

Theoretical Astrophysical Observatory

Centre for Astrophysics and Supercomputing - Swinburne University of Technology

Darren Croton

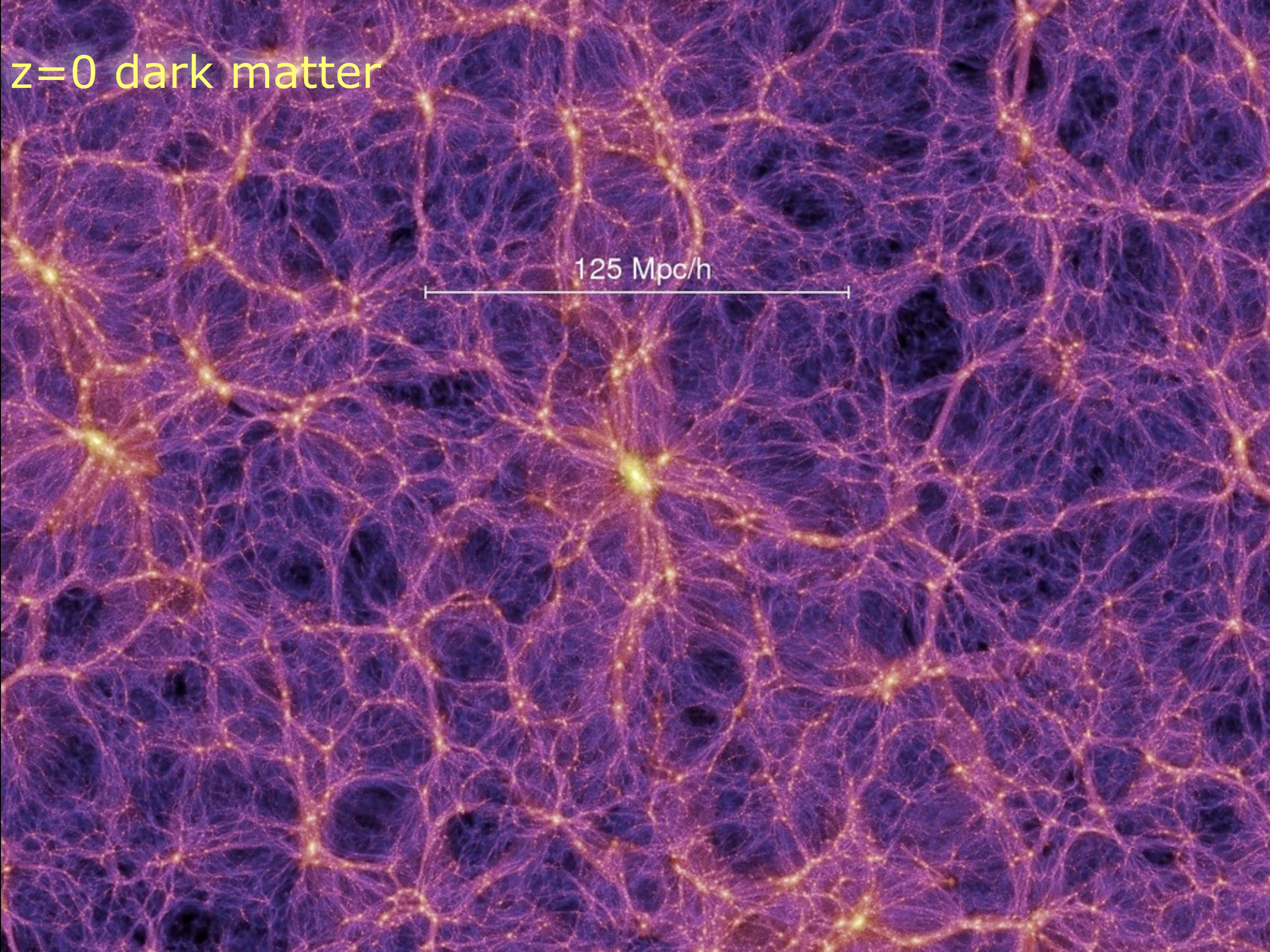
Swinburne University of Technology

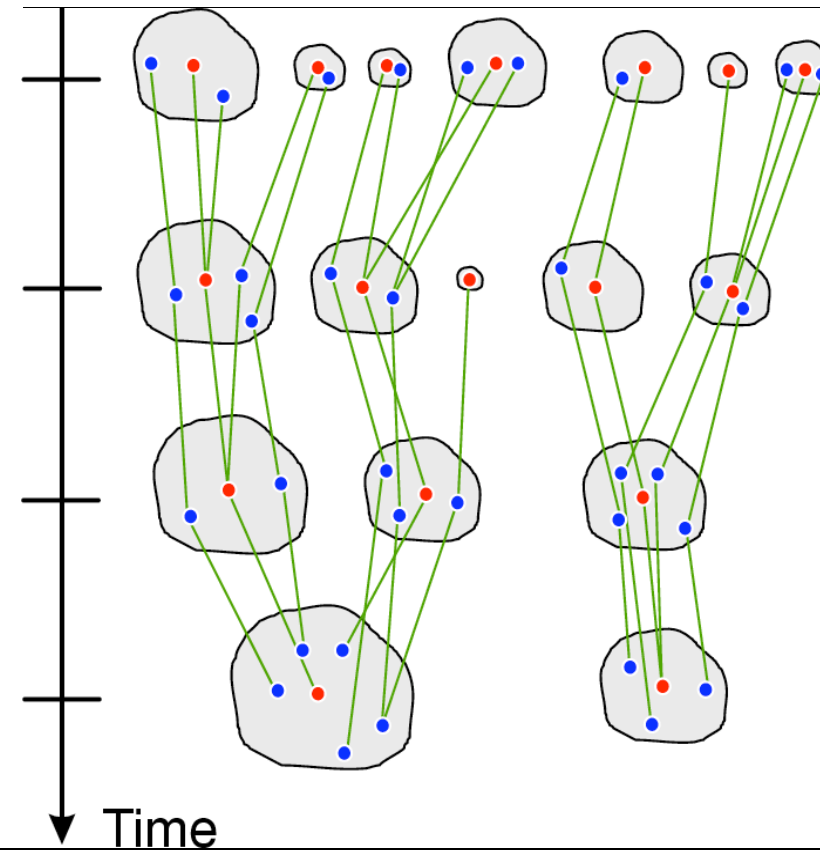
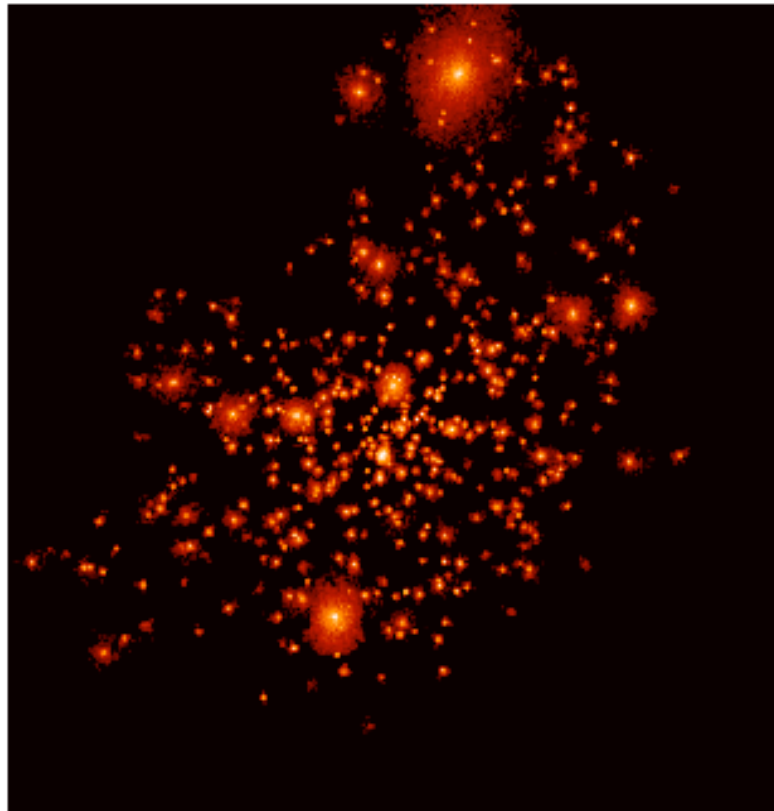
