Outline of Week

WARNING!! Typo present in static 3d planet modeling code!!!

Outline of Week

- ~~Day 1: Movies!~~
- ~~Day 2: More movies! Start thinking about 3D stuffs~~
- Day 3: More 3D interactive movies/things, VR
- Day 4: Glue/Hololense Demo and Gallery Exhibition

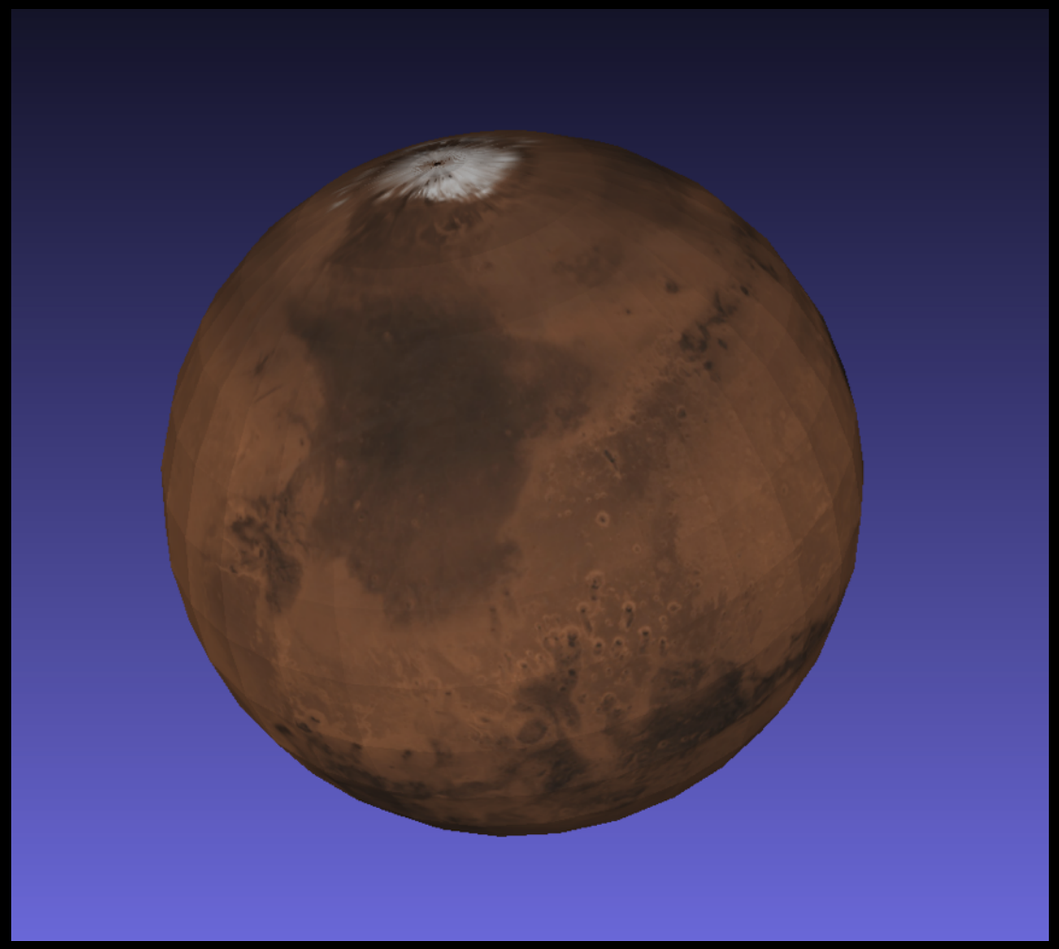
Software

(1) Set up a Sketchfab account

(2) Download MeshLab

The OBJ File Format

```
Jills-MacBook-Pro:MyPlanetSystem jillnaiman1$ ls
MyPlanetSystem.mtl   green_sun.jpg        neptunemap_1000.jpg
MyPlanetSystem.obj   jupiter_1200.jpg     sun_texture1.jpg
```



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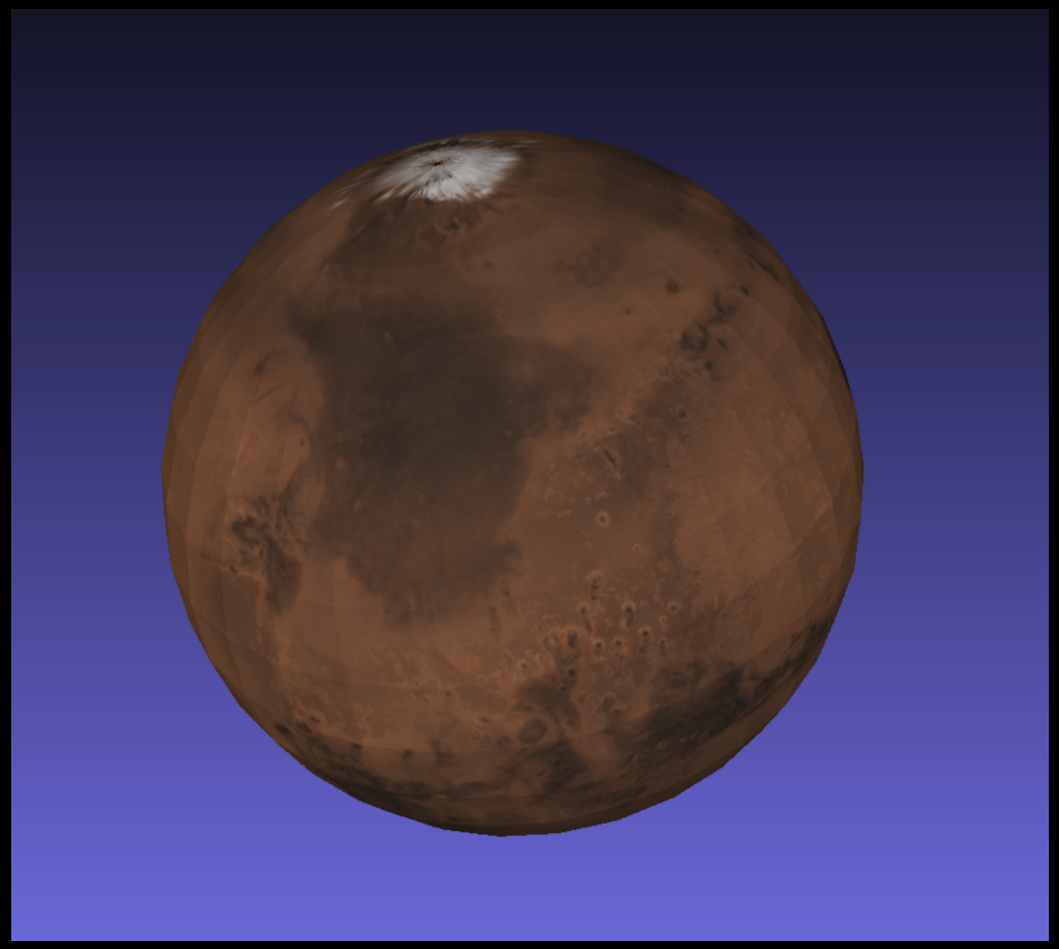

For each object (sphere) an OBJ file gives information for:

Vertex locations

Texture coordinates

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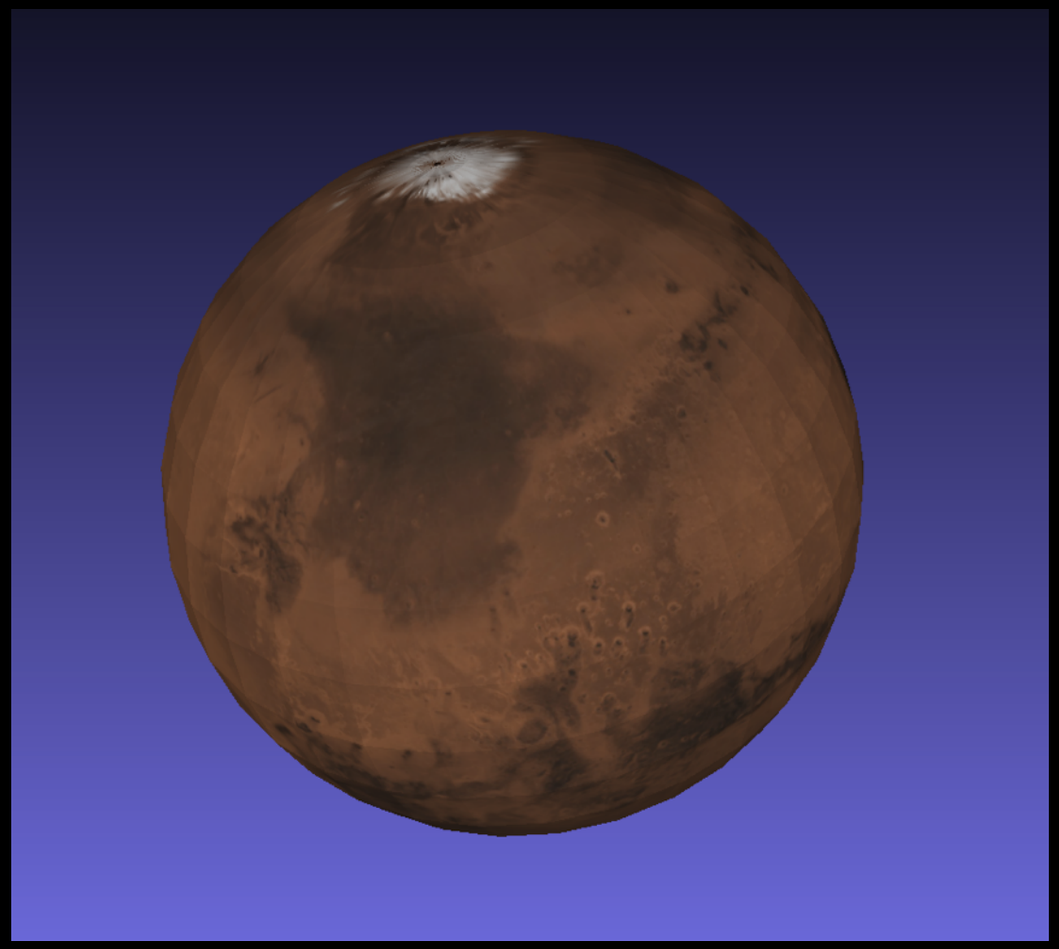

