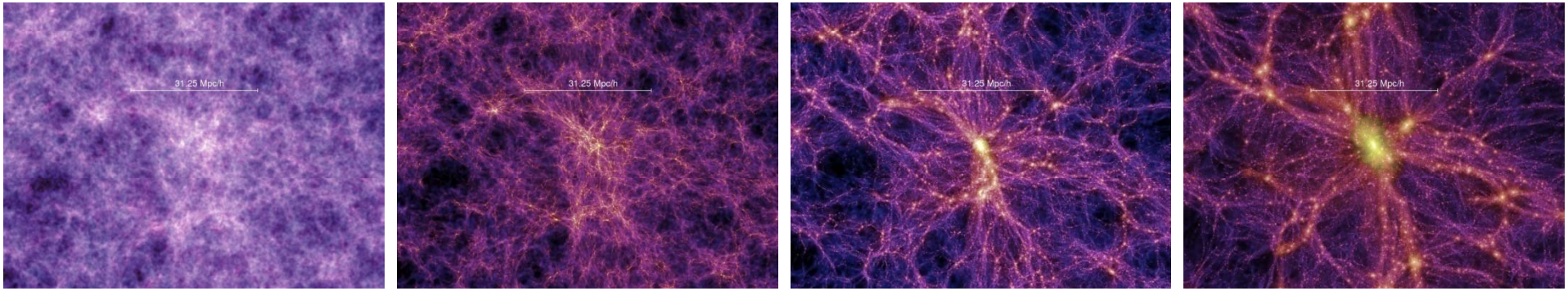
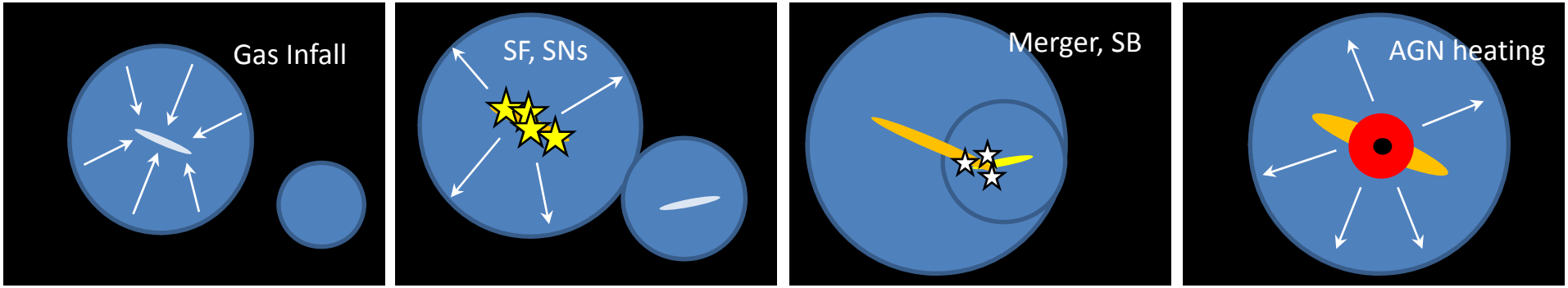
Cosmic time