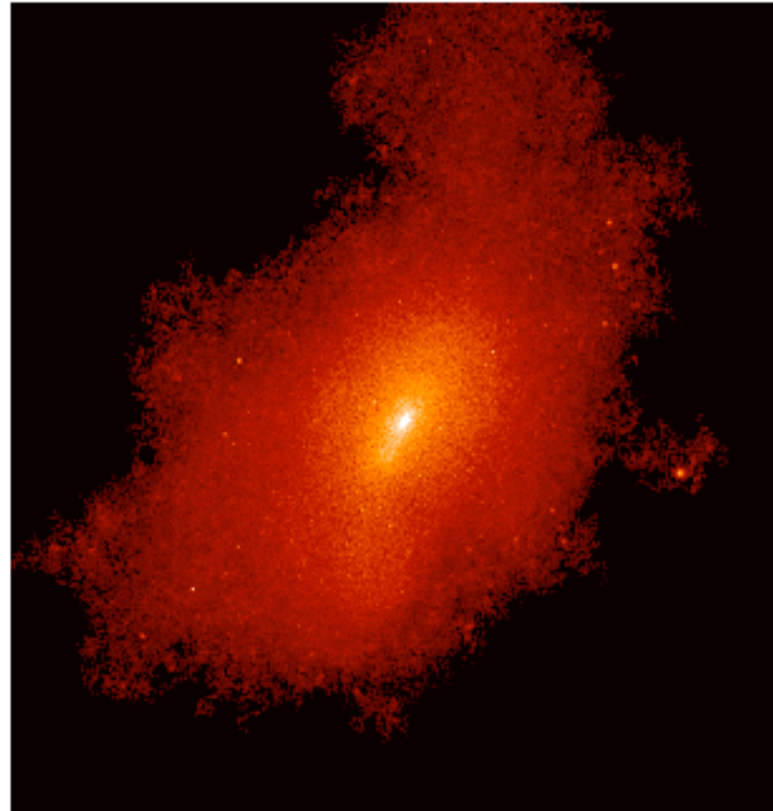
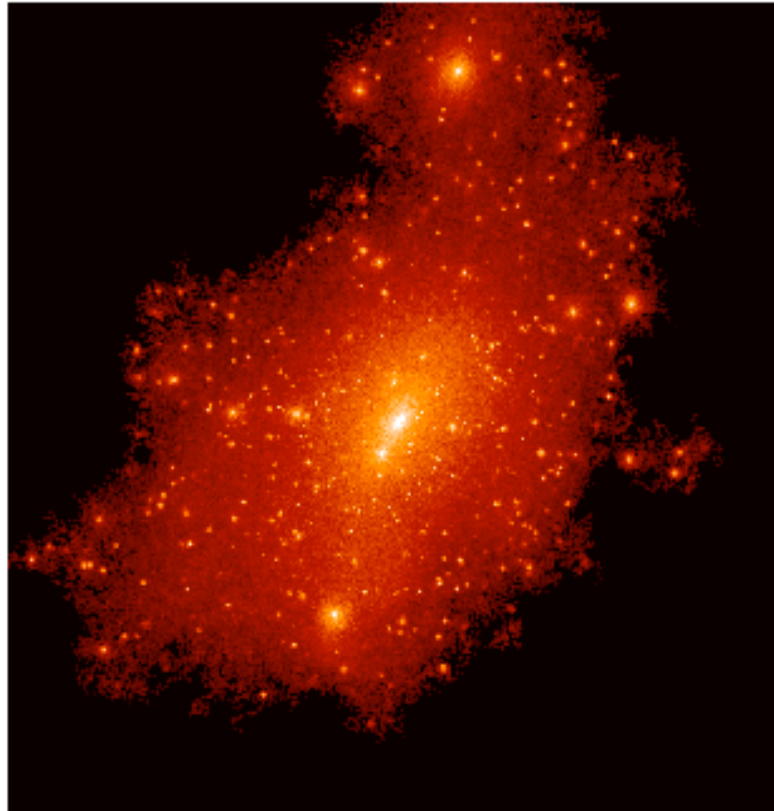
Science Team: Max Bernyk, Darren Croton, Thibault Garel,
Simon Mutch, Greg Poole, Chiara Tonini.

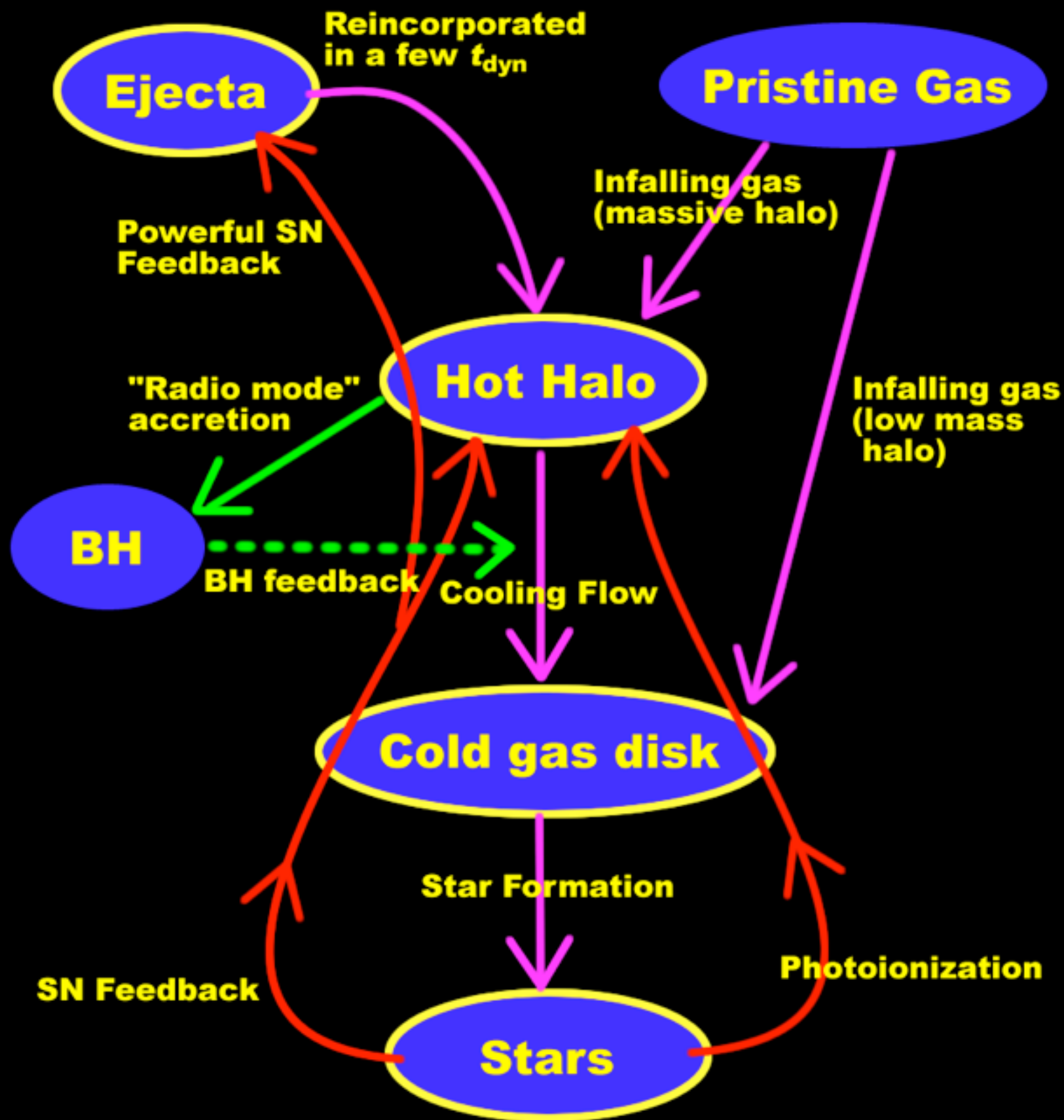
Technical Team: Alistair Grant, Amr Hassan, Luke Hodkinson.

