

If you still don't have the data, you can download from:

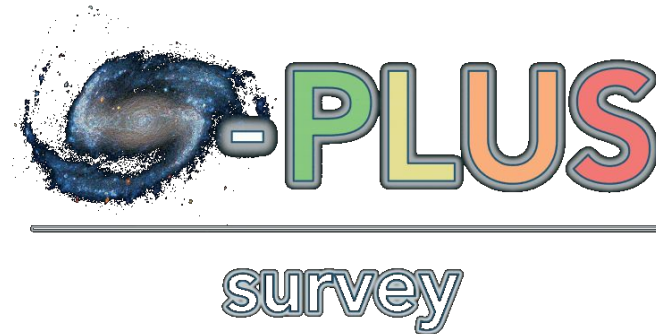
http://minerva.ufsc.br/~ariel/lapis_notebooks.zip

If you downloaded data this morning, go to the lapis_notebooks directory and type "git pull"!

How to build a galaxy

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A deep space photograph of a starry night sky. The background is a dark, dense field of stars of various colors, including white, yellow, and blue. A prominent feature is a large, diffuse nebula in the center, characterized by a mix of blue and white hues, with some darker, reddish-brown regions. The overall appearance is that of a rich, multi-colored stellar population.

Basic Ingredients



Dust

Young Stars

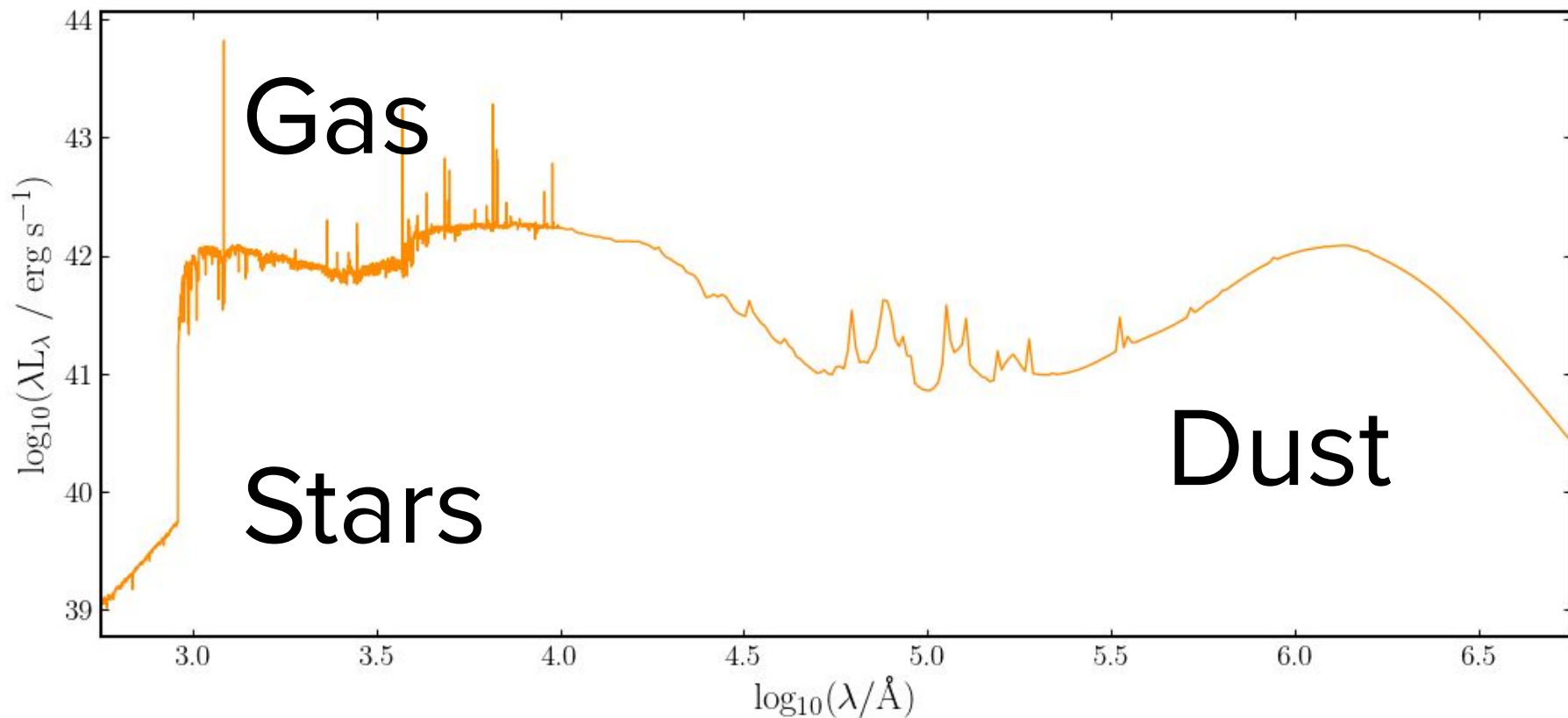
Old Stars

AGN

Gas

What are galaxies made of ?

What are galaxies made of ?



