

**T03a Search for Galaxy Clustering at  $z=4$  using an SDSS Quasar Pair**

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SDSS group discovered a pair of  $z=4.25$  quasars separated only by  $33''$ . In the widely-accepted standard model of galaxy formation based on the CDM dominance, quasars are usually ascribed to a phenomenon associated with very rare, high peaks of Gaussian fluctuations. This suggests that a close pair of bright quasars may be embedded in a very rich environment, such as a protocluster of galaxies. On the other hand, the structure formation in the CDM model with fluctuations normalized by cosmic microwave background predicts that clusters or even groups in excess of  $10^{13}M_{\odot}$  cannot have formed at  $z \sim 4$ .

To investigate this situation, we carried out V, R, and I imaging of this pair quasar field using SUBARU/FOCAS. We employed Lyman break technique, and selected galaxies at  $z \sim 4$ . We also carried out imaging of off-quasar field and detected galaxies in the same way, to compare the surface number density of high- $z$  galaxies in each field. We found no significant enhancement of galaxies at this redshift around the pair quasar. Although this is but one example, our result suggests that luminous quasars are not always signposts for high-density regions. We discuss the analysis in our talk.