$z=0$ dark matter

125 Mpc/h

The image displays a dense, interconnected network of dark matter filaments and clusters at redshift z=0. The filaments are represented by thin, purple lines that form a complex web across the entire field of view. At the intersections and along the thicker parts of these filaments, there are numerous bright, yellowish-orange spots, which represent dark matter halos or clusters. The background is a deep, dark purple. In the upper left corner, the text 'z=0 dark matter' is written in a yellowish-orange color. In the center, there is a horizontal white line with vertical end caps, labeled '125 Mpc/h', indicating the scale of the visualization.



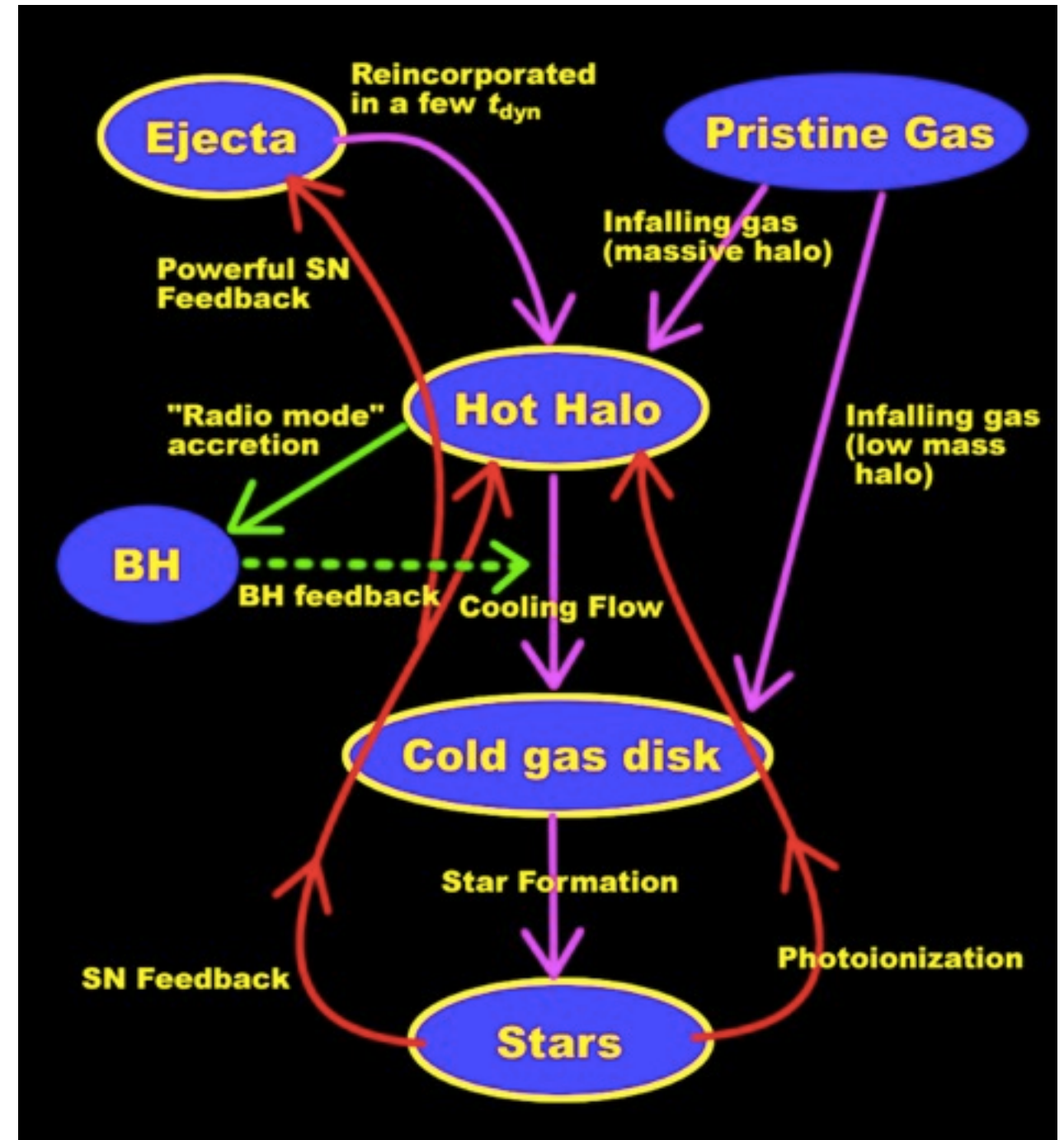
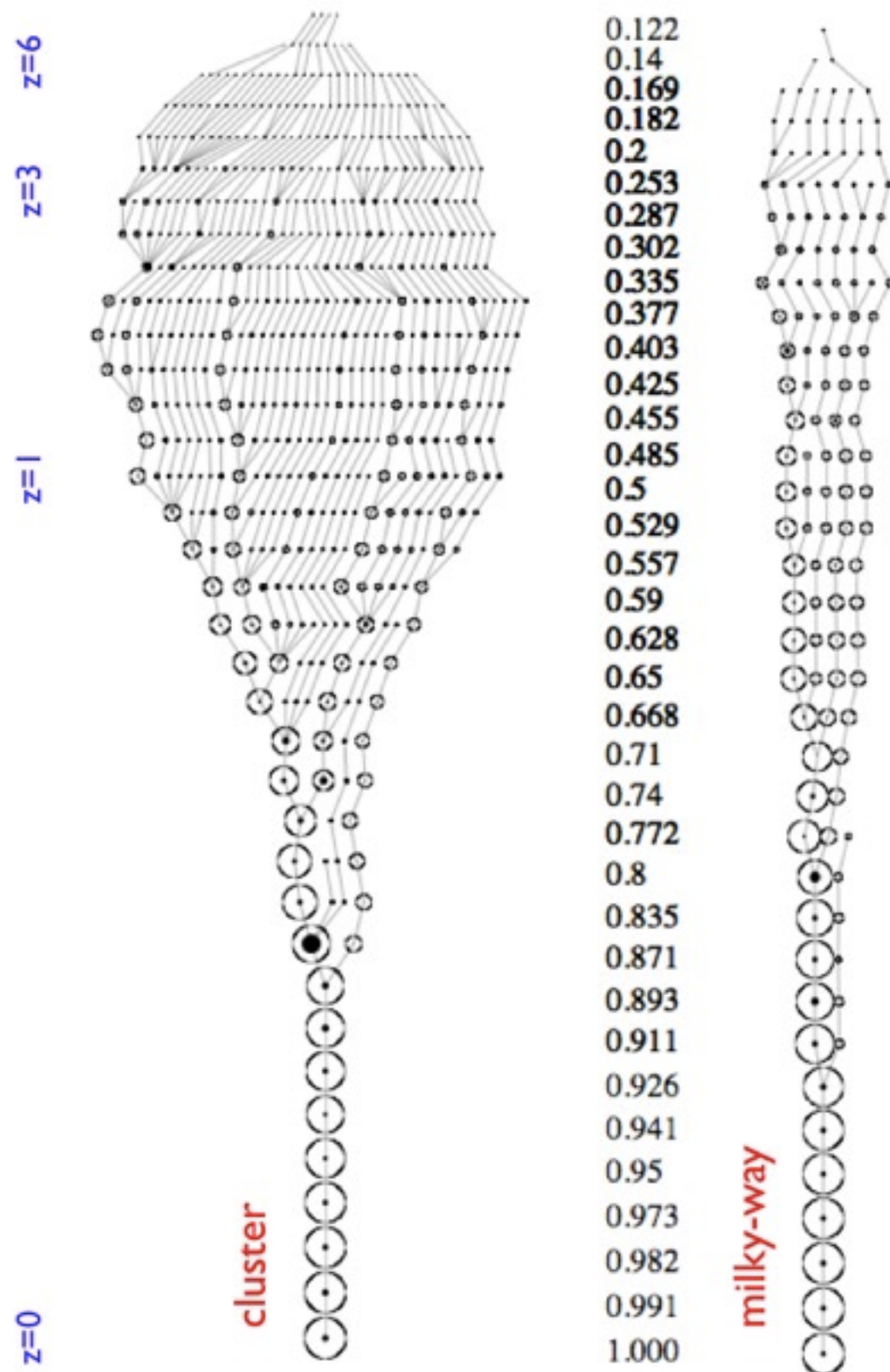