The background of the image is a deep space scene featuring two prominent galaxies. One galaxy is at the top, showing a bright, yellowish-white core and a diffuse, blue-tinted outer structure. The other galaxy is at the bottom, displaying a similar but more complex structure with a bright core and a blue-tinted, irregularly shaped outer region. The text is overlaid in white, sans-serif font. There are also several bright, multi-pointed stars scattered across the dark background.

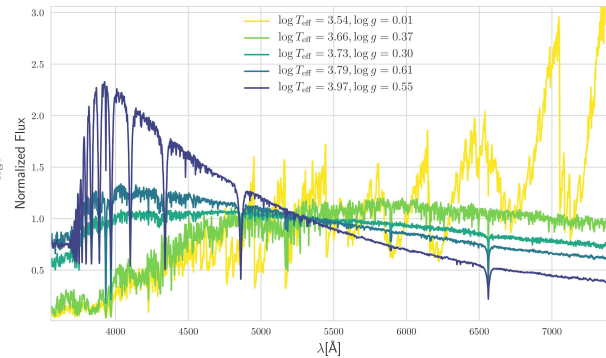
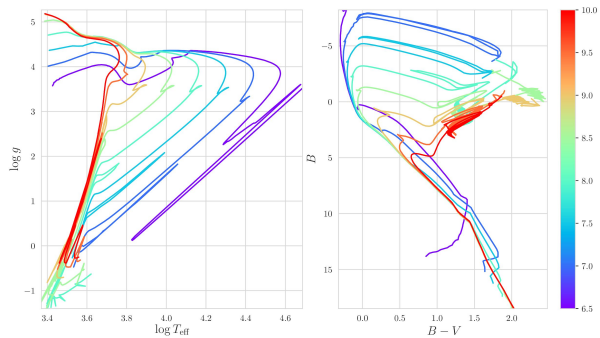
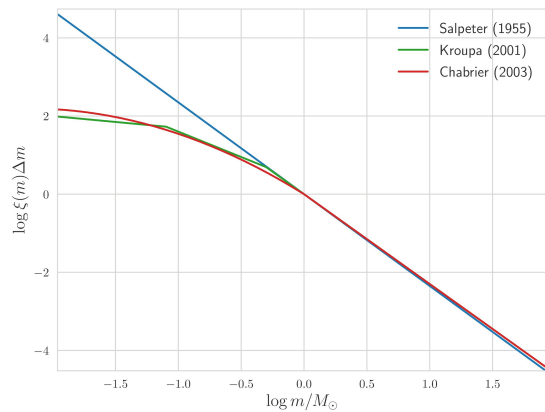
Unlike Black Holes...

Galaxies have a lot
of hair!



Stellar populations

Building stellar populations

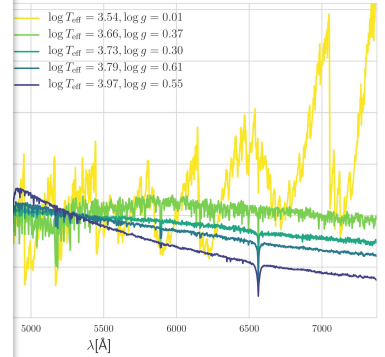
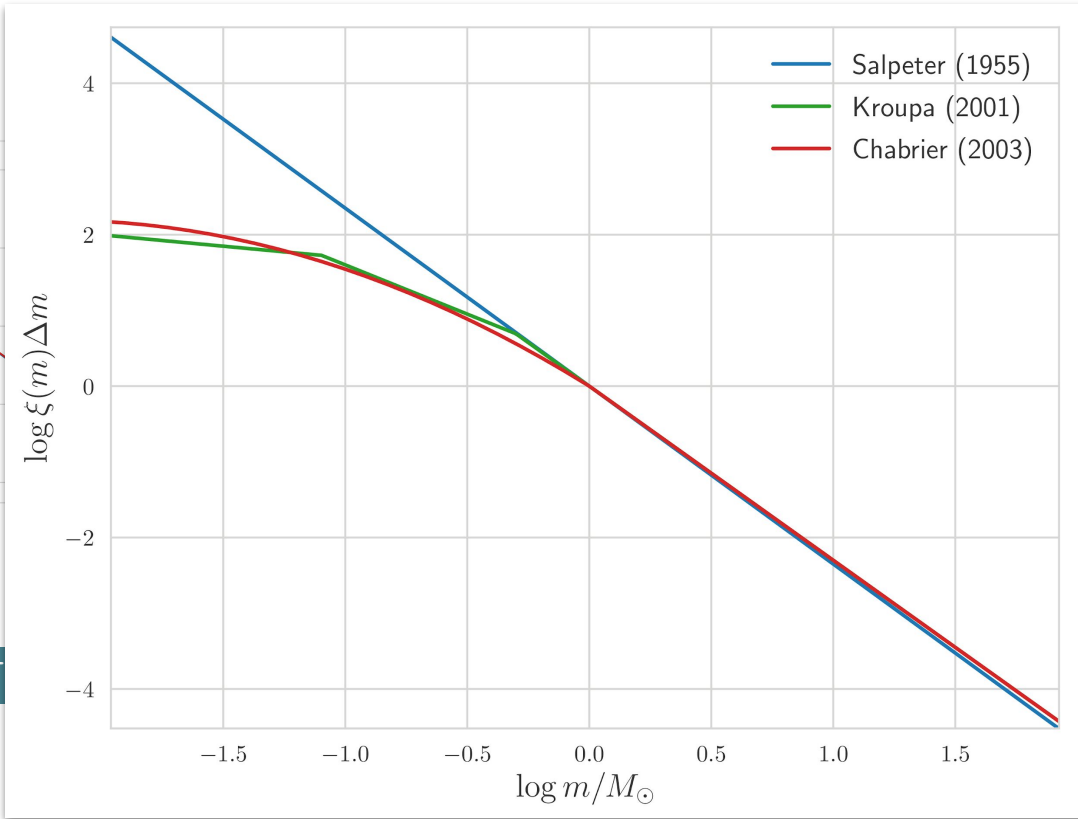
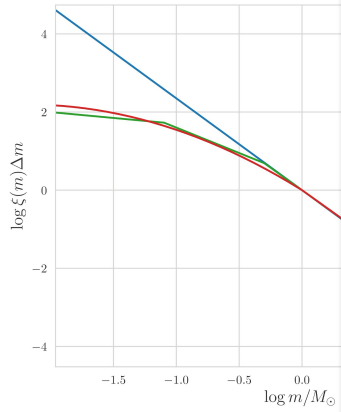