1 Dark matter (N-body simulation)

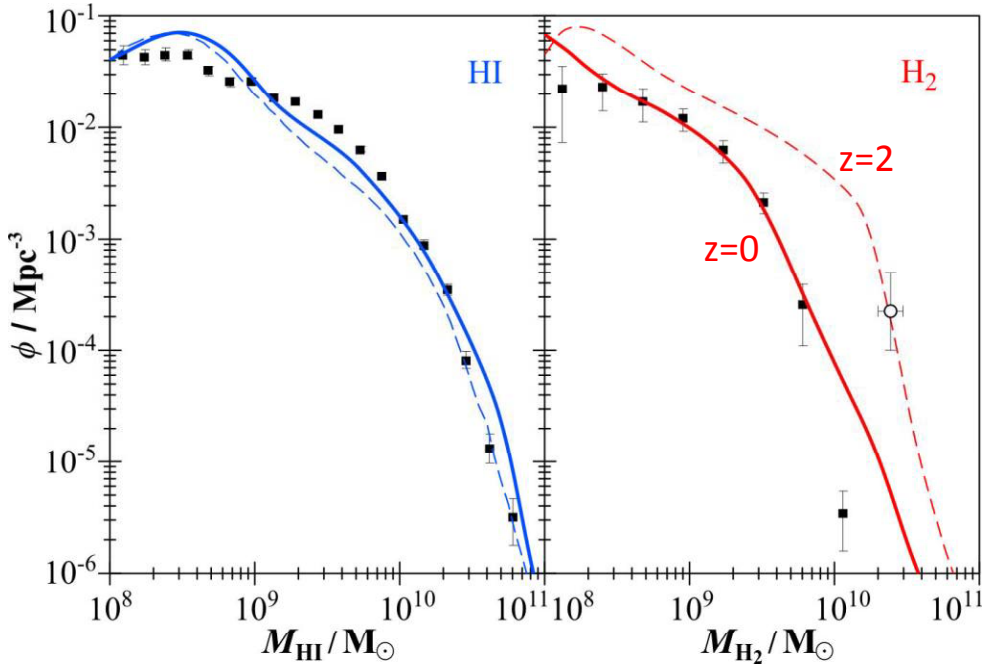