- Schmidt law star formation
- SFR dependent SN winds
- satellite gas stripping
- morphological transformation
- assembly through mergers
- starbursts through mergers
- Magorrian relation BH growth
- jet & bubble AGN feedback

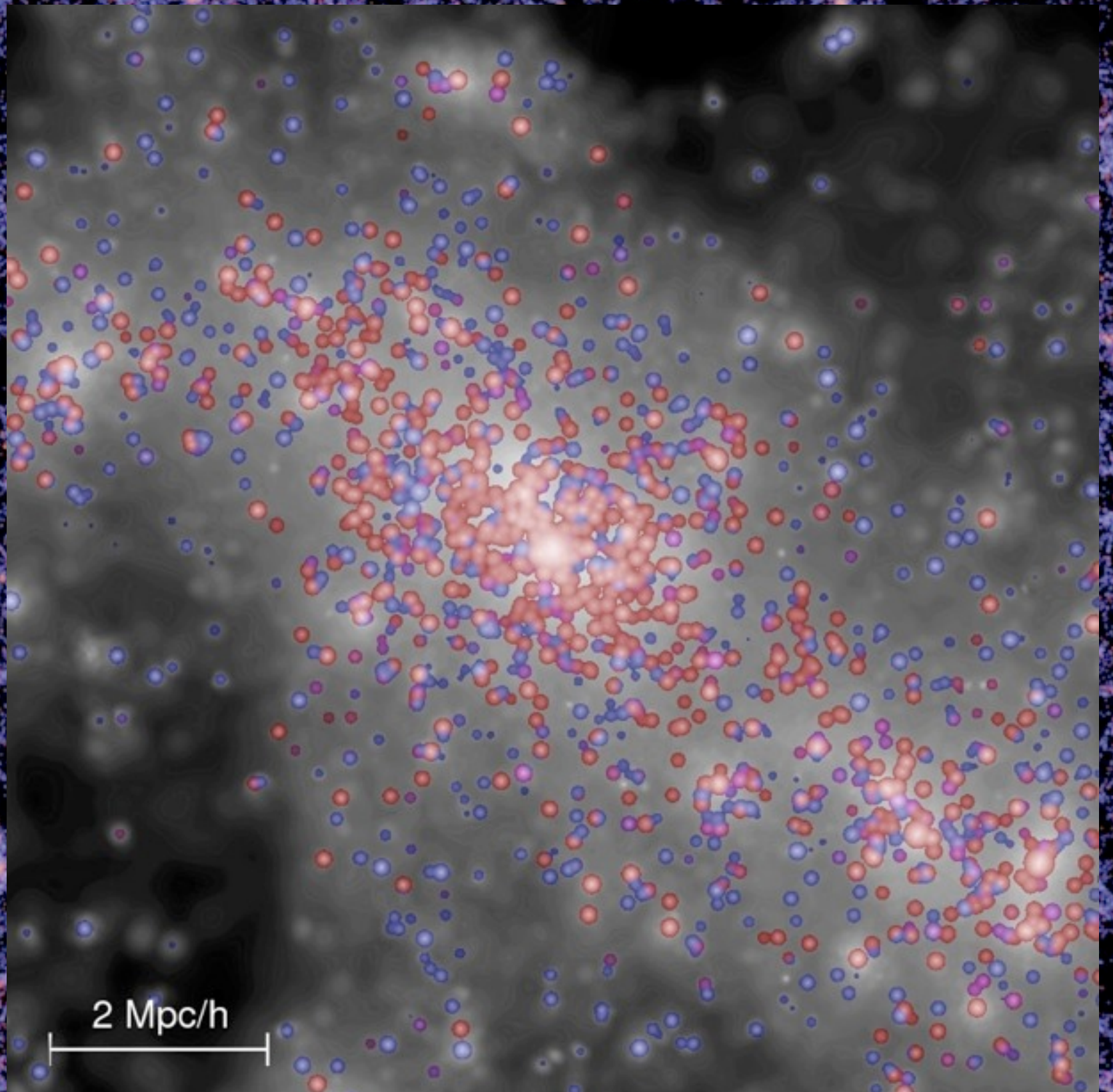
Numerical Simulation

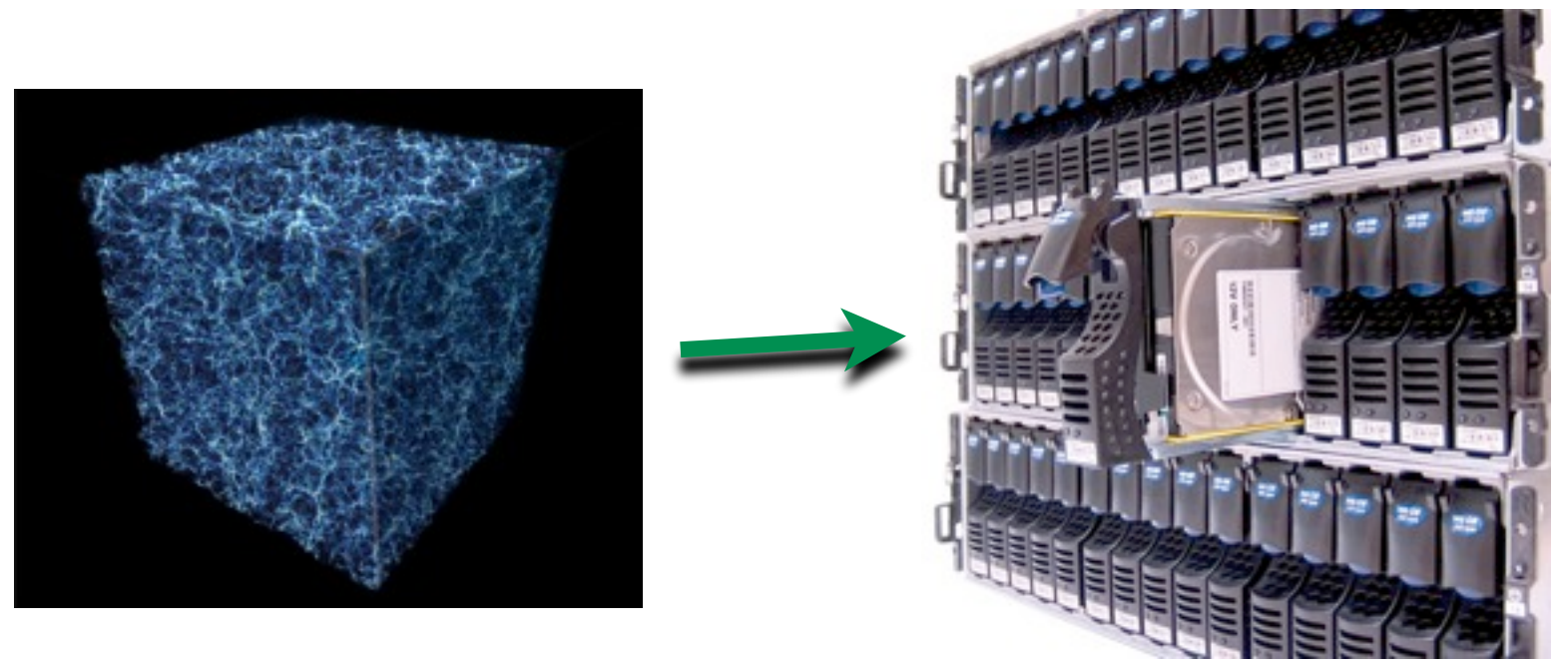
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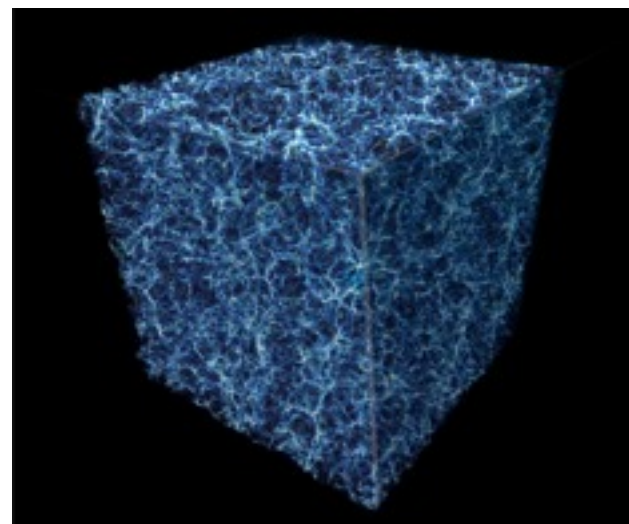
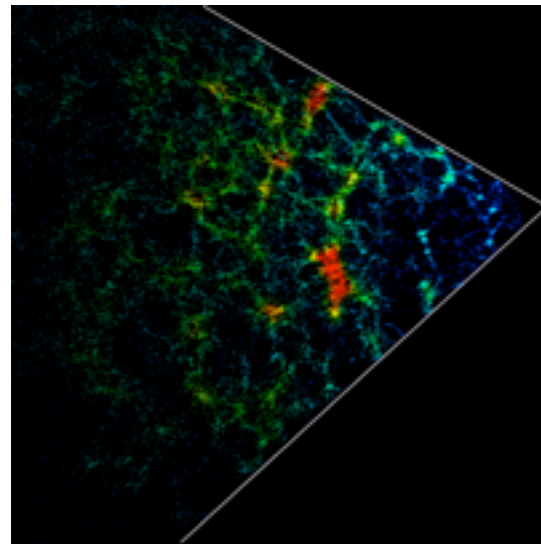
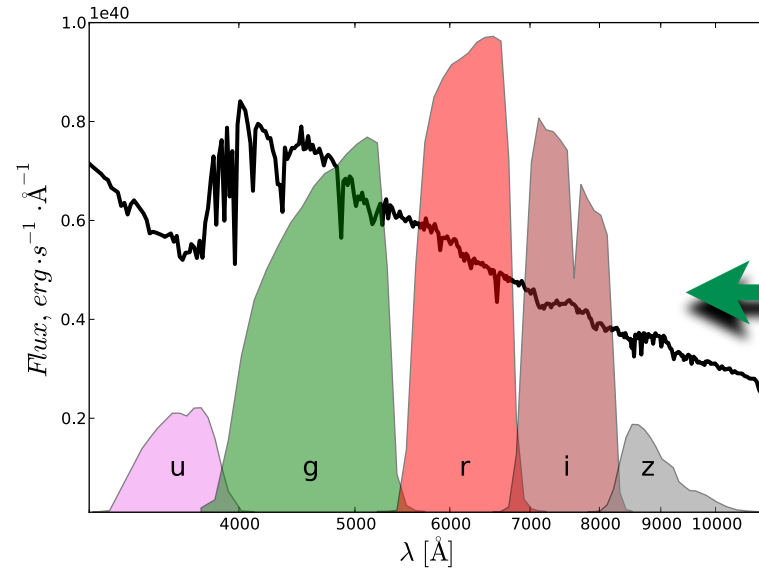
Analytic Simulation

