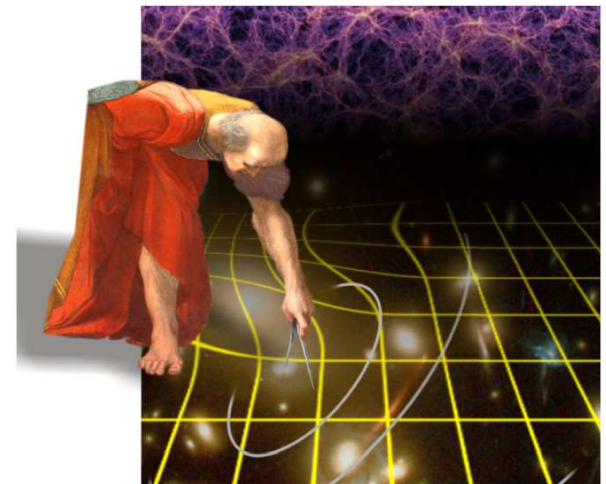


Primeval Universe Working Group

J.-G. Cuby, for the PUWG



Primeval Universe WG

- ~ 40 members
- Co-chairs:
 - J.-G Cuby, Laboratoire d'Astrophysique de Marseille
 - J. Fynbo, Dark Cosmology Center, Copenhagen
- Kick-off meeting in Copenhagen in May 2012
- WBS in preparation
 - WPs: LBGs, QSOs, IGM (re-ionization), simulations, lensing, transients, CIRB

PUWG: main science objectives

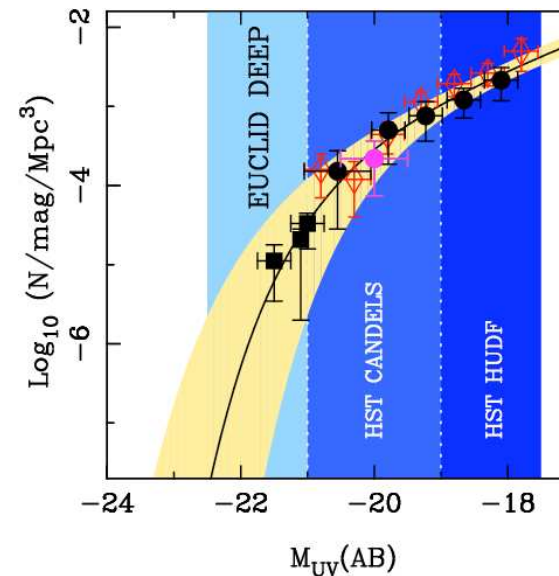
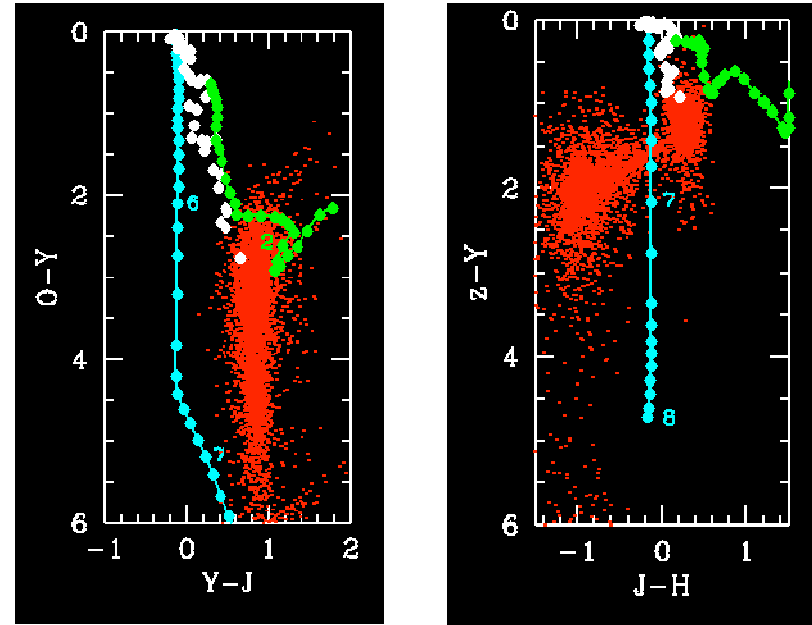
- High-z objects: formation, evolution, and interaction with IGM
- High-z LBGs
 - Deep Survey
 - Selection with Euclid data:
 - $J < [25.5-26]$ at $[8-5] \sigma$
 - [700-4000] galaxies at $z = 7 \pm 0.5$
 - [150-1000] galaxies at $z = 8 \pm 0.5$
 - Deep z band data highly desirable $z' \sim 27$ (AB). If not, $z = 7$ galaxies cannot be discriminated from T-dwarfs.
 - Spectroscopy: Ly α emission of ~ 100 objects from the photometrically selected sample
- High-z QSOs
 - Wide Survey
 - Selection with Euclid data:
 - $J < [22.0-22.5]$
 - $z > 8.1$
 - Selection at lower redshifts ($7 < z < 8$) is not possible due to contamination by L and T dwarfs
 - 10 to 50 QSOs at $z > 8.1$ depending on assumptions on LF evolution and J-band selection limit

Open questions

- Question of the calibration fields forming part of the Deep Survey
 - Baseline: 40 sq. degrees with 40 visits per sq. degree
- Choice of fields for the Deep Survey
 - Deep multi-wavelength data required
 - Access from (European) ground based facilities for follow-up observations is mandatory
 - Ecliptic poles only: not a viable option
 - Proposal for at least 2 x 3 sq. degree fields (COSMOS & UDS/SXDS/XMM-LSS)
- Related to the above question: availability of deep z-band data for the Deep Fields ?
- Direct measurement of the CIRB ? How does Euclid perform in measuring faint surface brightness levels ?

High-z LBGs

- Deep Survey
- Selection with Euclid-only data:
 - $J < [25.5-26]$ at $[8-5] \sigma$
 - [700-4000] galaxies at $z = 7 \pm 0.5$
 - [150-1000] galaxies at $z = 8 \pm 0.5$
- Deep z band data highly desirable $z' \sim 27$ (AB). If not, $z = 7$ galaxies cannot be discriminated from T-dwarfs.
- Spectroscopy: Ly α emission of ~ 100 objects from the photometrically selected sample



High- z QSOs

- From the Wide Survey
- Selection with Euclid-only data:
 - $J < [22.0-22.5]$
 - $z > 8.1$
 - Selection at lower redshifts ($7 < z < 8$) is not possible due to contamination by L and T dwarfs
 - 10 to 50 QSOs at $z > 8.1$ depending on assumptions on LF evolution and J-band selection limit