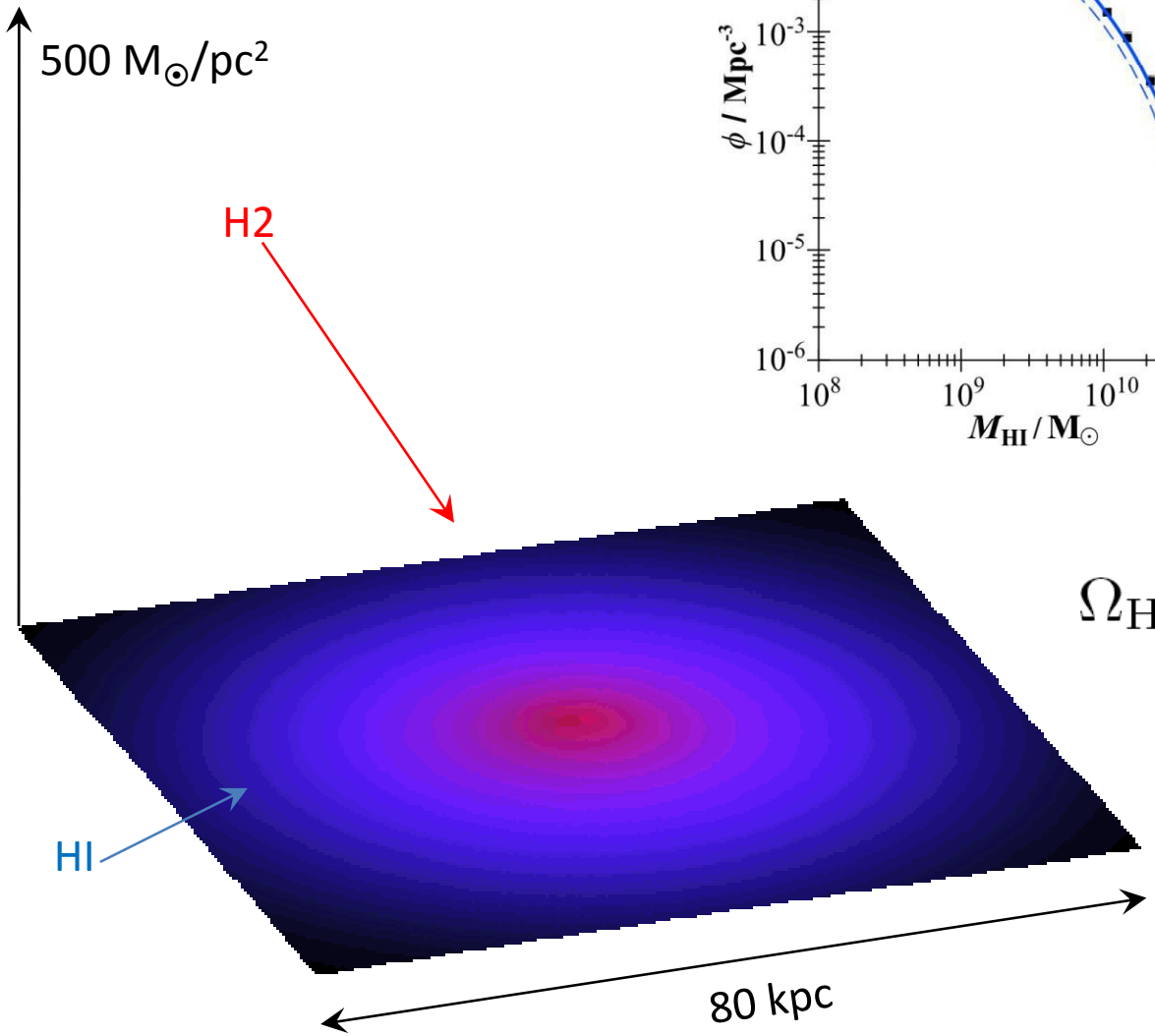
2 Galaxies (semi-analytic simulation)