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Colors of faces

Names of mapped textures

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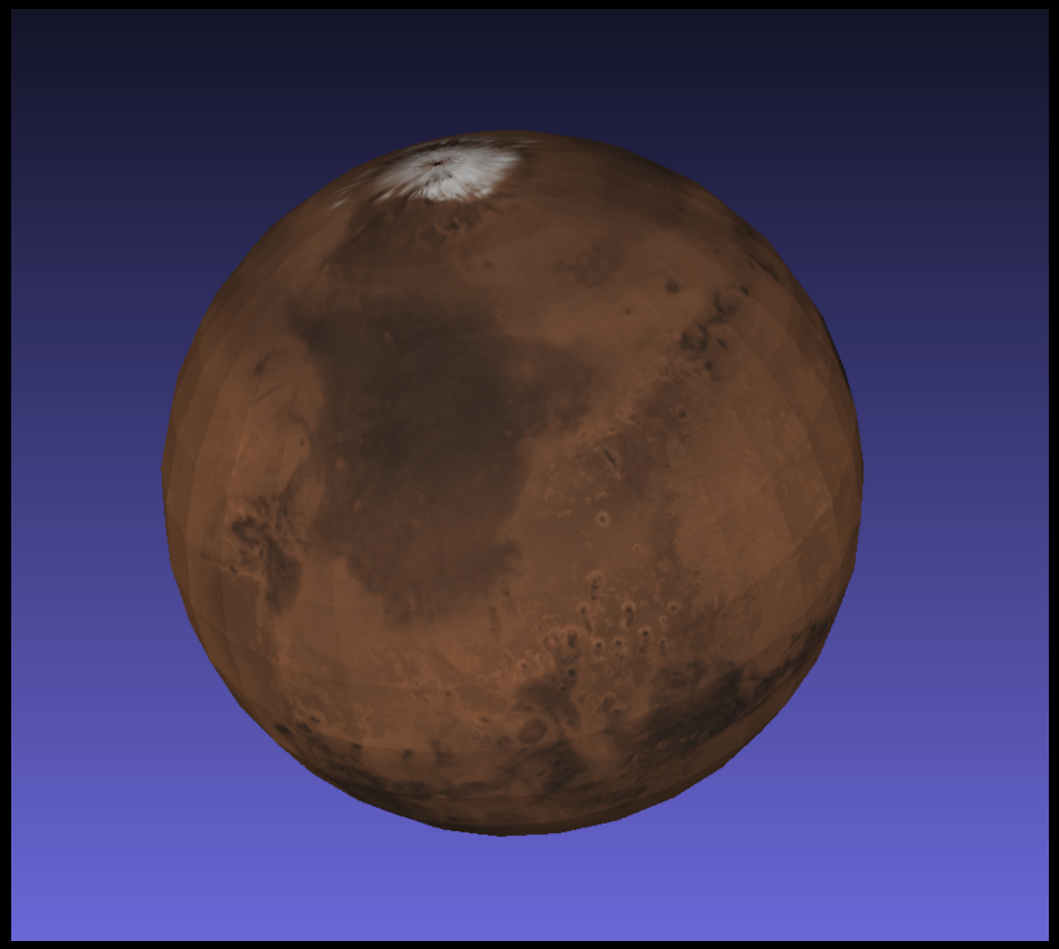

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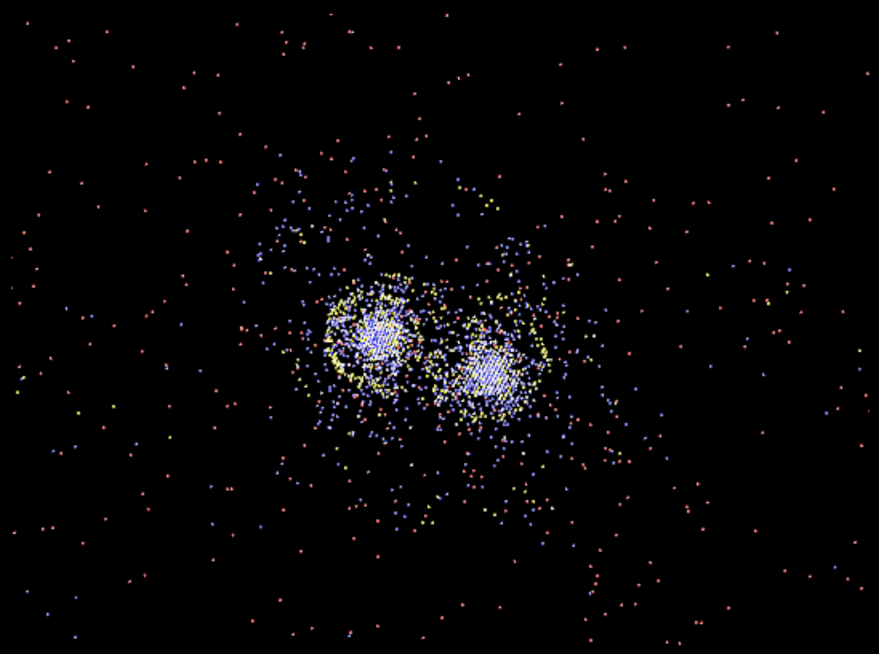
NOTE: these sorts of files can be uploaded in MeshLab & Sketchfab

For Sketchfab you must zip together the .obj, .mtl, and texture files
For MeshLab: select Render -> Color -> Per Mesh to see textures

The PLY File Format



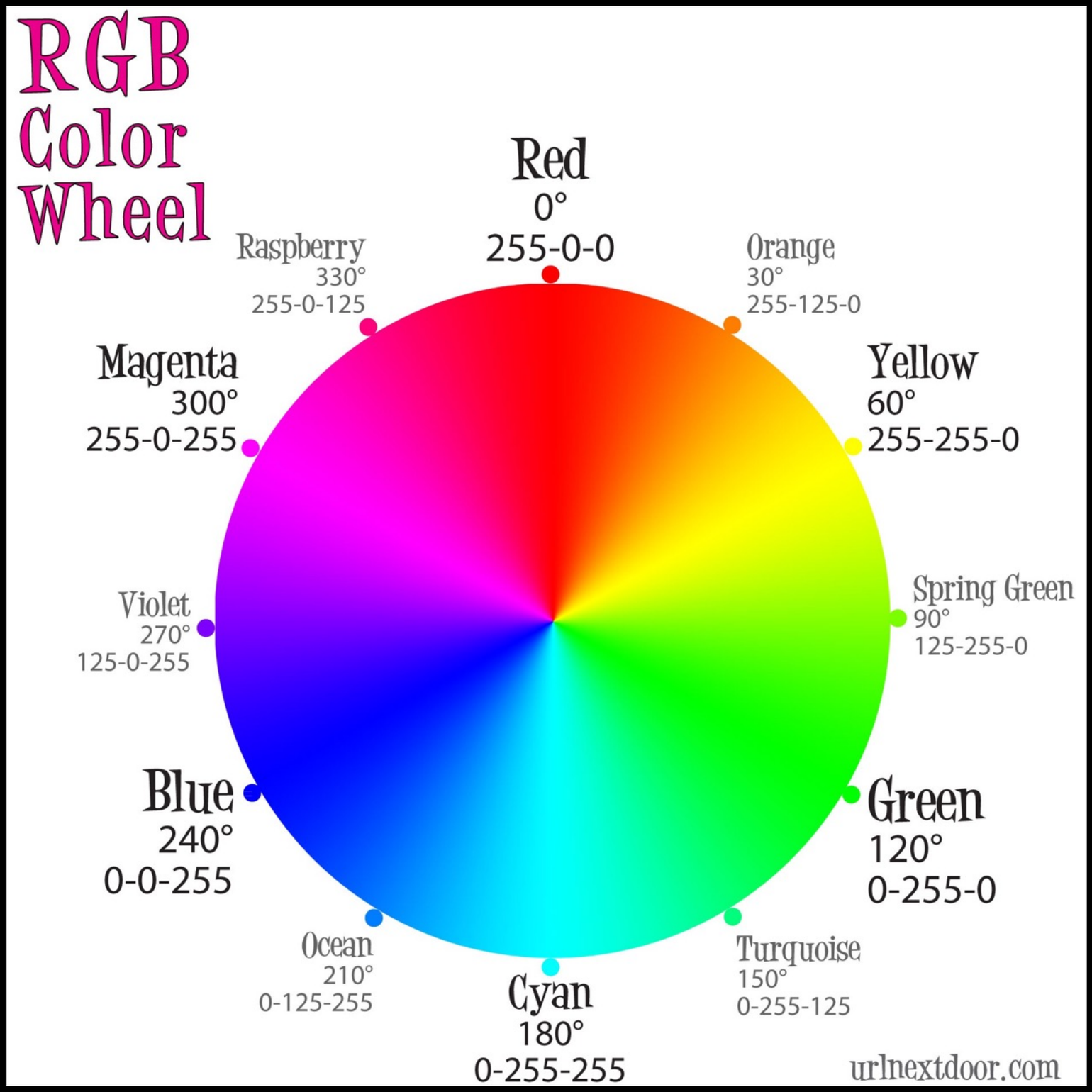
For each vertex representing each particle, the PLY file stores:

Vertex locations

Colors of each vertex

NOTE: these sorts of files can be uploaded Sketchfab only

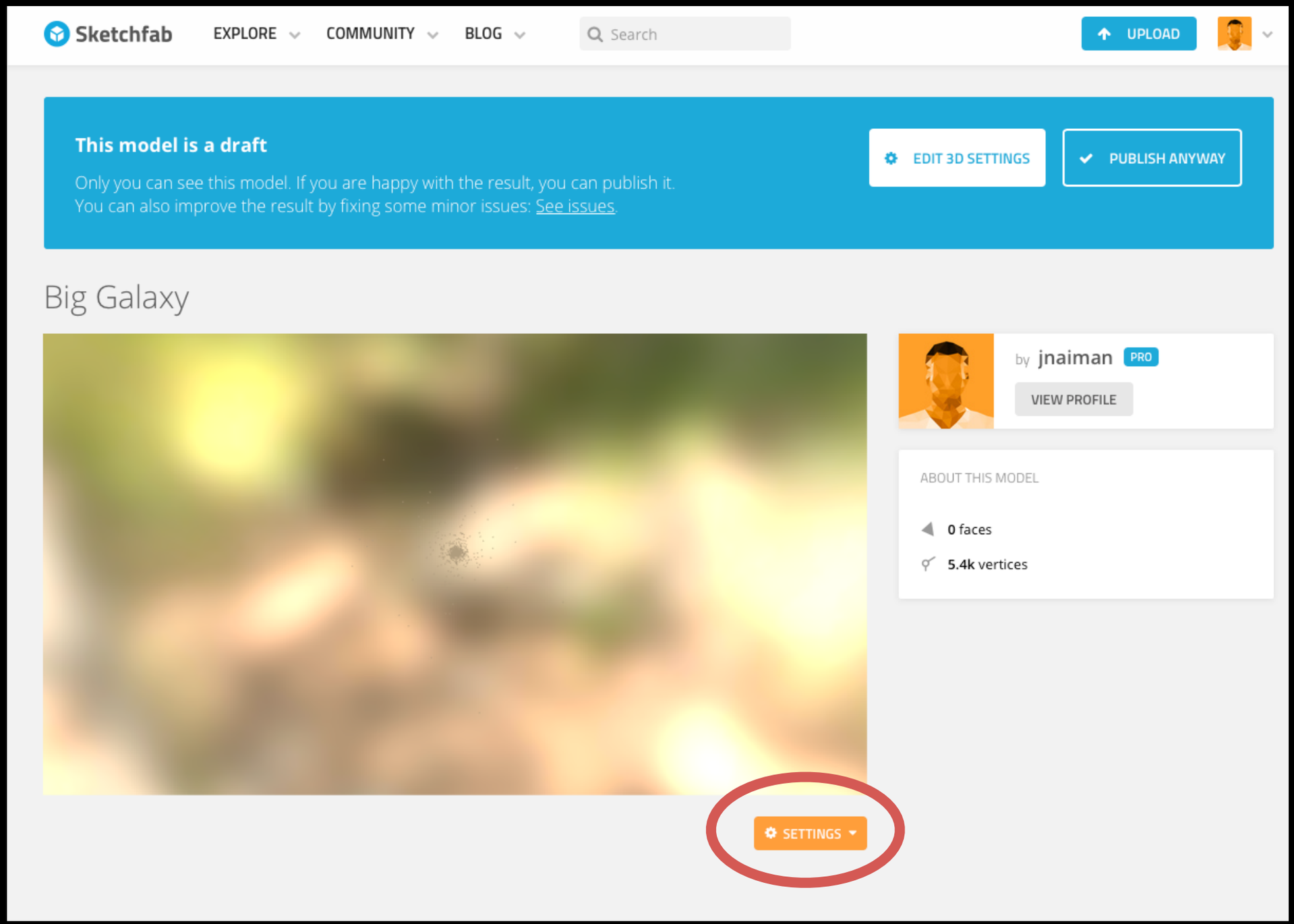
A note about RGB colors



Some code the range is 0-255, others its 0-1… sorry

First, start with static uploads

Hints for Sketchfab (esp for PLY files):



Click on 3D settings

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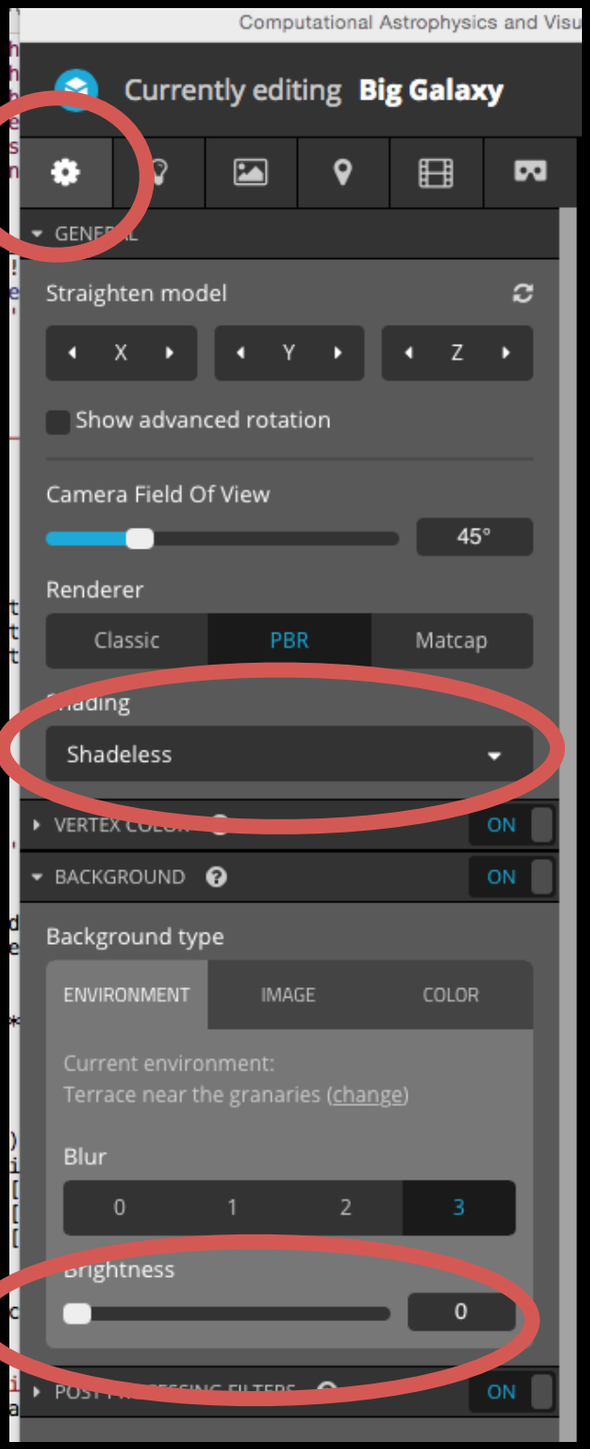

