

StellarBackgroundFromTemplate

```
StellarBackgroundFromTemplate [templateFile,  $\theta_0$ , imageFile, angle,
bgColor : {0., 0., 0.}]
```

generates an image of stellar background given by *imageFile* distorted by geometry given by the template stored in *templateFile* and θ_0 . The image spans *angle* on the celestial sphere. The background color can be specified in *bgColor* as RGB list of size 3 (default is black).

`StellarBackgroundFromTemplate[templateFile_, θ_0 _, imageFile_, angle_, Ratio_:0.8, bgColor:{0.,0.,0.}]` function takes the path to template of the geometry *templateFile*, the observer's θ coordinate θ_0 , the path to the file containing the undistorted image *imageFile*, the plane (not solid) angle of the original image on the celestial sphere *angle*, and the background color *bgColor* given as a list of length three corresponding to the colors RGB code, which should be used whenever the geodesic for a given pixel does not end in the range of the original image (set to {0.,0.,0.} by default). The radial distance from the BH at which the stellar background is taken should be already specified when generating the template by the `GenerateTemplate` function.

Tech Notes ⓘ

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Related Links ⓘ

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See Also ⓘ

GenerateTemplate •

Related Guides

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Examples Initialization ⓘ

```
Needs["BlackHoleImages`"]
```

Basic Examples

More Examples ▾

Generate a template of a geometry given by the spin parameter $a=0.5$ with the observer at $\theta_0=0.45\pi$ using the `GenerateTemplate` function.

Generate 300 x 150 points with maximal Bardeen coordinate 200. The radius at which the source is supposed to be is 300:

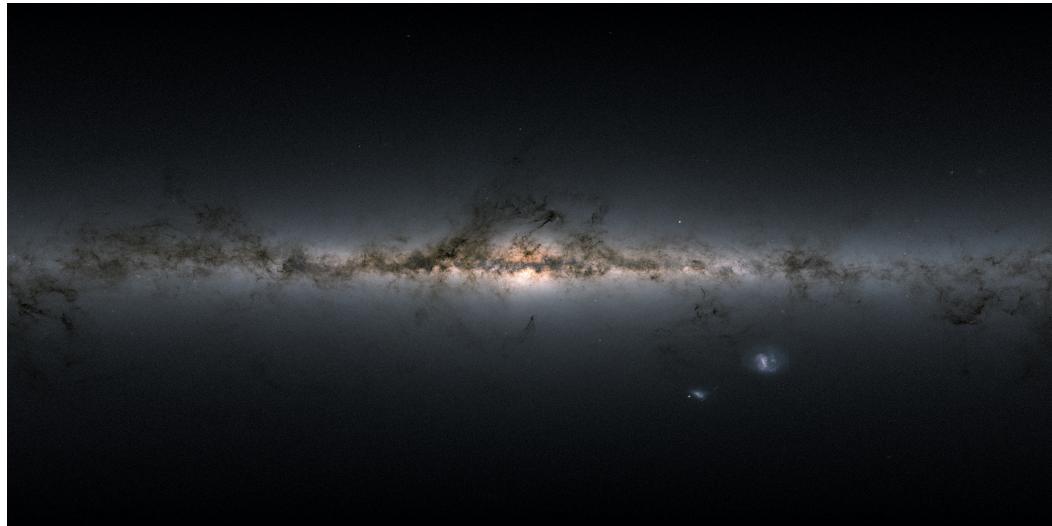
```
In[1]:= GenerateTemplate[Directory[],
"template_a0.5_th0.45pi_size100x100_mBC200_SR300", 0.5, 0.45 \pi, {300, 150}, 200, 300]
```

%

From the generated template we can generate the distorted image of a stellar background (by ESA/Gaia/DPAC <https://sci.esa.int/s/ApPJaGA>).

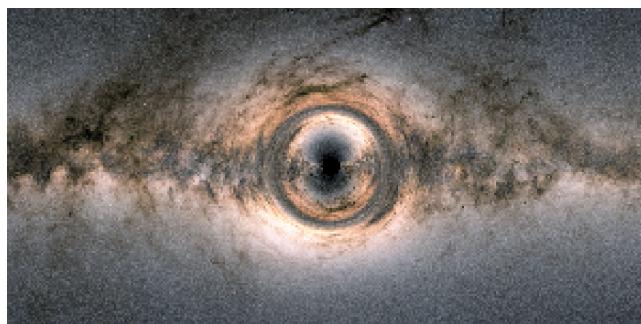
```
In[3]:= Import[Directory[] <> "\\skymap_.jpg"]
```

Out[3]=



```
In[10]:= img = StellarBackgroundFromTemplate[Directory[] <> "\\template_a0.5_th0.45pi_size100x100_mB200_SR300.mx",
0.45 \pi, Directory[] <> "\\skymap_.jpg", 2 \pi];
Image[img]
```

Out[11]=



More Examples ⓘ[Scope](#)[Generalizations & Extensions](#)[Options](#)[XXXX](#)[XXXX](#)[Applications](#)[Properties & Relations](#)[Possible Issues](#)[Interactive Examples](#)[Neat Examples](#)

Metadata

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