







High- z galaxies Summary Report




‘From Very Fuzzy Blobs to
Other Slightly Less Fuzzy Blobs’

$z=1-4$ galaxies

Questions:

-  When did disks & bulges form? Spatial ordering?
-  What environments do they form in?
-  Large Scale clustering properties
-  Where are the old stars at $z=2$?
-  We think we need $\sim 100,000$ object samples
 -  Based on SDSS/2dF experience (5D galaxy space)

$z=1-4$ surveys

-  sub- L^* to $z=1$, L^* from $z=1-4$, aim for 100,000 each objects. Optical & NIR imaging @0.3'' over 20 deg² to $K=23$, $I=28$. (40 nights for K on 8m @ 30' FOV)
-  Spectroscopy. Optical: $I < 24.5$ over 20 deg² (200 nights for 20h exp @ 30' FOV)
-  Spectroscopy. NIR: (i) SFR $z=1-4$ (OII/OIII/Hb/Ha) for 100,000 objects. (25 nights) (ii) Ha 2D for 1000 L^* objects at $z \sim 2$. 100 nights. 1–2 μm

$z > 6$ surveys

- Need to reach $J=25$ (10–20h) [+H etc] – in 1° field there would be 50–500 objects with $z-J_{AB} > 2$
- Want LyA at $z > 6$ $z-J$ band follow-up
- Being able to do several deg^2 could allow us to measure re-ionization structure on the sky at $z > 6$.
- (Same capability at $z=1-4$)






Dark Energy

- Using $P(k)$ to measure the distance-redshift relation to 1% accuracy and determine $w(z)$
- Capability:
 - To be able to redshift survey $\sim 1000 \text{ deg}^2$ at $z > 1$ in finite time
 - i.e. $\sim 10 \text{ deg}^2$ per night
 - Optical probably a lot easier

Capabilities

- 30' FOV NIR JHK imaging at 0.3'' natural seeing
 - – Gemini? Yes, probably need 8m for $z>6$ depth.
- >>30' optical wide field spectroscopy $R=1000$
 - $\sim 10 \text{ deg}^2$ per night at $\geq 5000 \text{ galaxies/deg}^2$
- 30' FOV NIR 1–2.3 μm $R=4000$ MOS spectroscopy capable of:
 - 1000 single objects. 0.5'' fibers?
 - 10 resolved objects (10x10). Sampling?

Priorities

-  Voted. No hanging chads.
-  Strawpoll: all 3 came out even
 -  NIR Imaging. Marginal Second.
 -  Opt. Spec. First=
 -  NIR Spec. First=