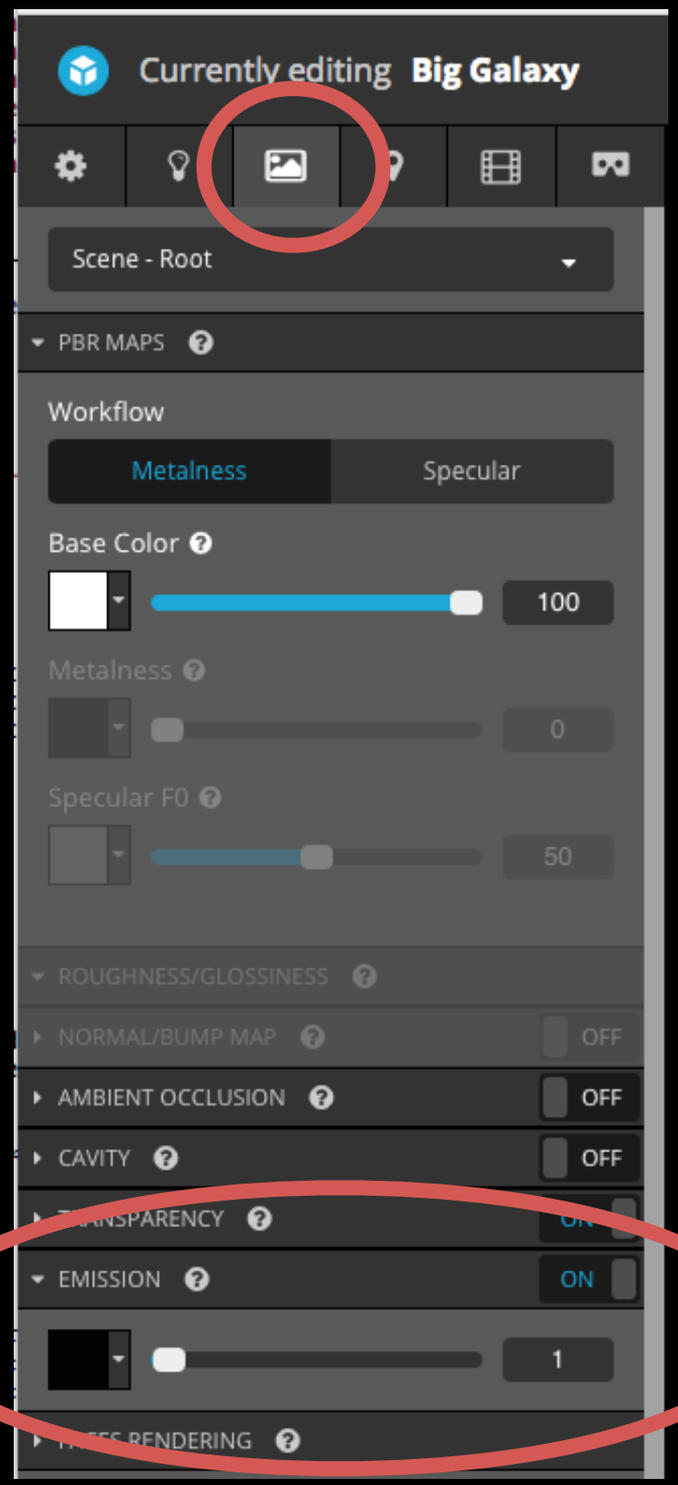

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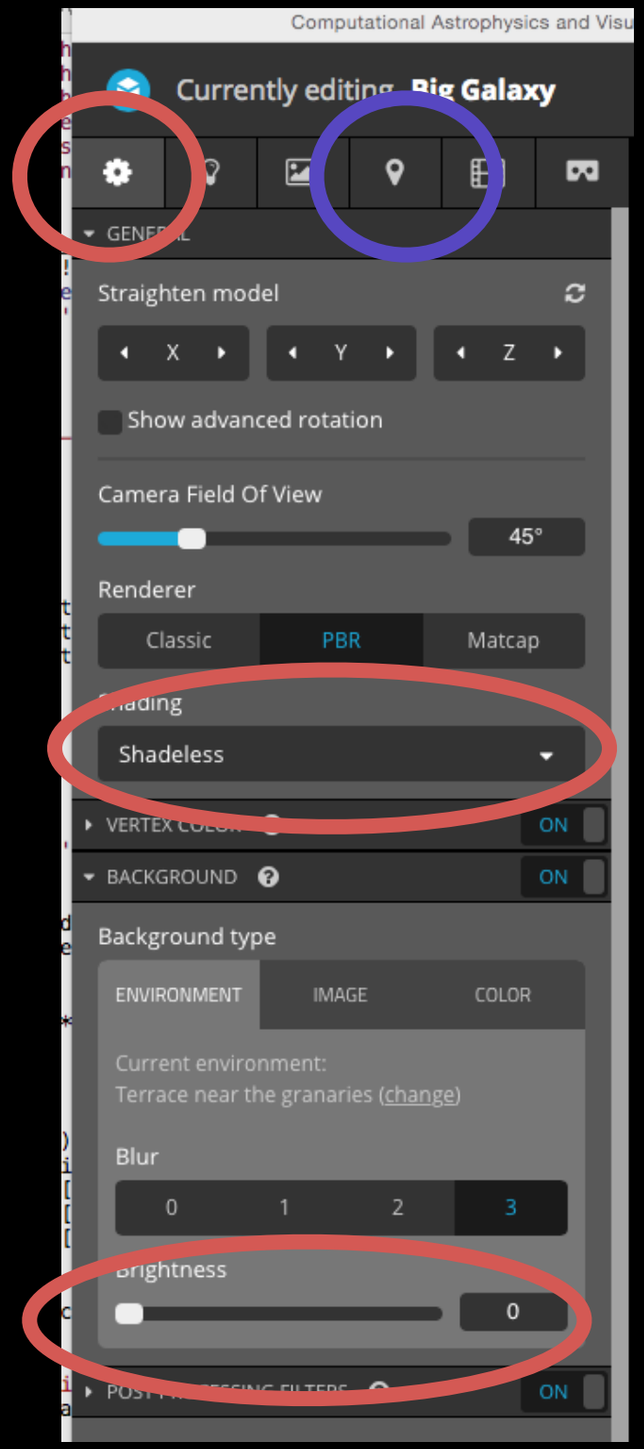
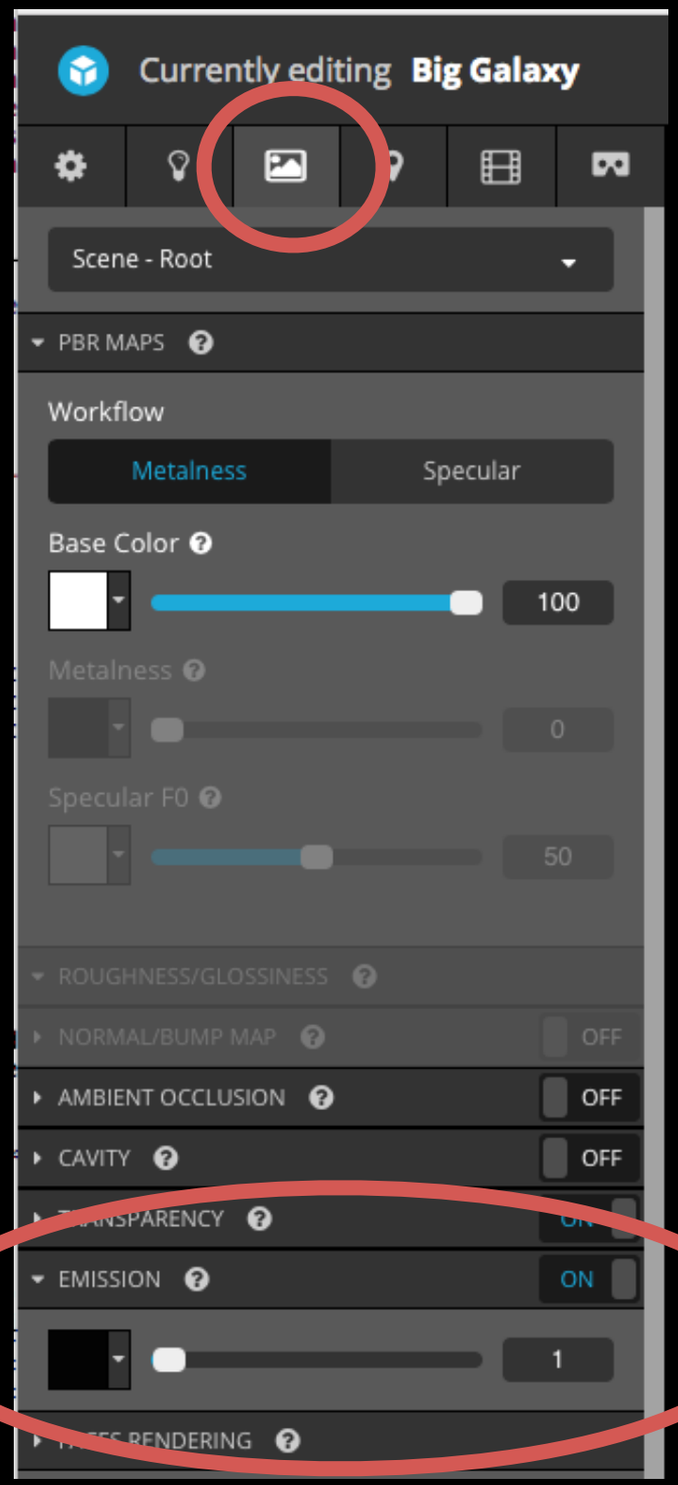
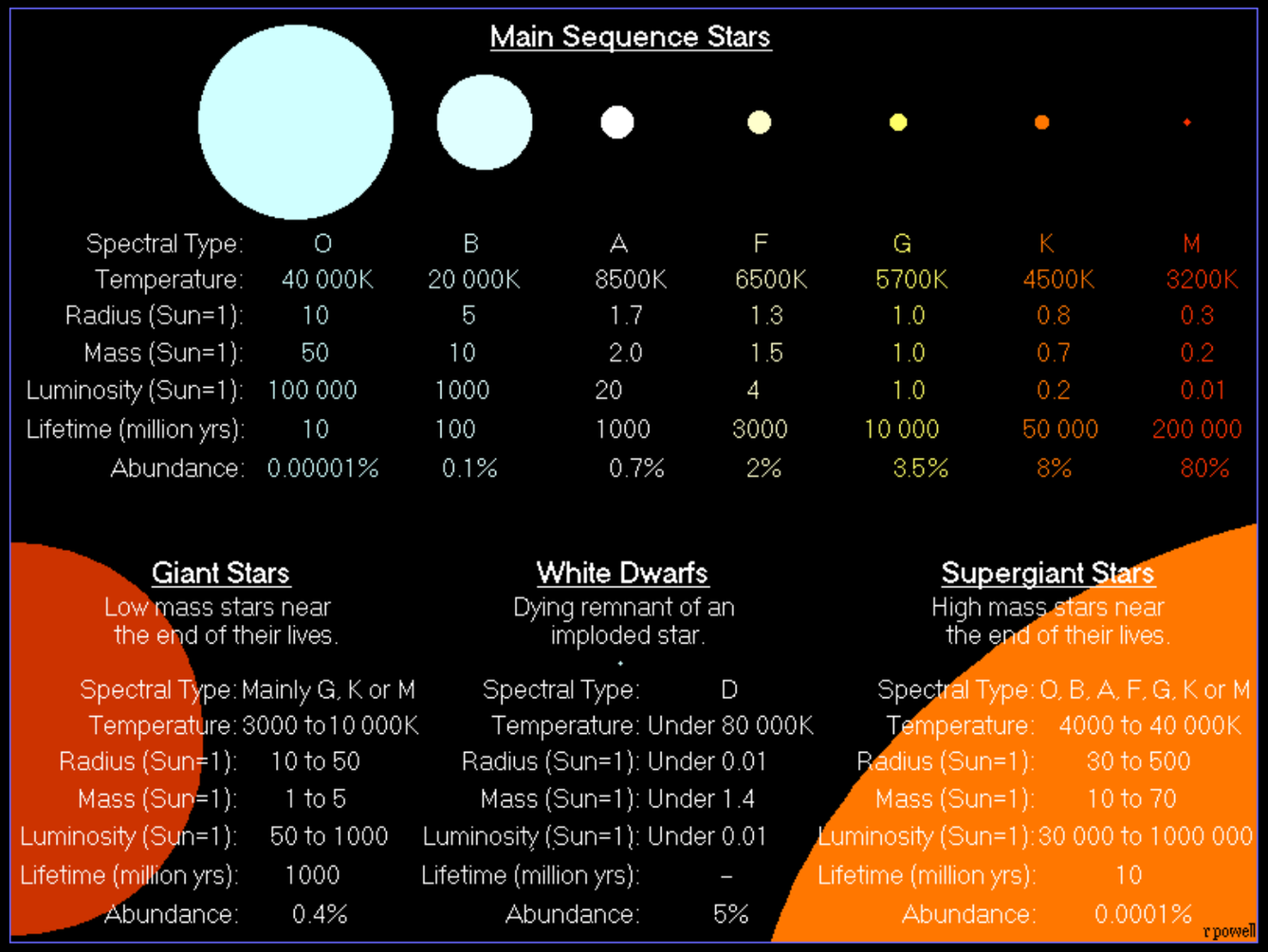