Initial Mass Function

Isochrones

Stellar Spectra

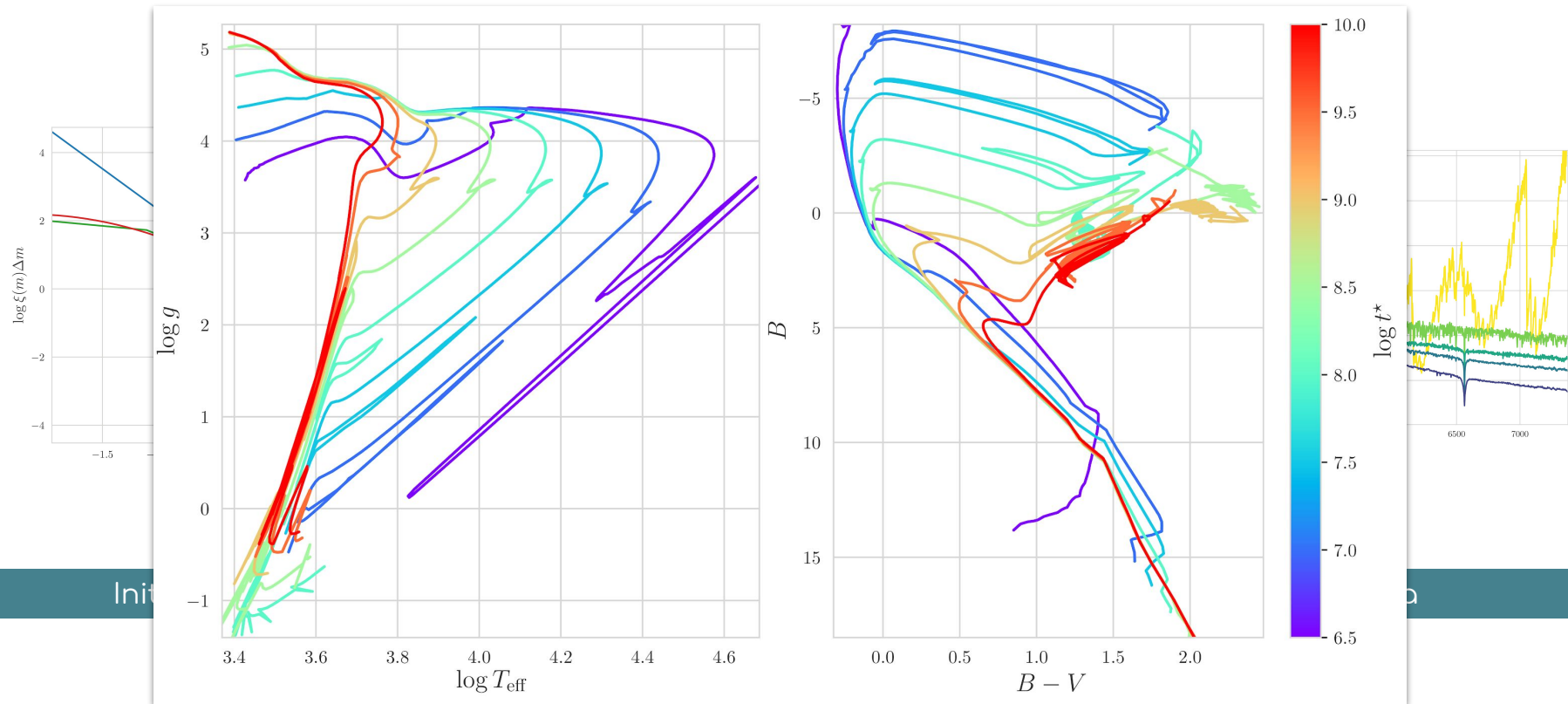
Building stellar populations