3 Special galaxy properties (e.g. atomic and molecular hydrogen)

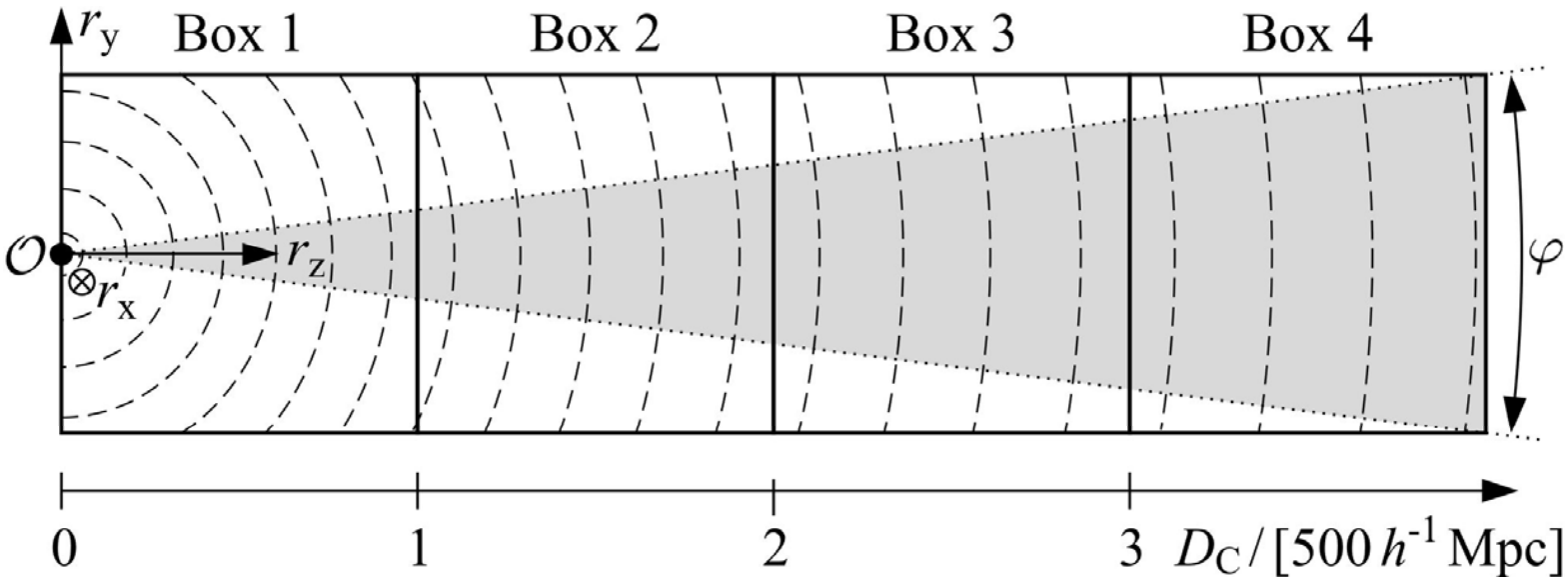
Redshift z = 0.001

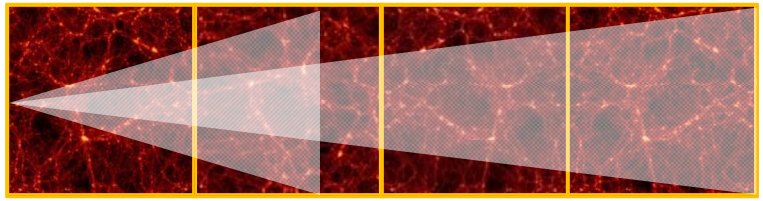




$$\Omega_{H_2}/\Omega_{HI} \propto (1+z)^{1.6}$$

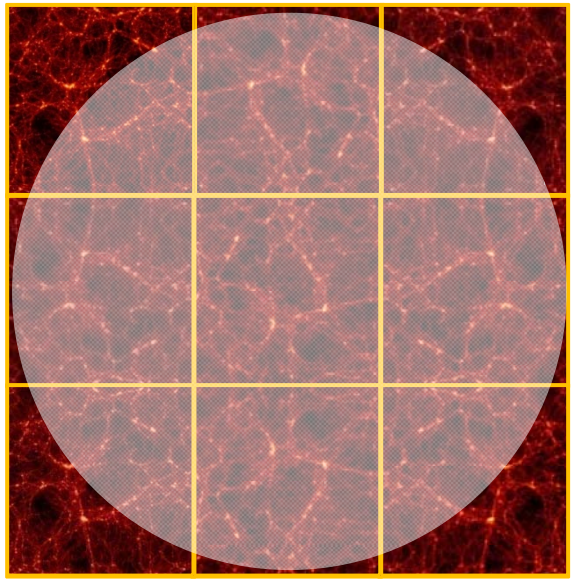
Mock observing cone





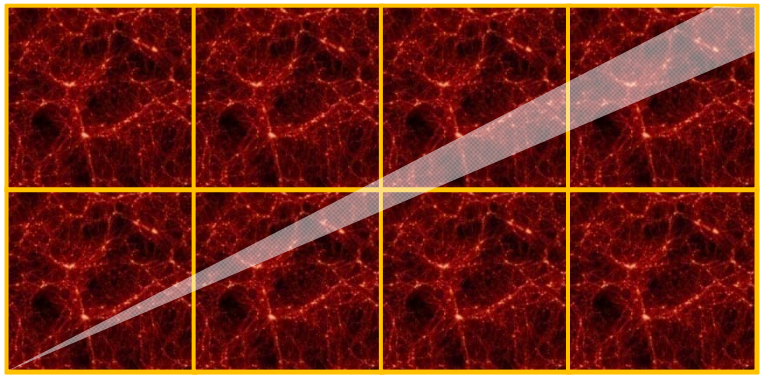
SKADS simulation (Obreschkow et al. 2009)

- FoV = (7 deg)^2 for zmax = 2
- Content : HI-line, CO-lines, intrinsic galaxy properties
- 200 million galaxies