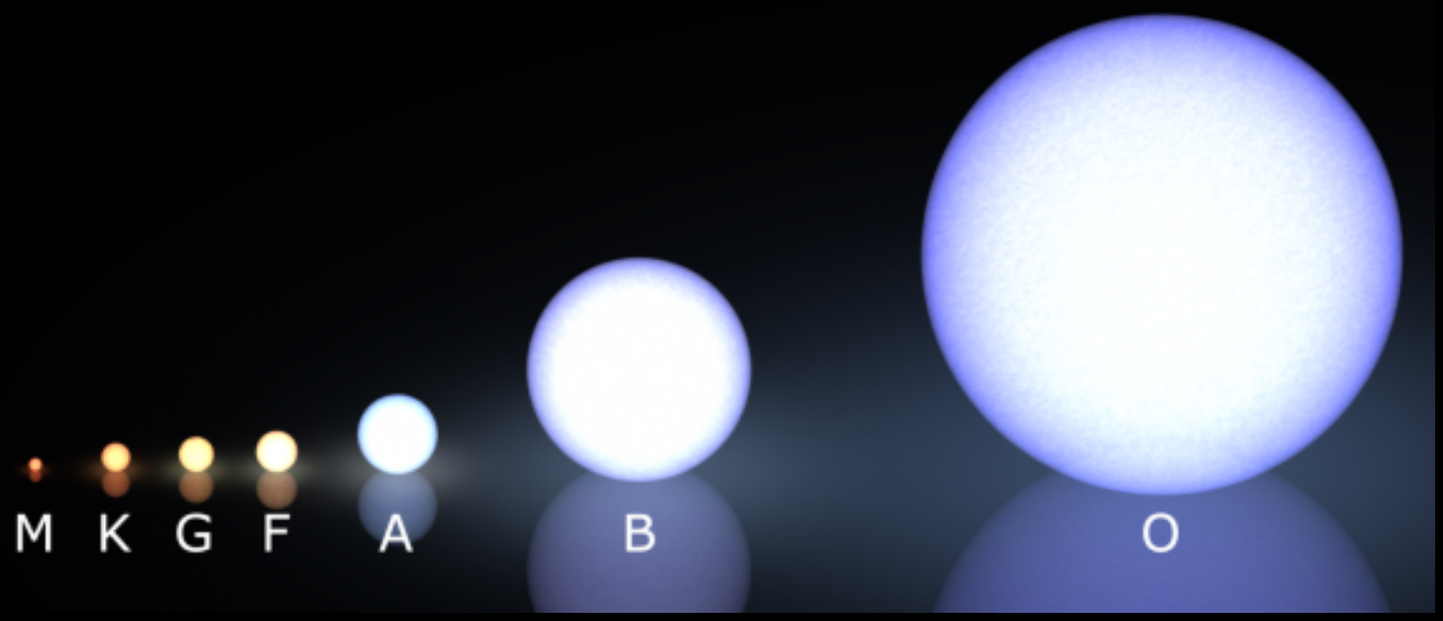
Annotations to your model



The OBJ File Format - Planets

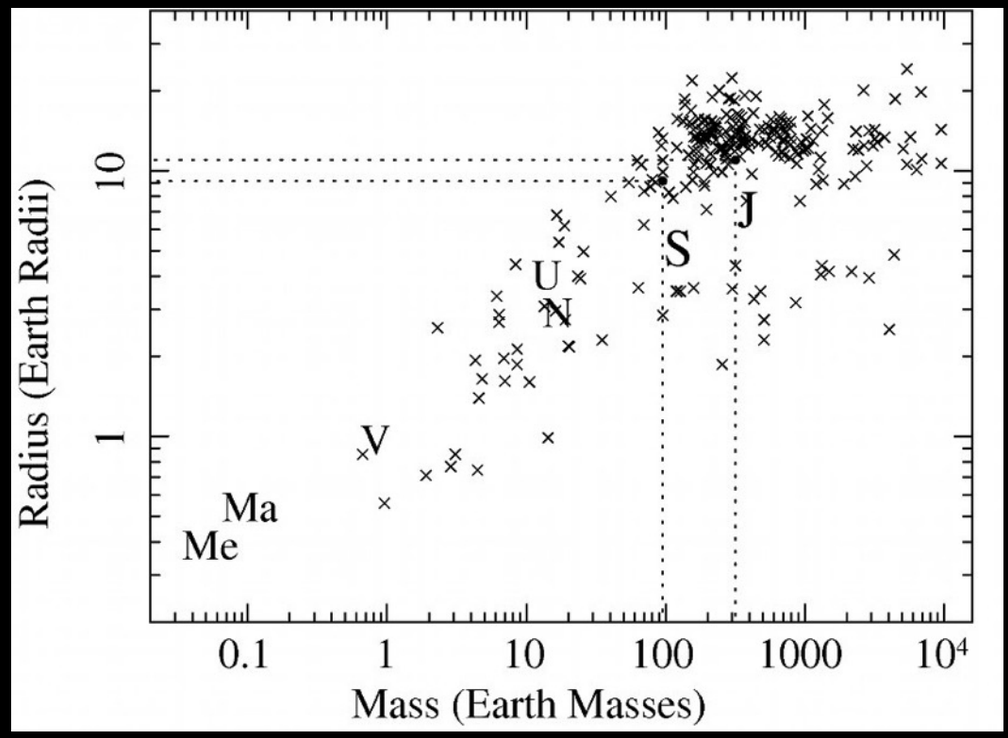
Extra things to consider for stars in planet viz's:

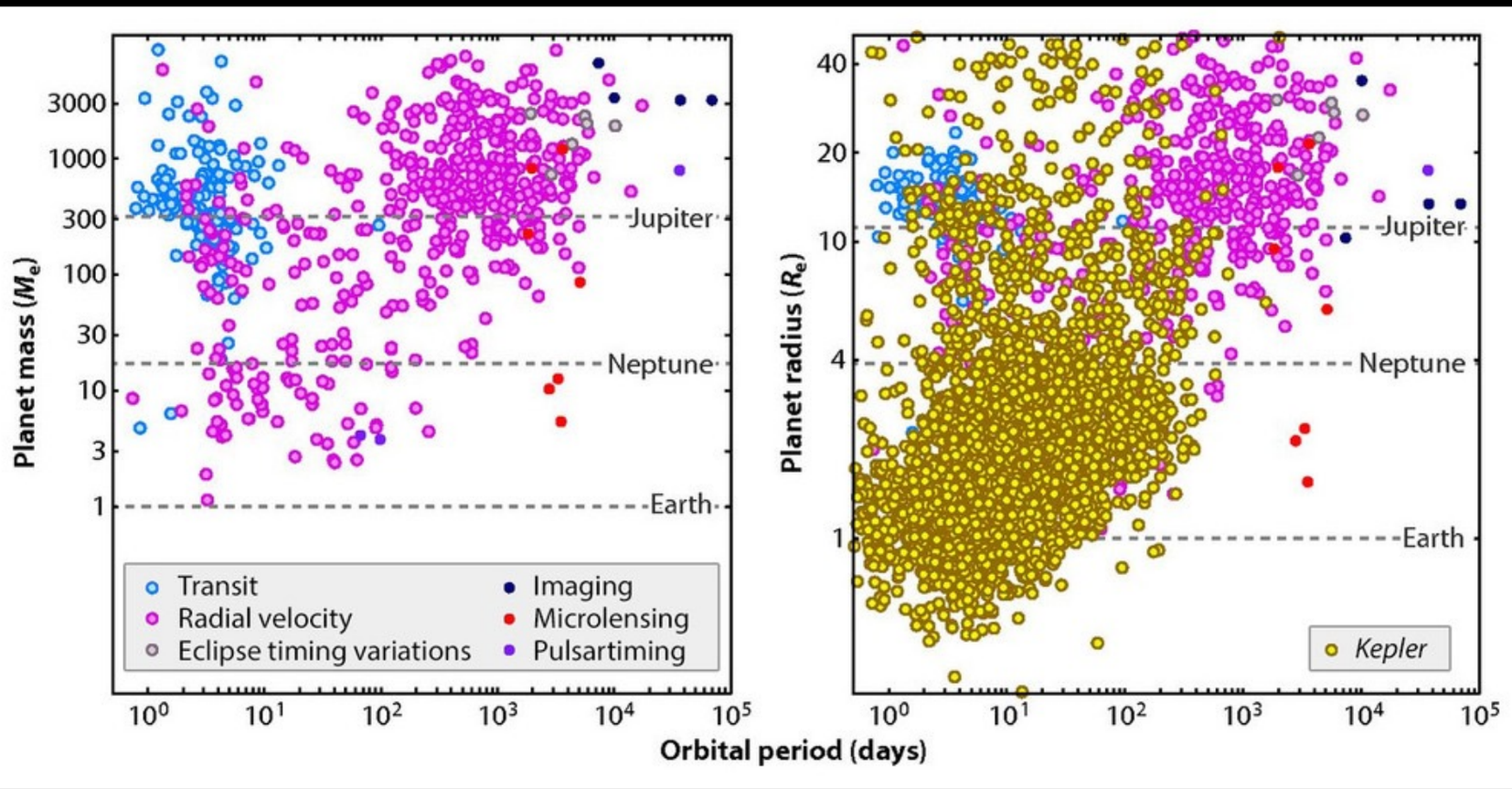




The OBJ File Format - Planets

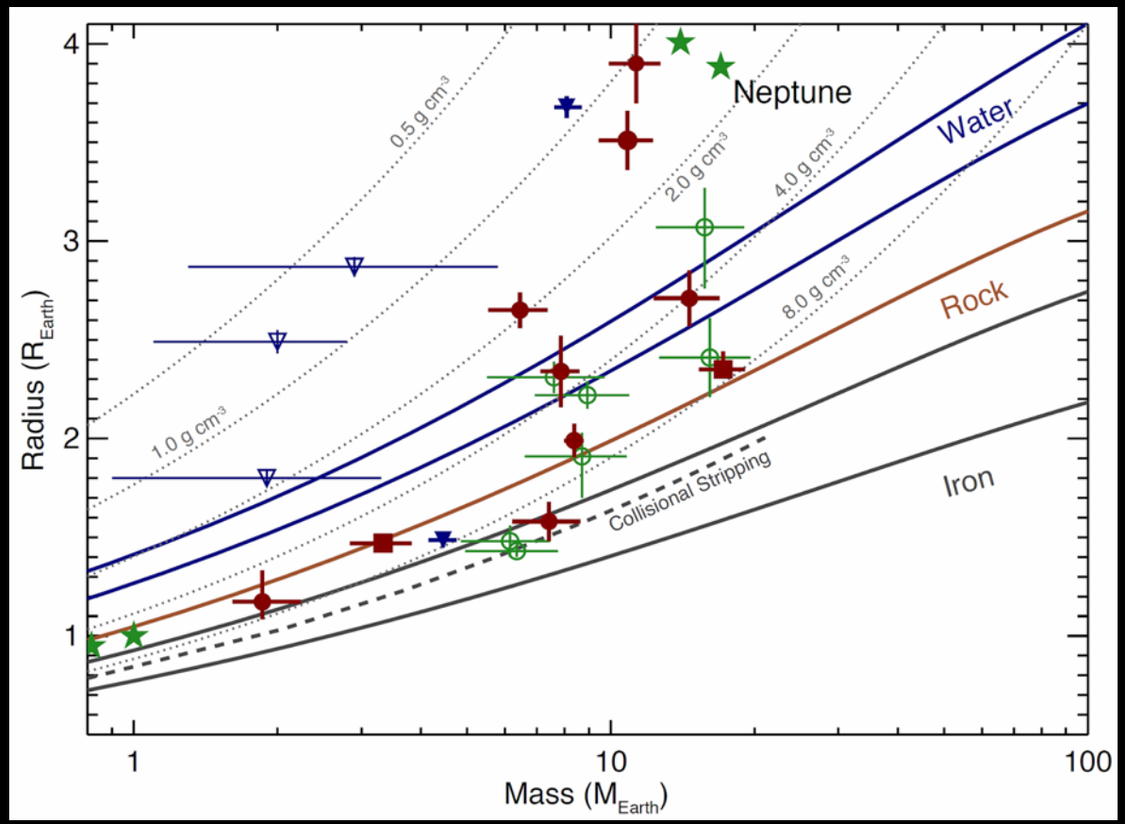
Extra things to consider for planets in planet viz's: Mass-Radius