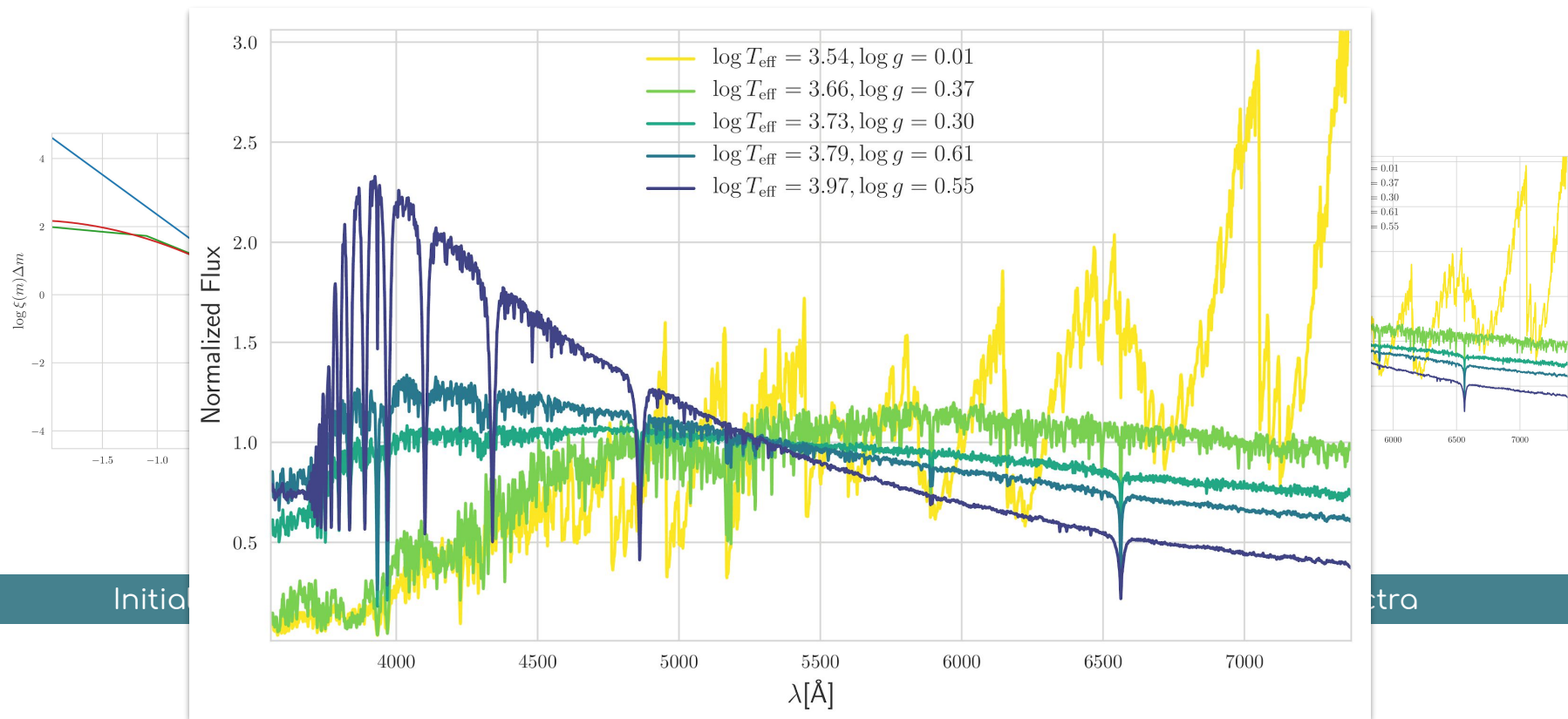
Initial Mass F

llar Spectra

Building stellar populations



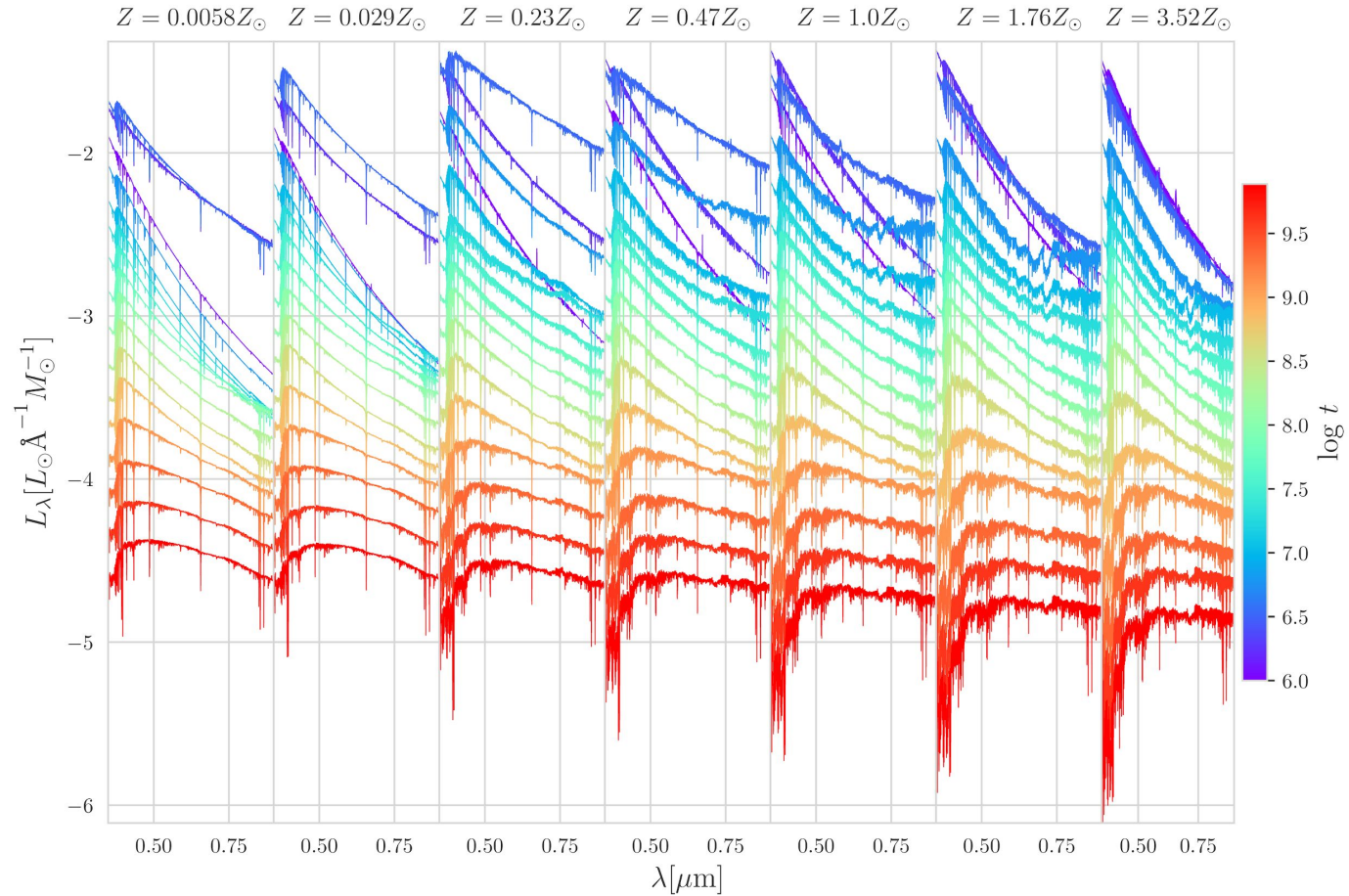
