text{m}$ and $4.5\mu\text{m}$ to select high redshift quasars. The major challenge in the selection is many M/L/T dwarfs, low redshift galaxies, and instrumental defects that can be mistaken as a high redshift quasar. We describe how such contaminating sources can be excluded by adopting multiple color-color diagrams and eye-ball inspections. So far, our selection reveals one quasar candidates at $z\sim 7$ and a few candidates at $z\sim 6$. In this poster presentation, we will update the current status of the quasar selection in the IMS fields.

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[XGC-22] Current Status of the Infrared Medium Deep Survey

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The IMS (Infrared or Intermediate-wide, Medium-deep Survey) program for the search of $z\sim 7$ quasars has been running since last year. In order to discover enough number of quasars at $z\sim 7$, a strategy sufficing both survey area (~ 150 square deg.) and image depth (23 AB mag in J filter), together with using existing multi-wavelength data is chosen. We have been carrying imaging observations with the UKIRT 4m telescope, now covering ~ 50 square deg. (including UKIDSS survey area) of J-band data. We then used selection in color-color space to choose high- z quasar candidates having the rest-frame Ly-alpha break, and to exclude contamination from stars and galaxies at low- z . We show quasar candidates of redshift $z\sim 7$ and $z\sim 6$, out of 25 square deg. data analyzed, and note implications and future plans.