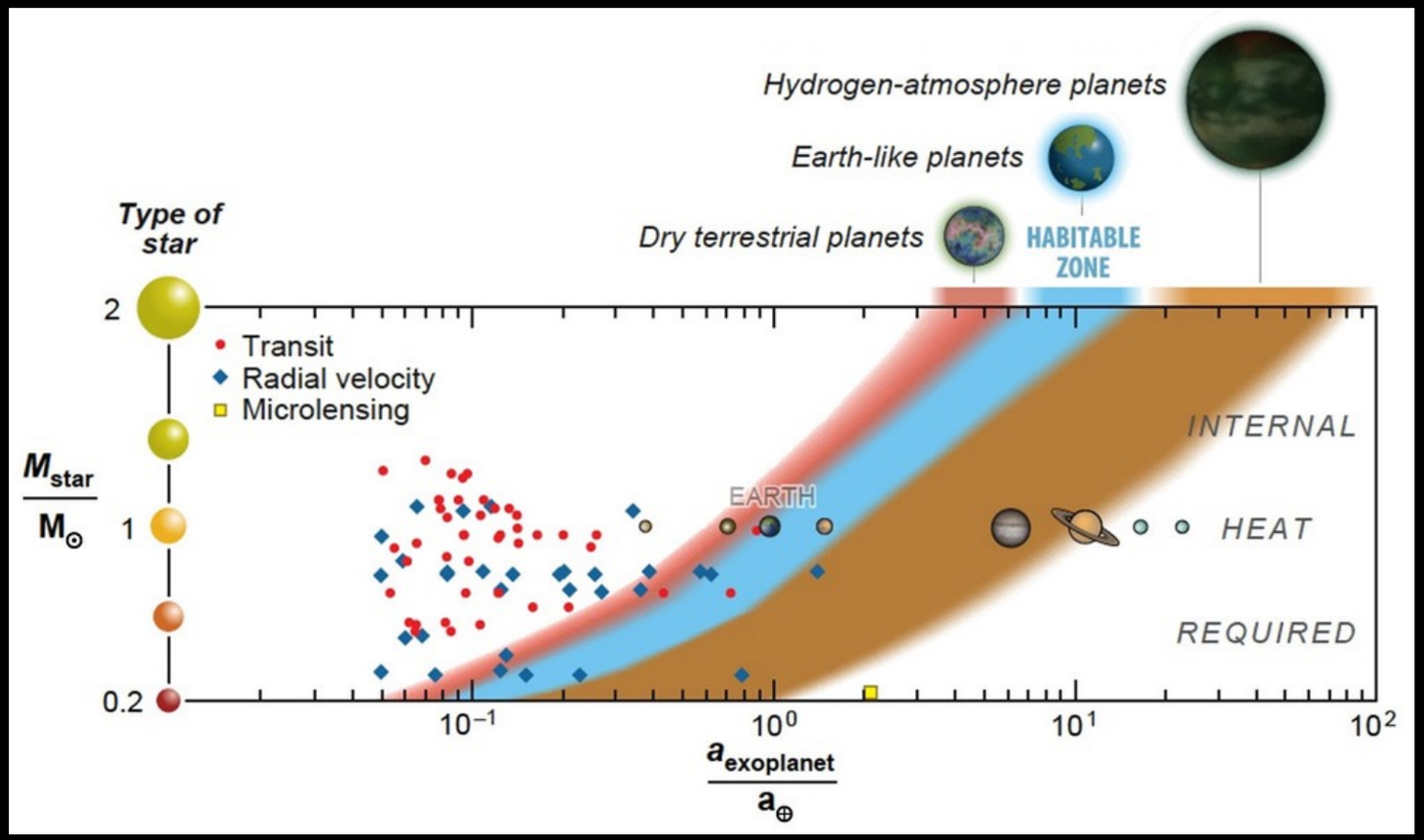




The OBJ File Format - Planets

Extra things to consider for planets in planet viz's: Composition





The OBJ File Format - Planets

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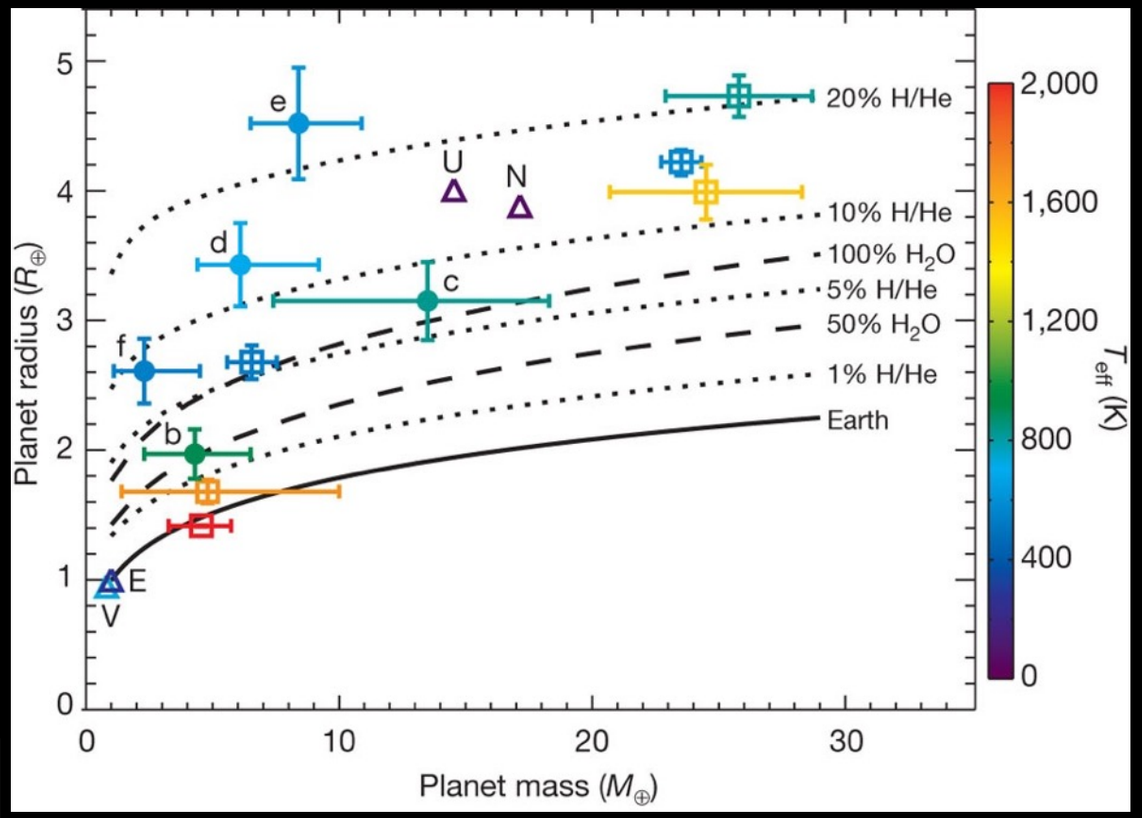
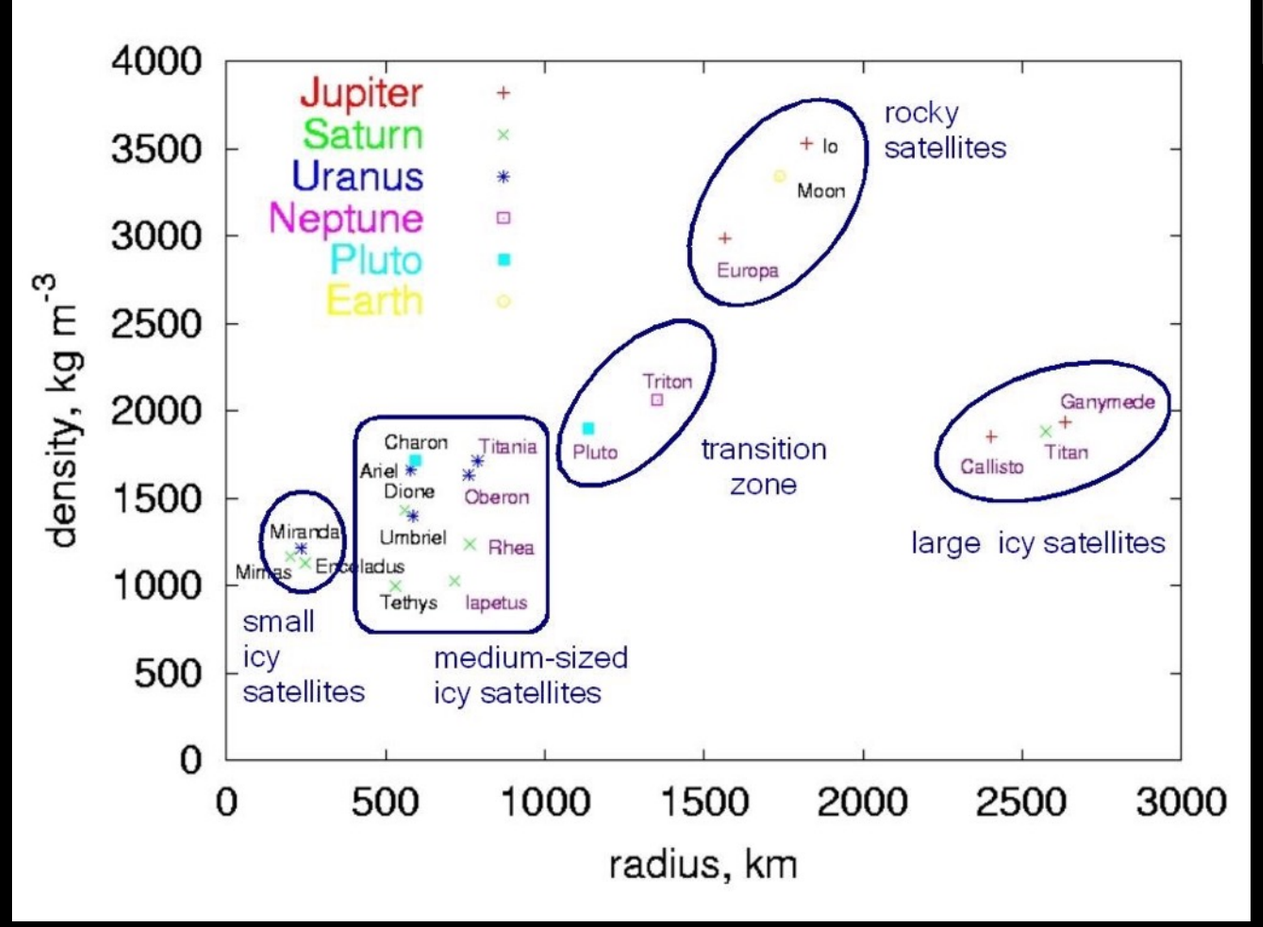
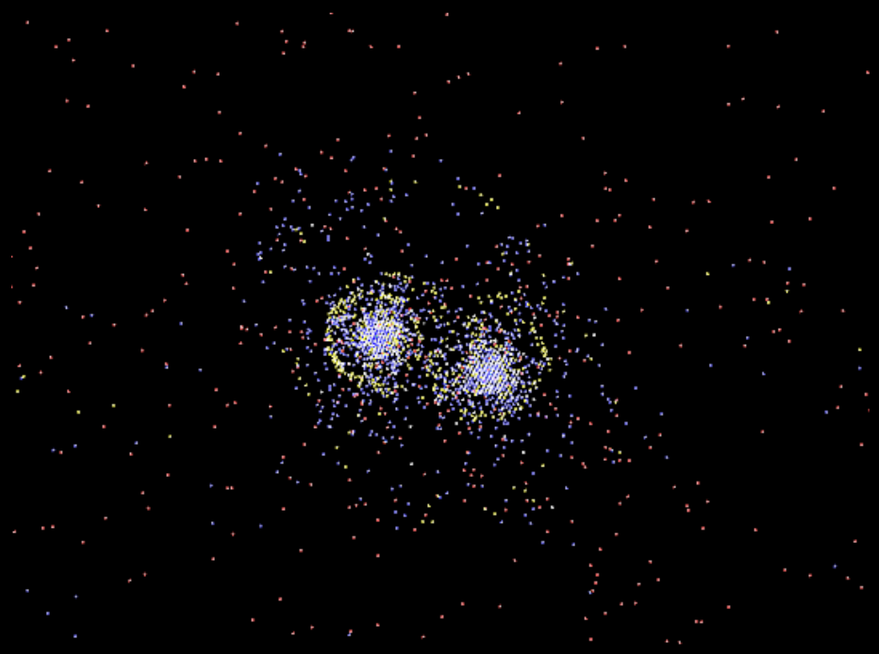




The PLY File Format - Galaxies



What should each particle color be? Why? Can it change based on the time of the snapshot? Which particles are useful to see, which aren’t?