Building stellar populations



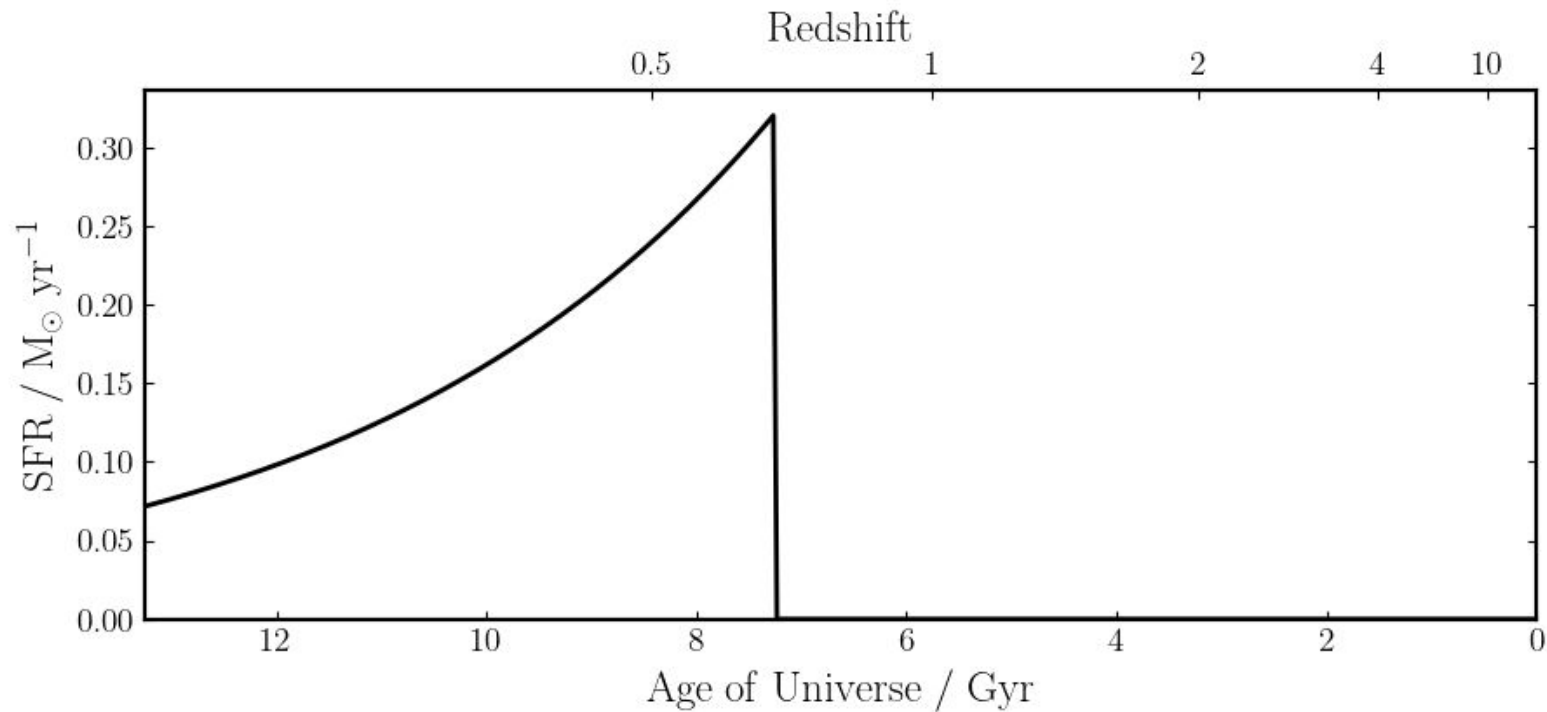
Initial

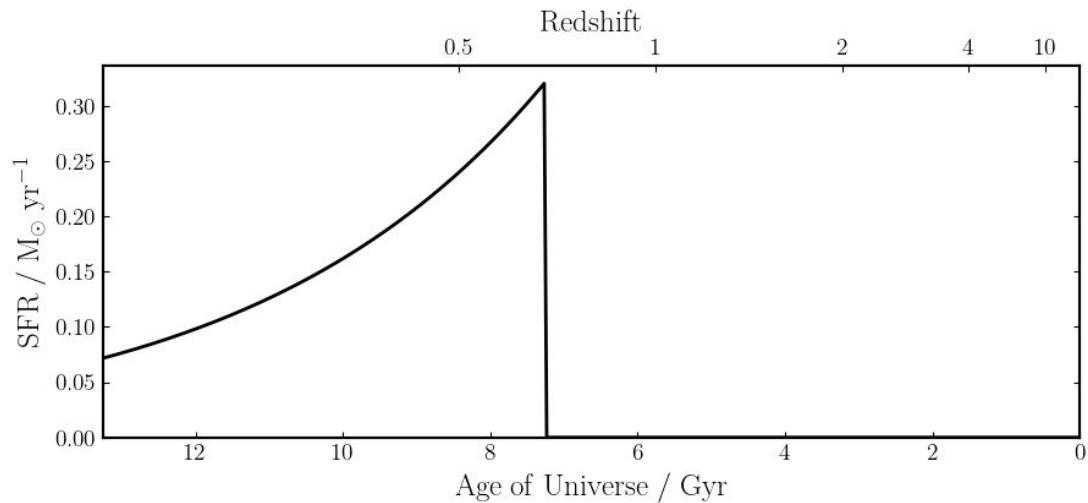