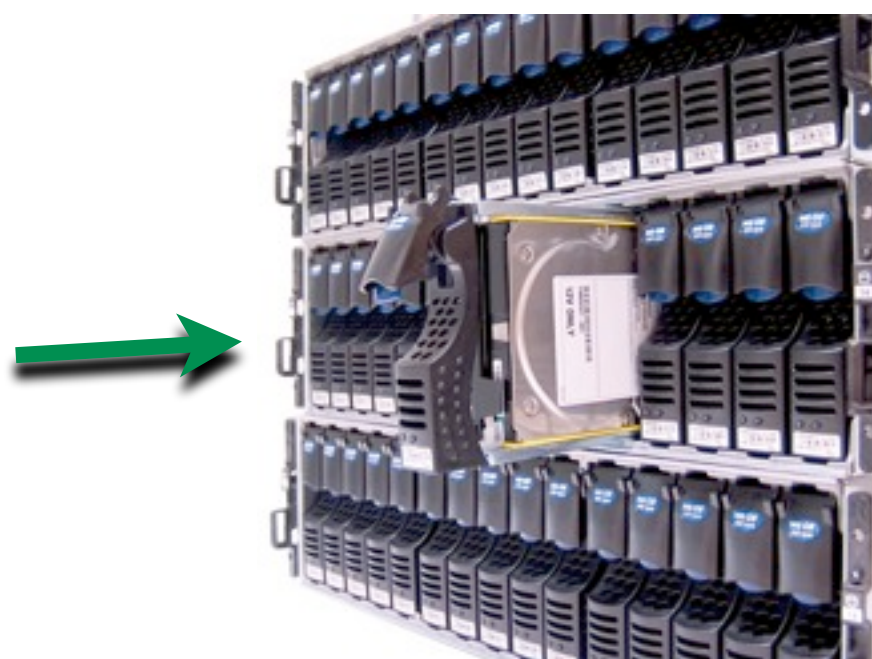
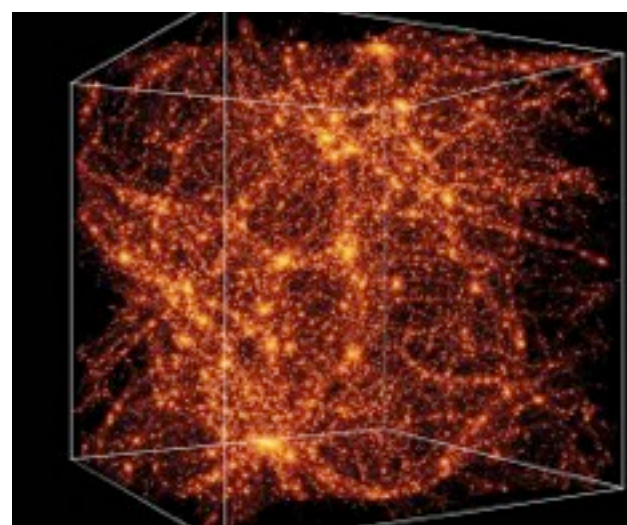
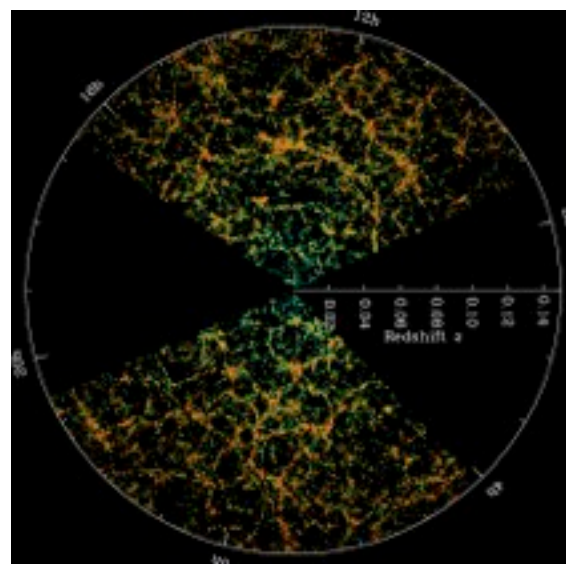