3D Interactive Movies! Hurray!

Essentially we are doing stop motion animation… but interactively and in 3D

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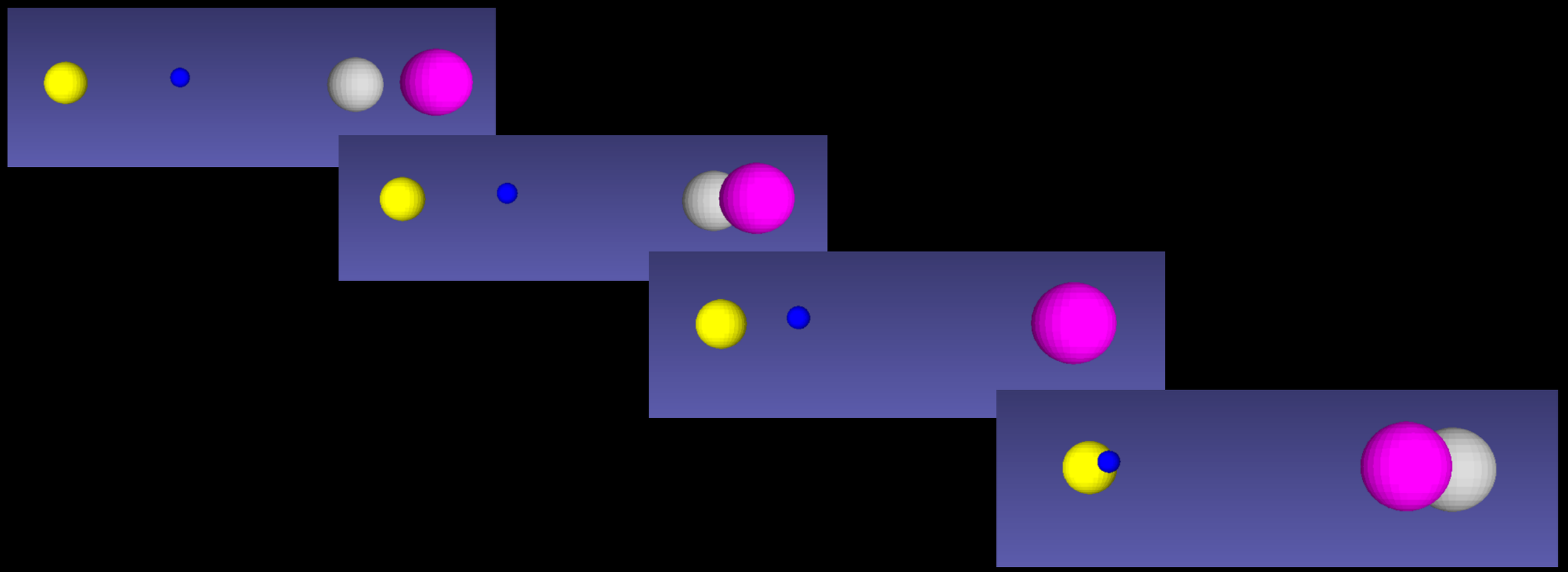

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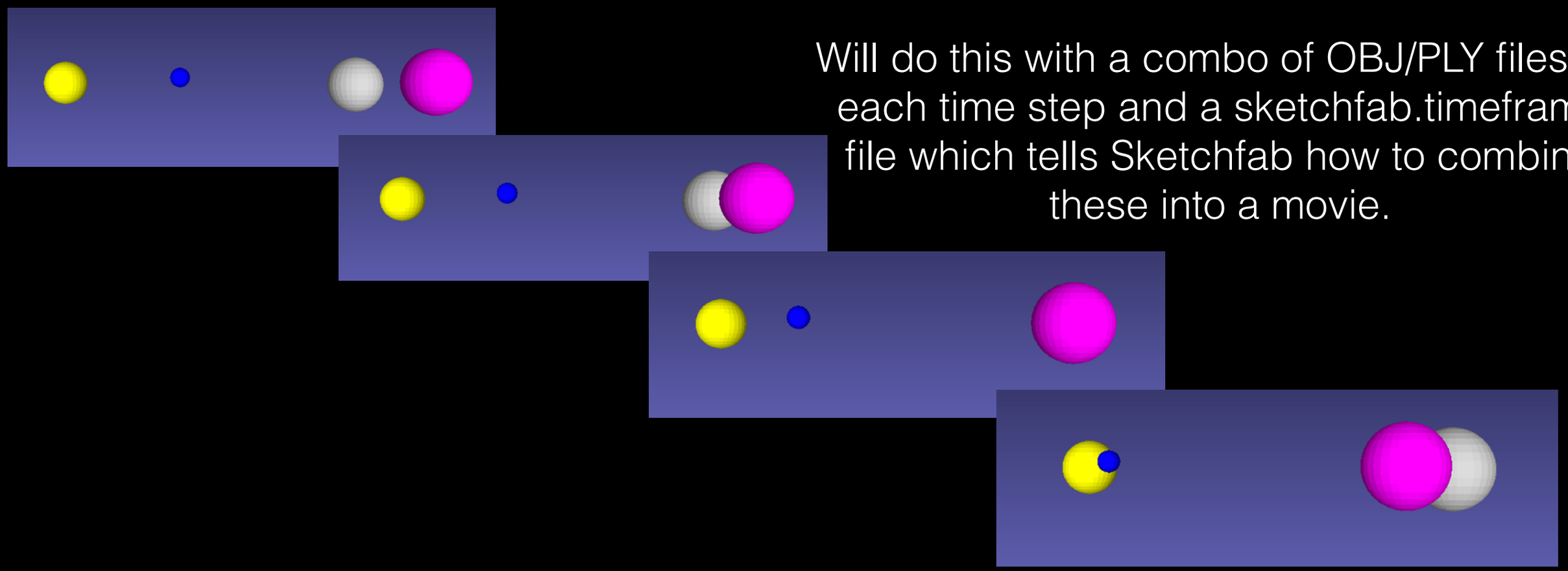

Will do this with a combo of OBJ/PLY files for each time step and a sketchfab.timeframe file which tells Sketchfab how to combine these into a movie.

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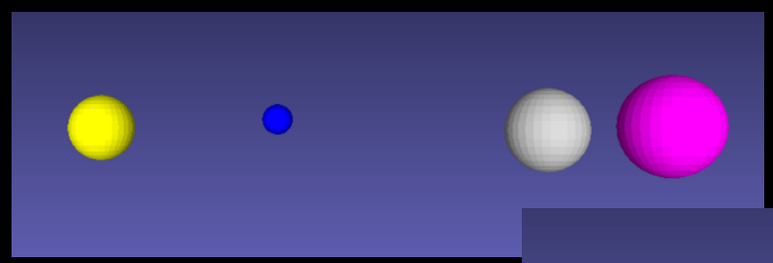

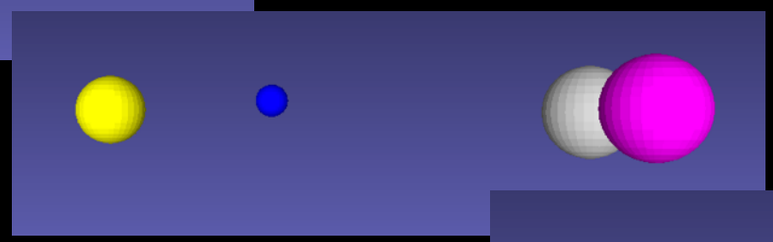

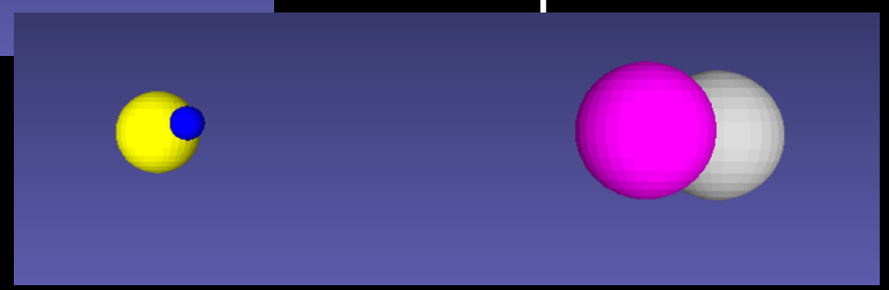

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Make sure this uploads!

3D Interactive Movies! Hurray!

Before diving into the website, some things to consider:

What sort of story do you want to tell about your system?
How well your simulation is capturing this system?
Do you want to compare two or more systems?

Feel free to use a combination of 2D plots (trajectories, energy…) and 3D plots.

Some tips and tricks:

Start with outputting not that many OBJ/PLY files so you can test more quickly on Sketchfab

Start with initially large dt_movie's so that the movies go slowly so you can debug them

Compare 2D movies with 3D movies as a sanity check (how typos are found! :))