Spectra

Stellar population models

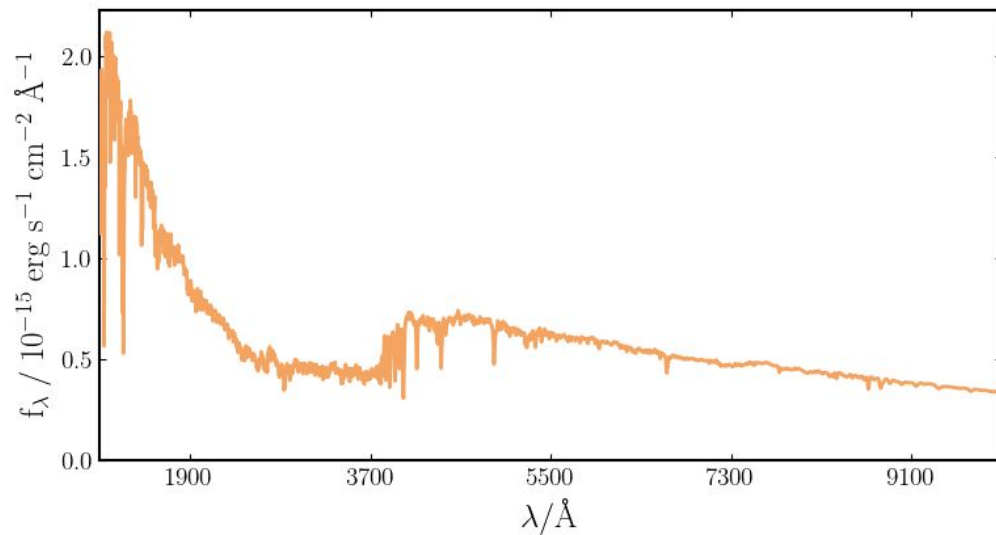
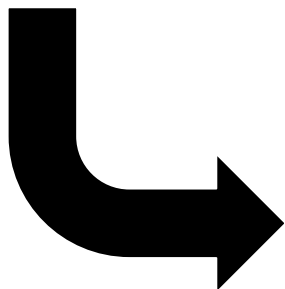


