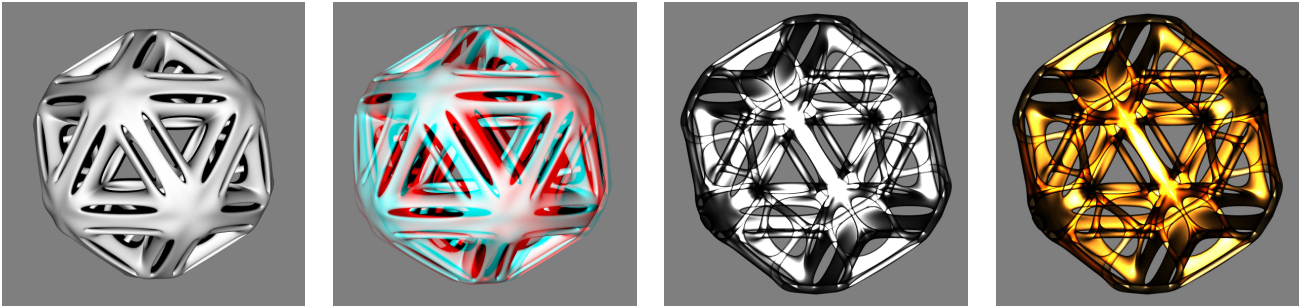


Shadow Tiles

Flat shadows can be rendered from objects and can then be used as a picture on a tile. The shadow can even be coloured and if the object consists of several meshes even multi-coloured.

Render an Object as a Shadow

A shadow rendered from an object is not the same as rendering an object mask, the shadow can even be coloured. The resulting flat image can then be used on a 2D-Face to create a tile.



Object Icosahedron

Icosahedron Anaglyph

Icosahedron Shadow

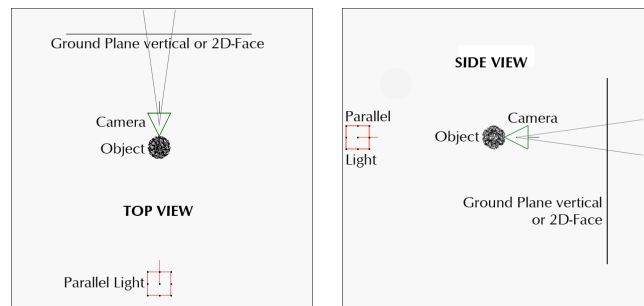
Coloured Shadow

The Icosahedron was modelled in Wings3D and is shown at left. If you have red-cyan goggles, you can see it in true 3D in the second picture. The third is the 2D shadow rendered and at right rendered with a coloured shadow.

Scene Setup

The object is lit from behind by a *Parallel Light* with *Infinite Width* and no *Falloff*. *Diffuse* must be set low, around 5, so that the screen is half bright. The camera is in front of the object and it looks at a vertical ground plane or 2D-Face, the screen, with the default material. The material for the object has all controls at 0, except *Transparency* 100 and *Refraction*

105 - 150. *Transparent* and *Volume* colours are white. If the object is to appear coloured, *Volume* colour can be given a hue; yellow as the example above shows. The *Transparent* colour is for flat objects like 2D-Faces and *Volume* for bodies and it fills the interior with the colour. If both are given a colour, the colours of the surface and the interior are added. For an object, *Transparency* gives a brighter, less saturated colour than *Volume*. If the object consists of several meshes, each mesh can be given another colour.



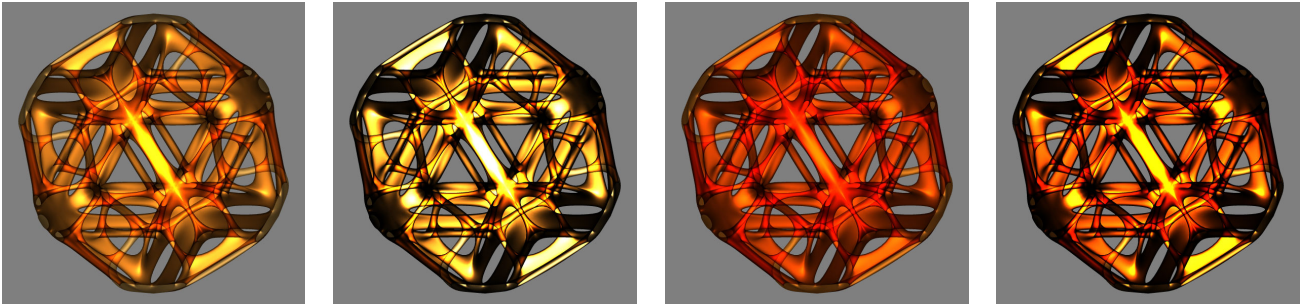
This is all. Set the document size as appropriate and render. It just takes a minute or so. Sometimes the edges get better if *48-bit Dithering* is disabled in the *Render Options*. Export the rendered tile as BMP or TIF; do not use JPG or any format that compresses the image.

Depending on the graphics application you will use to isolate the object from the grey background, you may have to render an object mask. To do this, just set *Transparency* for the object from 100 to 0, render and export this image as well.

Everything not object must be white when importing the image back to Bryce and you might ask why not set *Diffuse* for the screen on which the shadow is projected to white. Of course, this can be done but the objects shadow loses contrast and if it is coloured also saturation.

Transparent, Volume and Refraction

Depending on the object used, the shadow cast may hardly or profoundly differ depending on whether *Transparent* or *Volume* is used to colour the shadow. Also the *Refraction* setting influences how the object gets coloured.