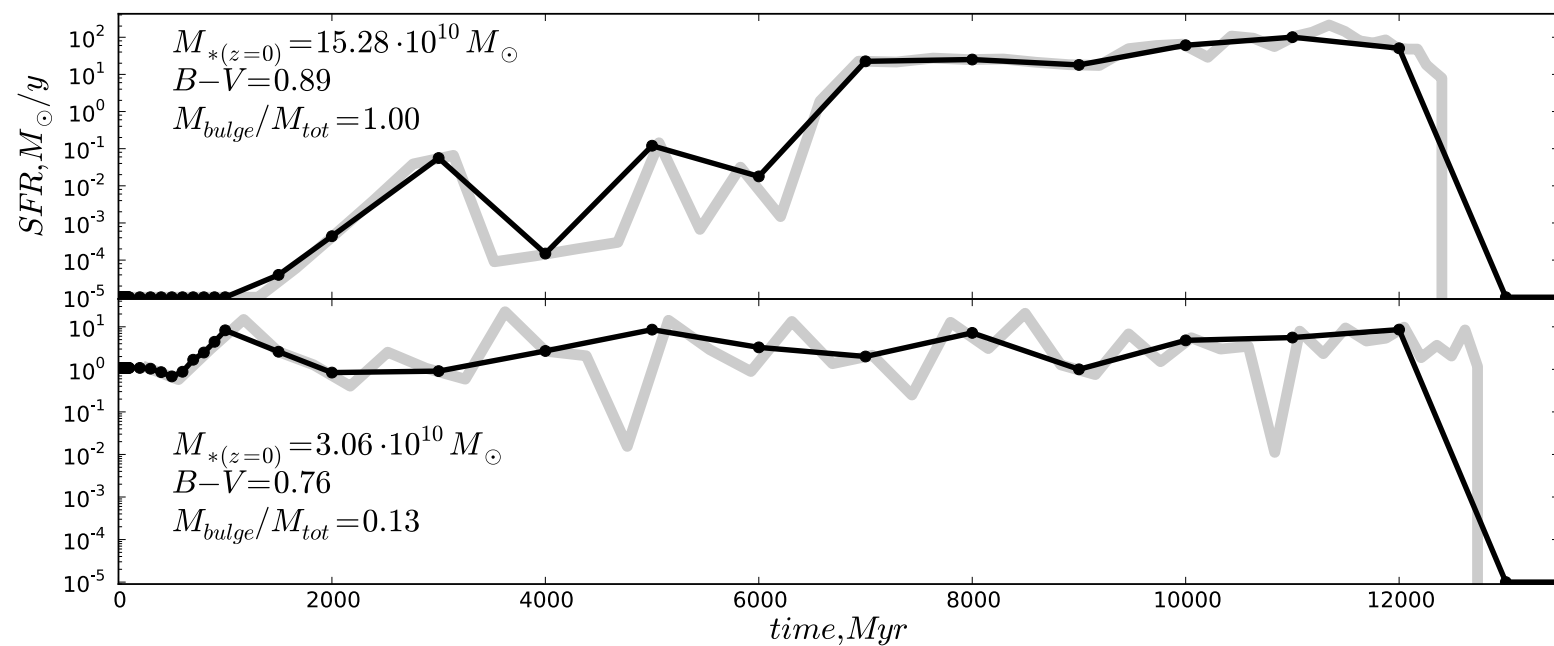
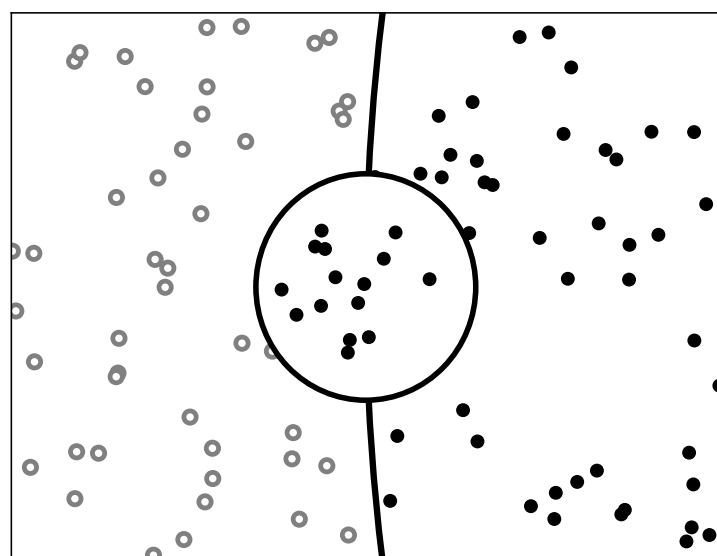
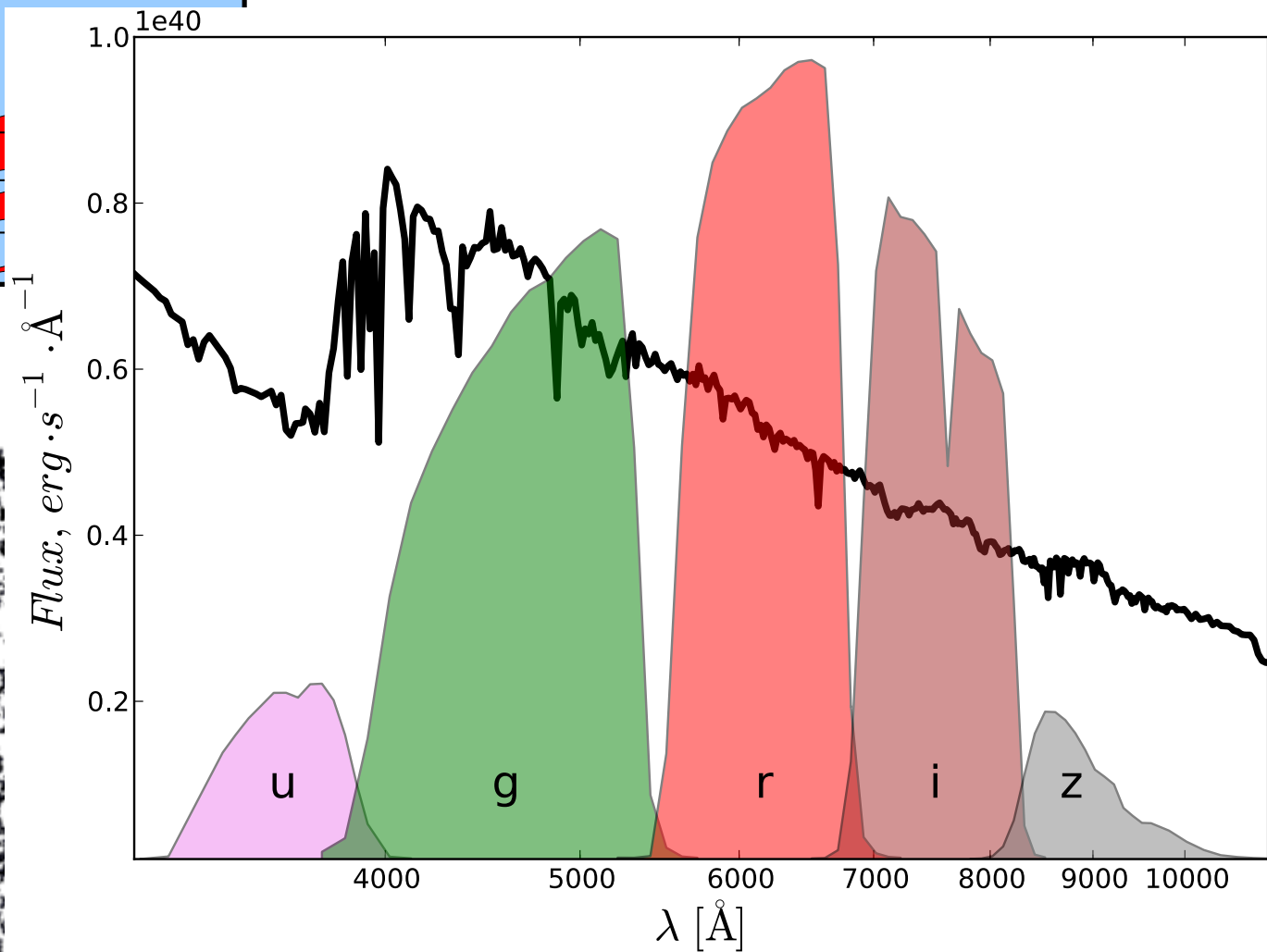
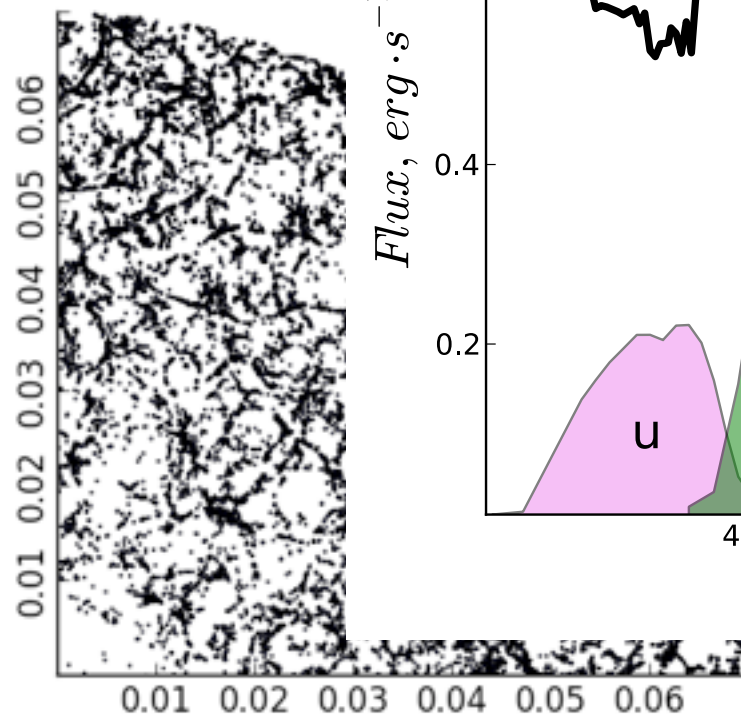