Star-formation histories





Star-formation histories



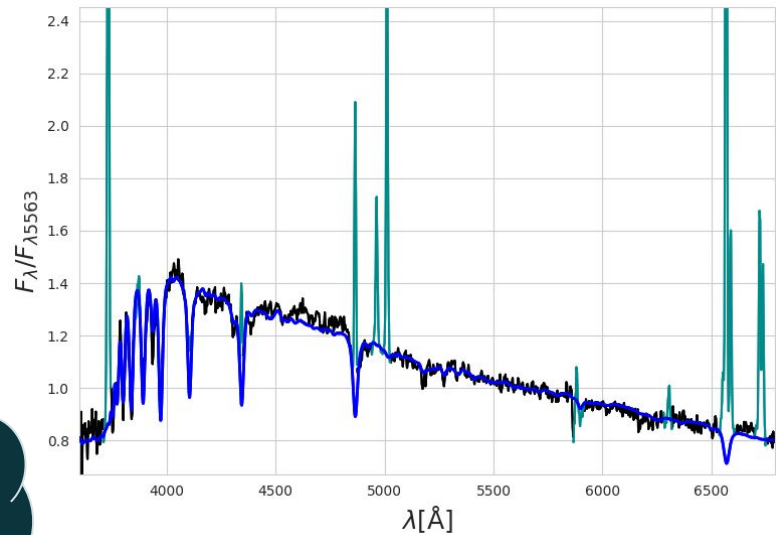
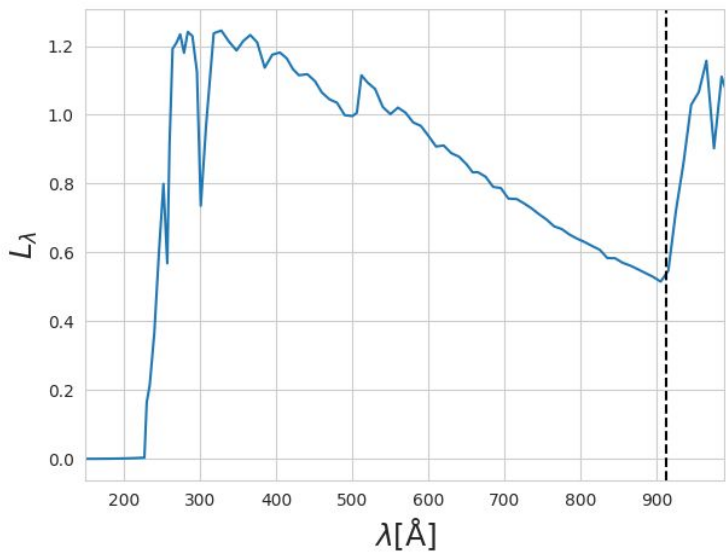
A wide-field photograph of a starry night sky. The background is a dense field of stars of various colors, including white, yellow, and blue. A prominent feature is a large, diffuse nebula that appears as a hazy, multi-colored cloud. The nebula has a mix of blue, purple, and brownish-orange hues, with some brighter spots. The text "Nebular emission" is overlaid in the center of the image in a white, sans-serif font.

Nebular emission

A dense field of stars, likely a star cluster or galaxy core, with a prominent greenish nebular emission. The stars are concentrated in the center and right side, with a large, diffuse greenish glow emanating from the central region. The background is dark, and the stars are of various colors, including blue, yellow, and red. The greenish glow is the result of nebular emission, which is the light emitted by ionized gases in the nebula.