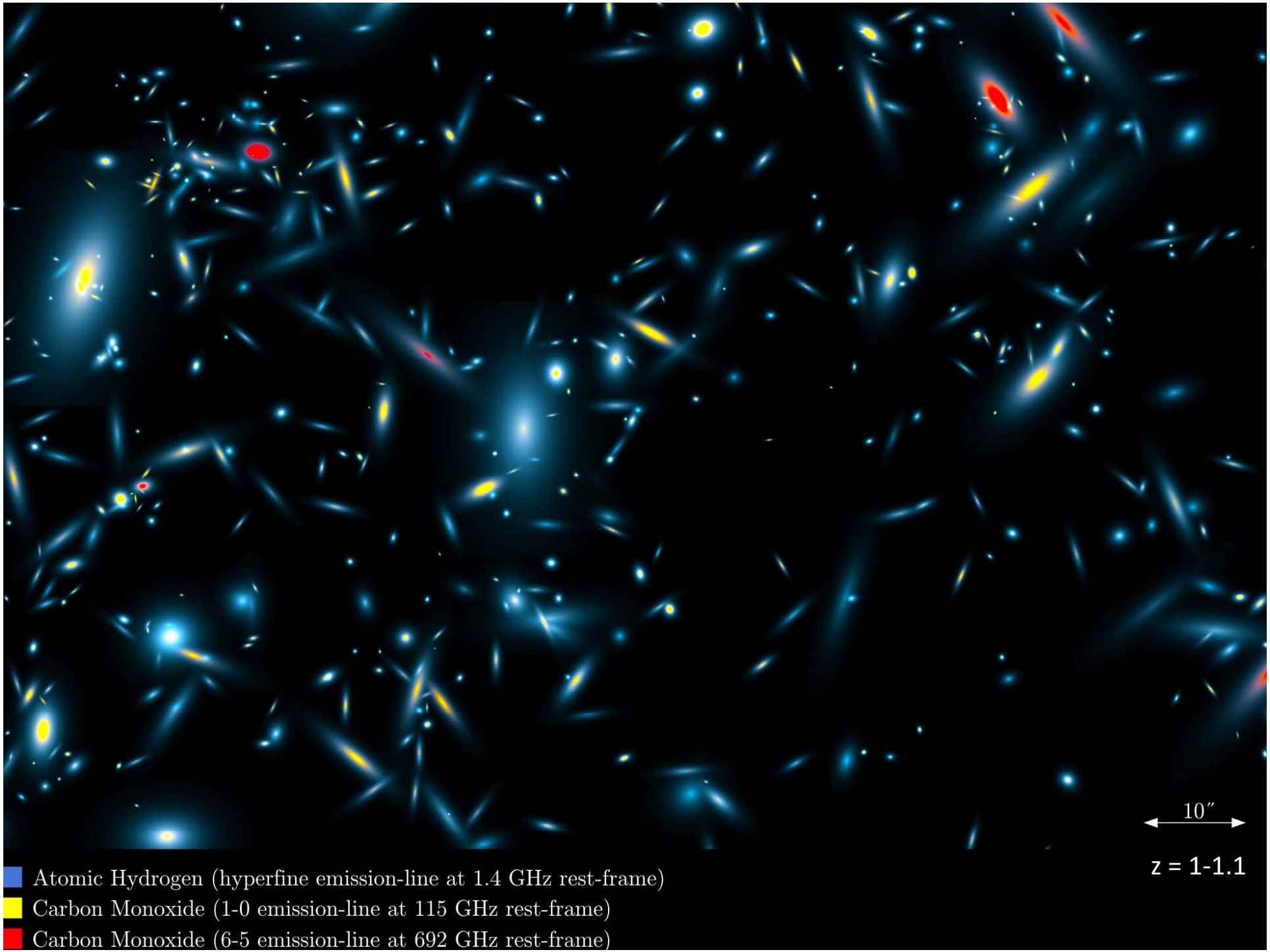
All-sky simulation (Blaizot et al. 2005)

- FoV = 40000 deg^2
- Content : SSDS magnitudes, 2MASS magnitudes, intrinsic galaxy properties
- 6 million galaxies