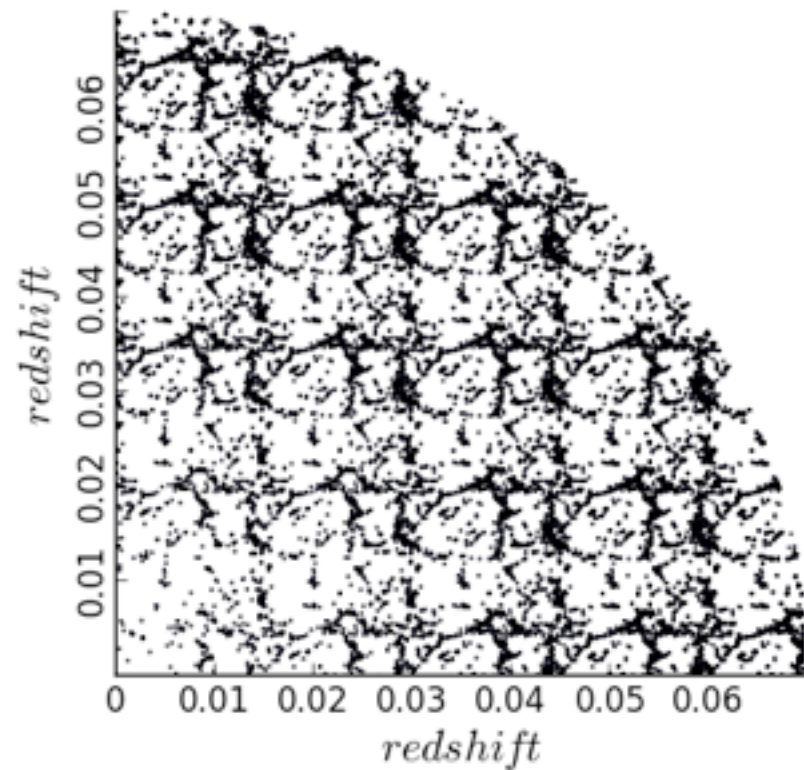
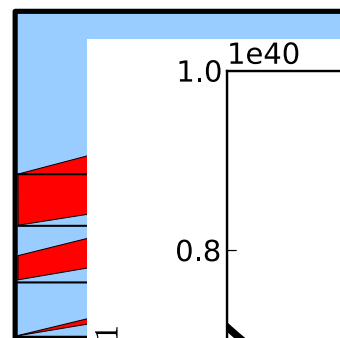
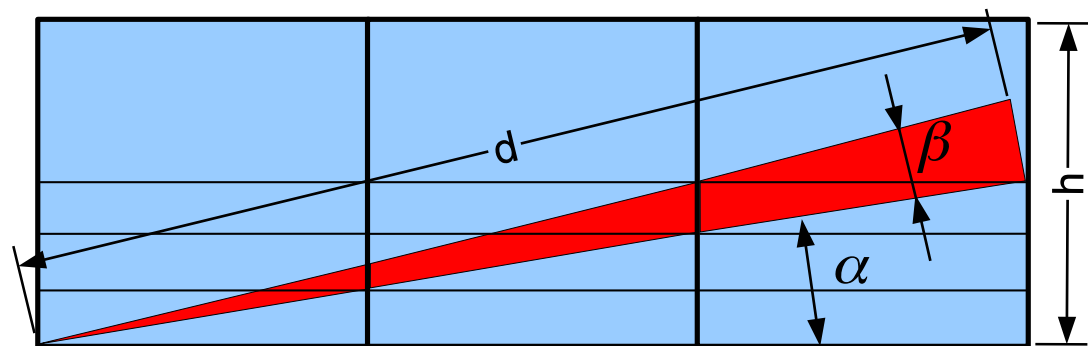
$z=0$ galaxy light