Nebular emission

Nebular emission



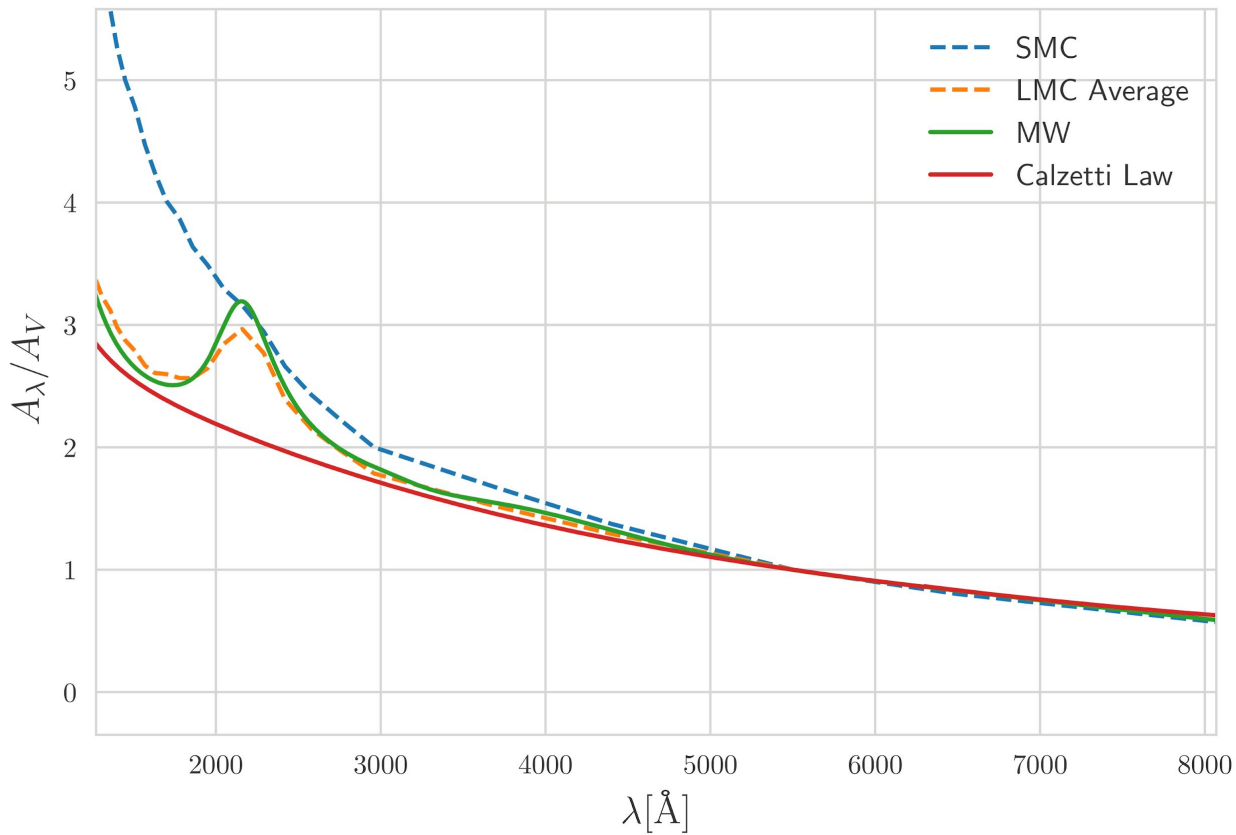
A wide-field astronomical image of a starry sky. The background is a dense field of stars of various colors, including white, yellow, and blue. A prominent, dark, reddish-brown dust lane runs diagonally across the image, starting from the bottom left and extending towards the top right. The dust lane is thicker in some areas and thinner in others, creating a complex pattern of obscuration and scattering. The overall appearance is that of a star-forming region or a galaxy core with significant interstellar dust.

Dust

A wide-field astronomical image showing a dense field of stars. A large, dark, irregularly shaped cloud of dust is visible in the center-left, partially obscuring the stars behind it. The stars are of various colors, including white, yellow, orange, and red. The text "Dust absorption" is overlaid in the upper right corner in a white, sans-serif font.

Dust absorption

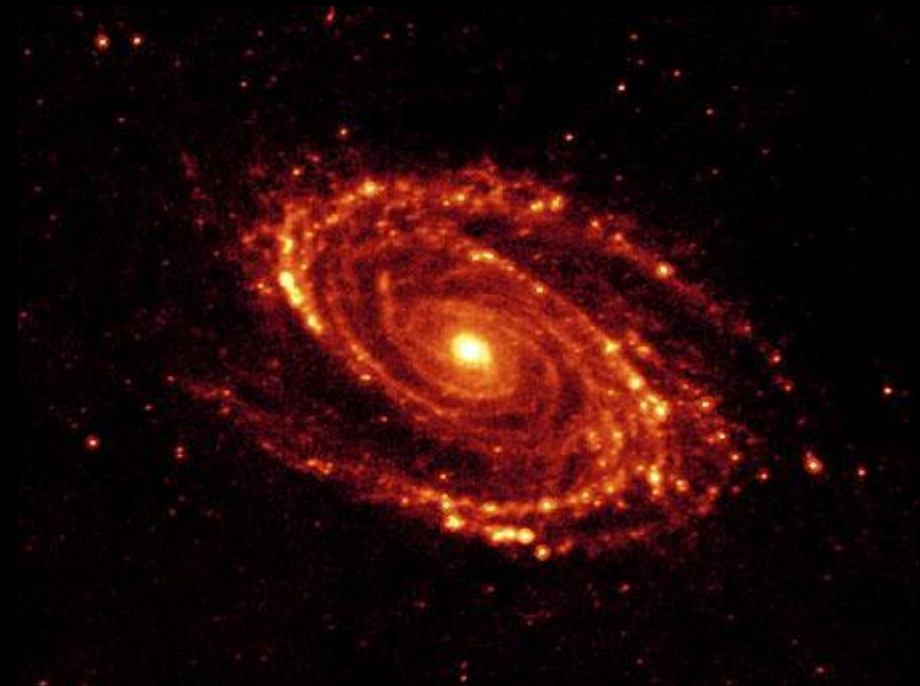
Dust absorption



Dust emission



Optical



Far Infrared

Let's get to work!

http://minerva.ufsc.br/~ariel/lapis_notebooks.zip

Or git clone https://github.com/arielwrl/lapis_notebooks.git

Do git pull If you cloned it this morning!