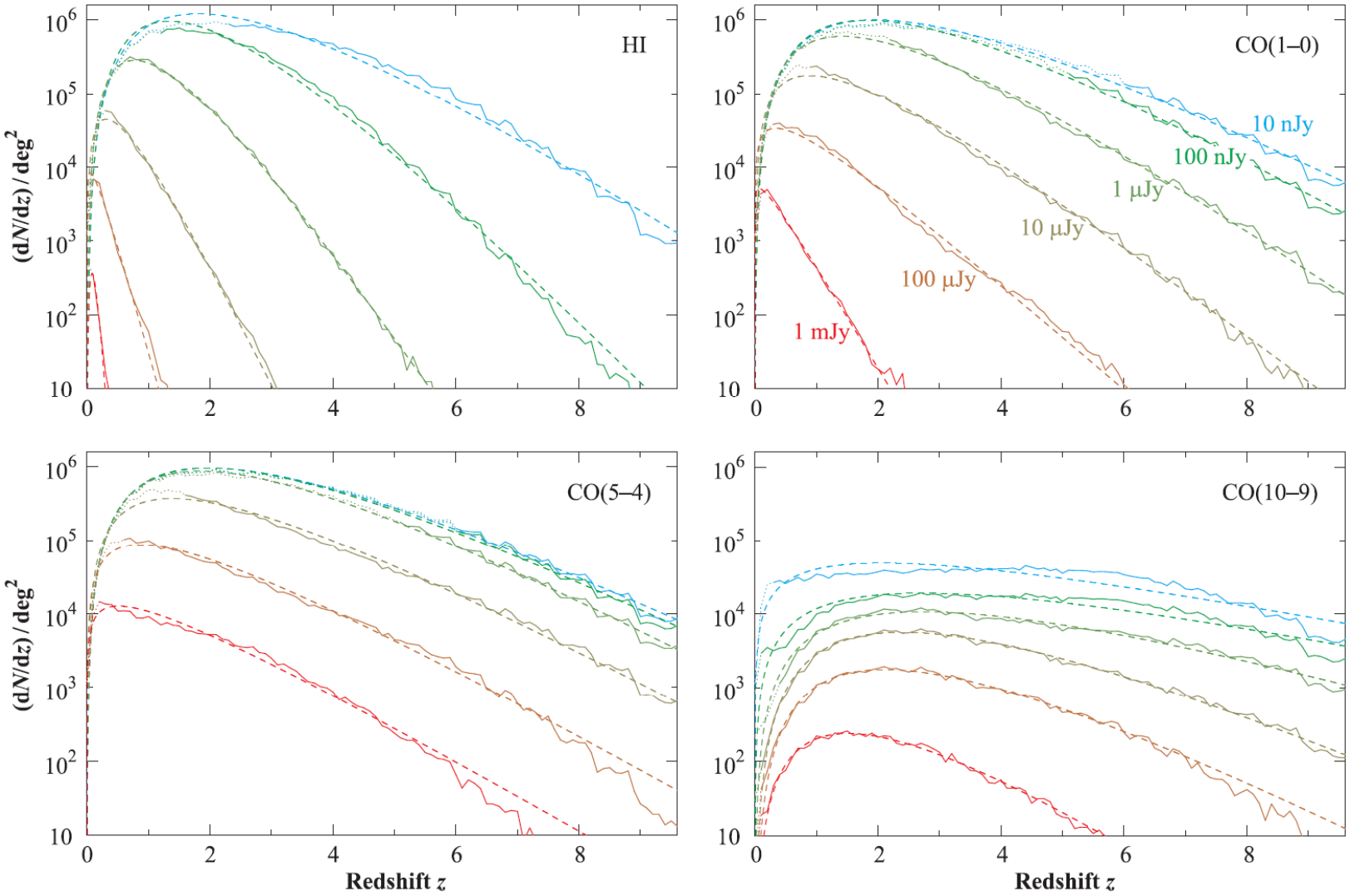


Pencil beam simulation (Kitzbichler and White, 2006)

- FoV = (1.4 deg)^2
- Content : SDSS magnitudes, Johnson magnitudes
- 6 million galaxies