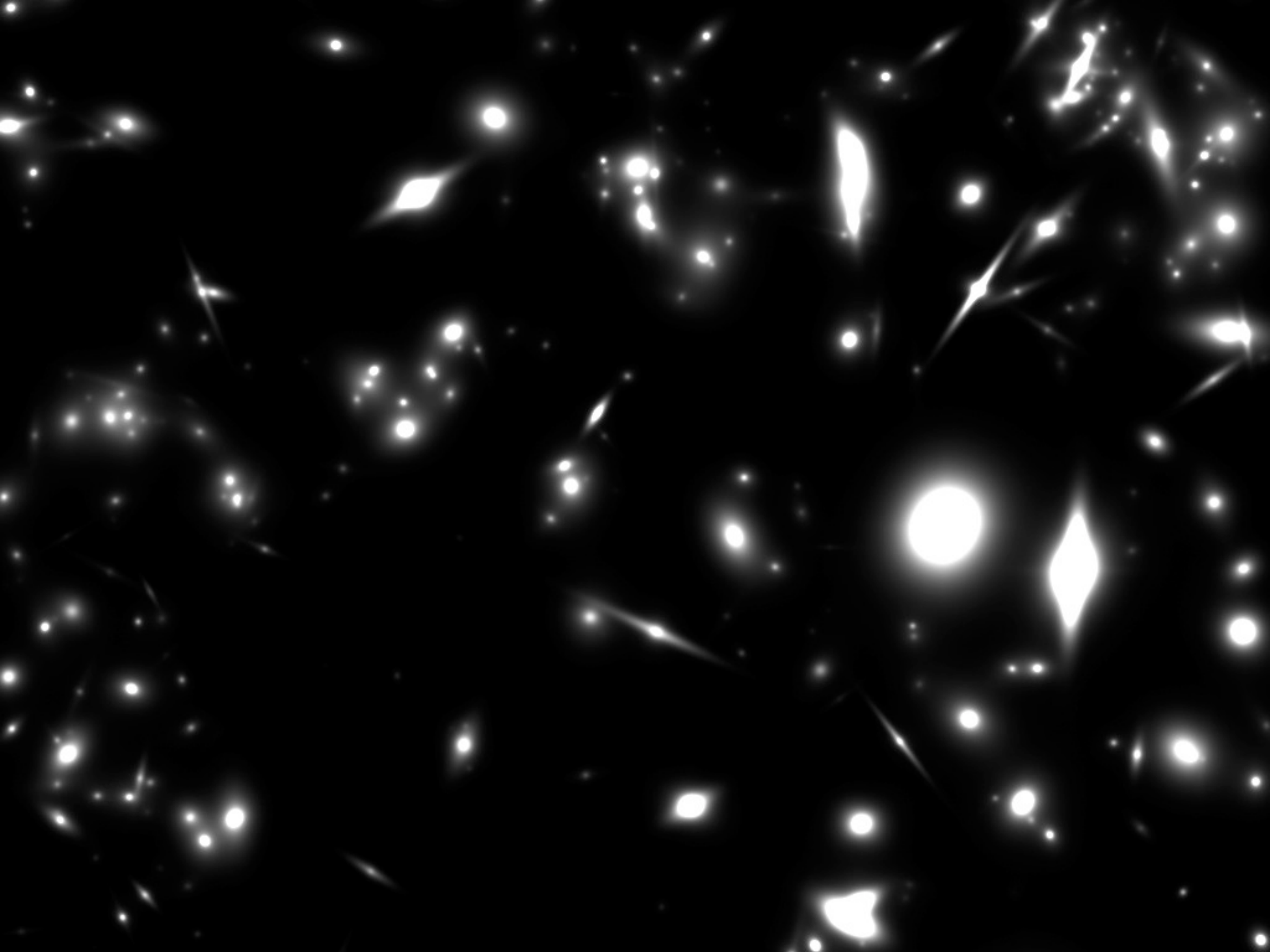












NeCTAR
ASVO-TAO
“Virtual Laboratory”

Telescope simulator

Image generation

Light cone generation

SEDs + Filters

Web form data query

Simulation database



Real time,
arbitrary parameters

Almost complete
(Maraston, Conroy, others)



Simple (no SQL!)

Millennium, Bolshoi, GigggleZ
plus models: SAGE, others



<http://tao.it.swin.edu.au/mock-galaxy-factory/>

<https://www.nectar.org.au/all-sky-virtual-observatory>

<http://www.asvo.org.au>