

## OBSERVABLE PROPERTIES OF PASSIVELY-EVOLVING GALAXIES AT HIGH REDSHIFT

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### 1. Basic Idea

There are evidences which suggest that many of the early-type galaxies in rich cluster environment formed at fairly high redshift,  $z > 2$ . If the galaxies formed at such early epoch have experienced no intensive star-formation events, their photometric properties can be traced with less ambiguity by using the stellar evolutionary synthesis models. Here we demonstrate what conspicuous feature can be observed for those passively-evolving galaxies at high redshift and how we can constrain the epoch and period of their formation.

### 2. Conspicuous Turn-Off in the Optical-NIR Colours

If the model galaxies are observed at higher redshift, their opt-NIR colours become redder by the shift of the 4000 Å break, while they becomes bluer by the "revival" of more massive and bluer main-sequence stars. As a result, conspicuous colour-turn-off points, which depend on the galaxy-formation epoch very strongly, are seen in their colour evolution. We also simulated the expected  $I - K$  distributions of K-band magnitude-limited sample in order to make more realistic predictions. Unfortunately, present-day NIR detector is so small that we can obtain any statistical data set to compare with models. However, next-generation wide-field NIR cameras will bring us the opportunities to search and investigate properties and distributions of those passively-evolving galaxies at high-redshift.