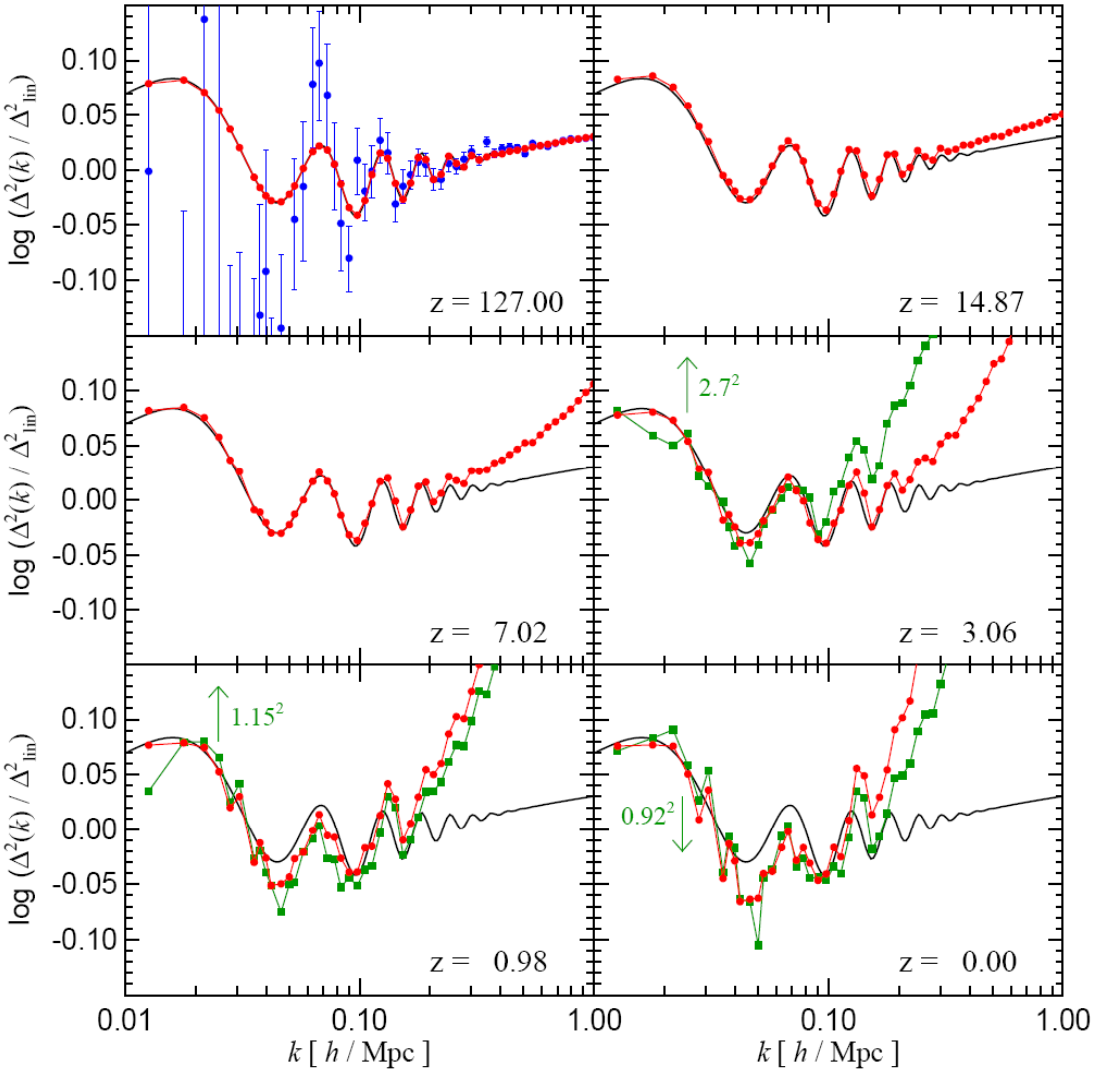

10″
z = 1-1.1
Atomic Hydrogen (hyperfine emission-line at 1.4 GHz rest-frame)
Carbon Monoxide (1-0 emission-line at 115 GHz rest-frame)
Carbon Monoxide (6-5 emission-line at 692 GHz rest-frame)

Application : dN/dz predictions



Obreschkow et al. 2009

Application : power spectrum analysis



Springel et al. 2005