The object on the previous page was rendered with *Volume* colour and *Refraction* 133. Here are the following examples from left to right: *Volume* colour, *Refraction* 105, then 150; *Transparent* colour *Refraction* 105, then 150. You may have to experiment what setting will give you the desired result. The colour is for all examples the same: R/G/B 255/189/95. If the light must go through several parts of the object, colours add up and the shadow gets darker.

Using Rendered Shadow

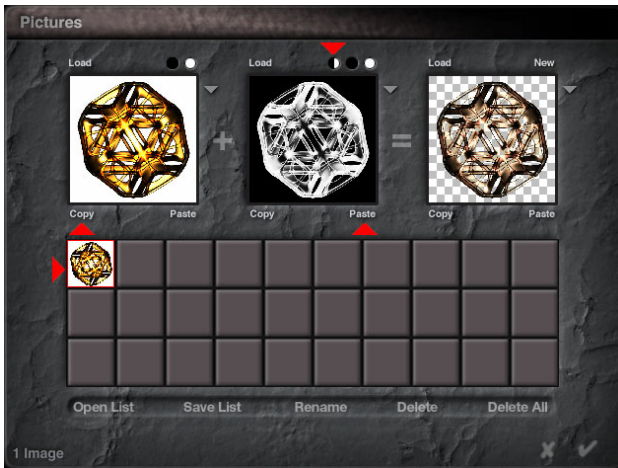
The part of the rendered object shadow that does not belong to the object must be transparent — or have a colour of your choice. With the setup described above, the «redundant» part of the picture is grey. If you set it to any other colour than neutral grey, this colour shows through the transparent parts of the object and this is not desired at all.

In your favourite graphics application (Photoshop, PhotoImpact, PaintShop, Gimp ...) select the grey background colour, all parts, and set it to white. There may be true grey parts in the objects shadow and you may want to keep them. If it gets difficult to select the grey parts, render a shadow mask of the object (remove transparency of the object and render, then export that image). This is a grey/black picture and the grey part is more easily selected (or do select the black object and invert the selection). Change the grey colour of the selected part in the mask image to white (or your desired colour), copy it and paste it over the normal shadow render. Note that if that part must be transparent, you have to use white.

Bring the Shadow into Bryce

In the main GUI, click on *Create*, then select the Leo. This opens the *Pictures* Editor shown below at left. Click on the next free square, the *Open* dialogue appears. Select the picture; it will appear on top left. Click on *Copy* below the small picture and click on *Paste* below the middle picture — and yes, you want to delete it. The object appears black on a white background. For Bryce black is transparent, not white. Click on the black/white circle above it to swap black and white. The picture at right now shows the object on a transparent background. Clicking on brings you back to the main screen. There is a *2D-Face* with your picture on it.

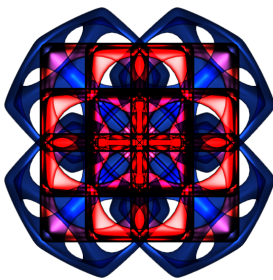
With the picture selected, enter the *Materials Lab*, shown below at right. If you started with using the Leo, everything is correctly set; you just might want to set *Ambience* to 100 to make it brighter. If you started with a *2D-Face*, set a dot in *Diffuse* to bring in a random texture. Click on the small button (P) to select picture, then the button above to enter the *Pictures* Editor. When you accept you get back into the *Materials Lab*. Set a dot on *Ambient* and *Transparency*, make sure the *Texture Mapping Mode* is *Parametric* and in the *Material Options* *Blend Transparency* is set.



If you used the Leo, the 2D-Face will have the aspect ratio of the picture; otherwise it will be a 2D-Face with the default square aspect ratio — or how you scaled it.

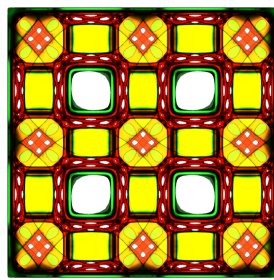
Four Example Tiles

Three example tiles use objects made in Wings3D and one in Structure Synth. All have two separate objects that can be given a separate colour.



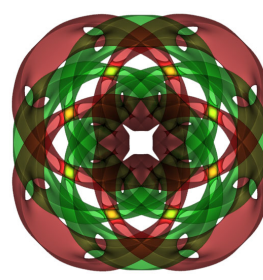
WovenCube

255/148/148; 133; T
148/196/255; 105; T



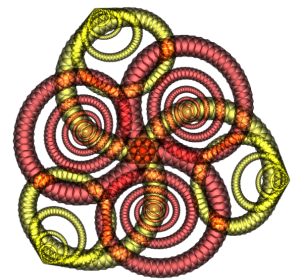
ScaffoldCubeSmooth

255/192/192; 105; T+V
148/255/148; 112; T



TorusKnottedStrips

255/192/192; 105; T+V
192/255/192; 105; T+V



StructSynthDefault

255/192/192; 105; V
255/255/192; 105; V

The first line is for the red object, Red/Green/Blue; Refraction; T=Transparent, V=Volume. The second line is for the other part of the object, again colour, refraction and type. The grey background was replaced by white in a graphics application and the pictures are ready to use.

An Idea to use the Tile Pictures

Walls and the floor of a room can be tiled using these pictures, for example. You need a flattened cube as actual tile and put the picture on it. Several tiles are on a wall: another cube. There ought to be a gap between the individual tiles that make up the seam.

The *Low Res Rounded Cube 12.5%* from the *Installed Additional Primitives* can be used as a tile. It comes in the size X/Y/Z 20.48 and it can be resized to e.g. X=22.0, Y=22.0, Z=2.0. Give this tile a material. Create a 2D-Face with the size X=Y=20.0 and place it in front of the tile, then get the picture. Create several tiles in this way and finally create a wall or floor on which the tiles are fixed.

