Bio Visualisation with Blender and MembraneEditor Part 5

Blender 3D

Konstanz Research School Chemical Biology (KoRS-CB) Workshop
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Forum:
http://www.cellmicrocosmos.org/Cmforum/viewforum.php?f=63

Actual Version of Blender:
http://www.blender.org

Here, Blender 2.79 is used.

Target

This tutorial describes how to add a stereo camera to an environment and how to extend this camera for multiple purposes.

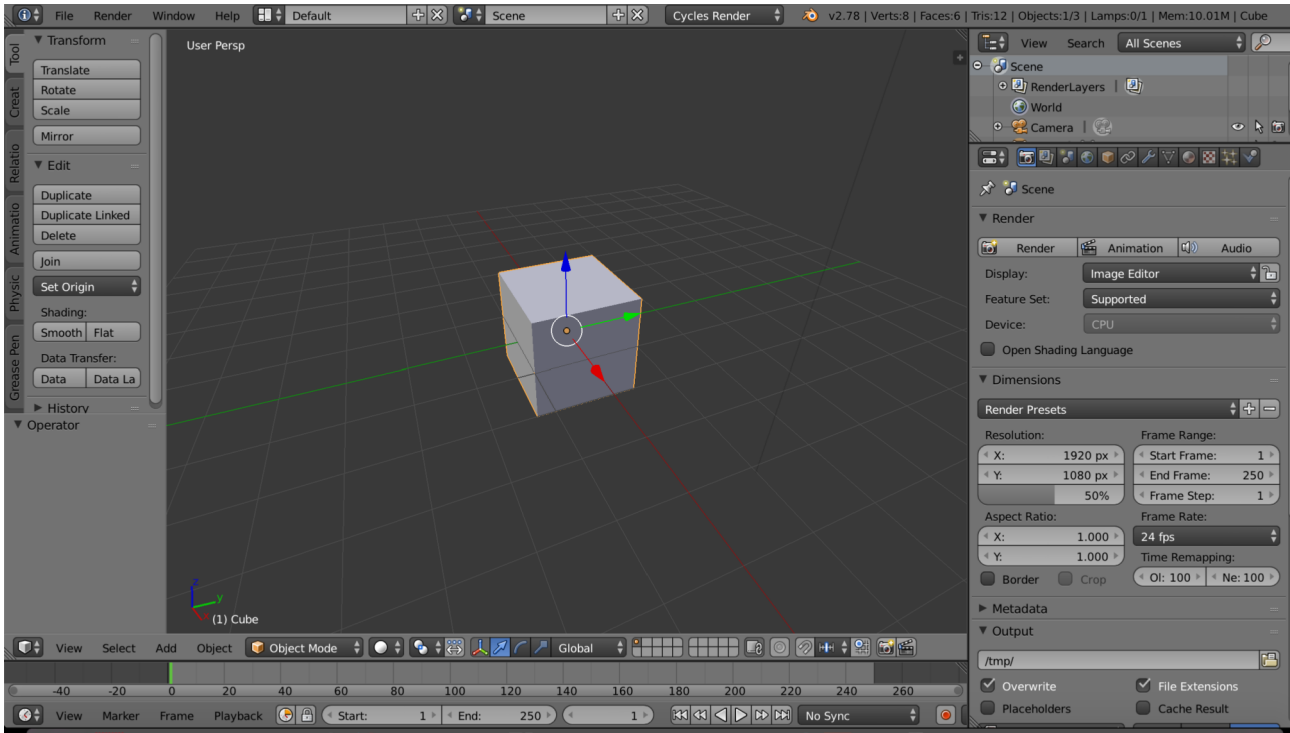An additional optional topic is the creation of a camera path.

Abbreviation

RMB Right Mouse Button

LMB Left Mouse Button

! For using most of the shortcuts discussed in this tutorial, you have to be sure that the mouse cursor is WITHIN the view port of the 3D View !
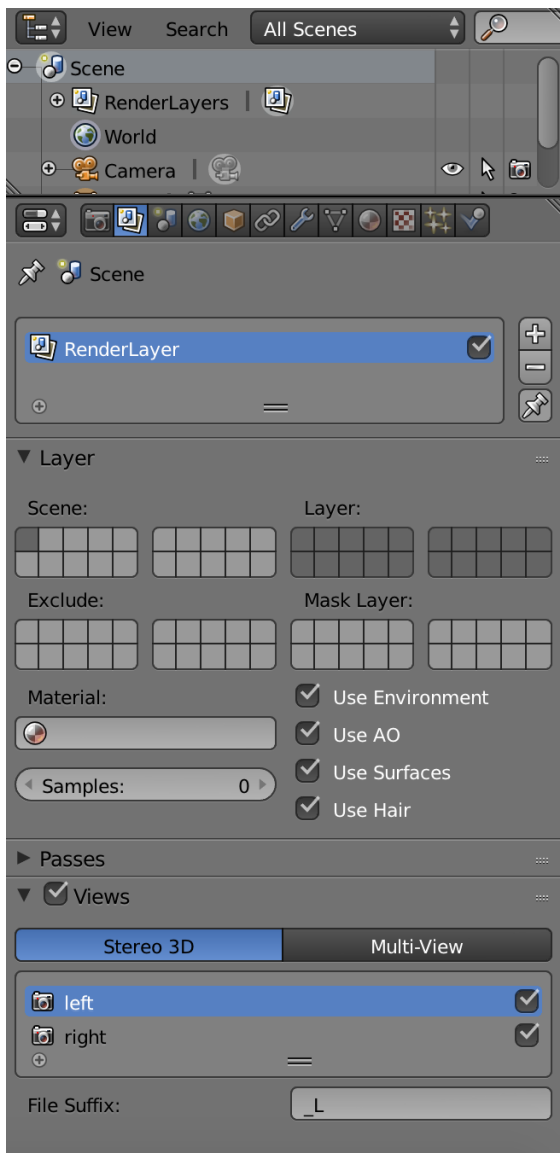
Base

You can start with the Blender basic project are use on of your previous objects:

Make sure that you have switched to the Cycles renderer and also, that you have a camera in the scene.

In the Properties Windows, please switch to the "Render Layers" tab and activate Views and make sure, Stereo 3D is selected:

Toggle also the Properties view in the 3D View by pressing N:

In the Properties window you will find now an extra section showing "Stereoscopy", please select now "Cameras", "Plane" and "Volume". You will see now:

- Cameras: The standard camera shows now three cameras: lef, center, right

- Plane: The center projection plane is shown. In the center, the stereo effect is 0. Behind this projection plane is the volume, where objects will lie "behind" the screen, and in front of the projection plane are those objects, which will pop out.

- Volume: Shows the minimum and maximum planes, objects should be inside this volume, otherwise, the 3D effect will be to strong.
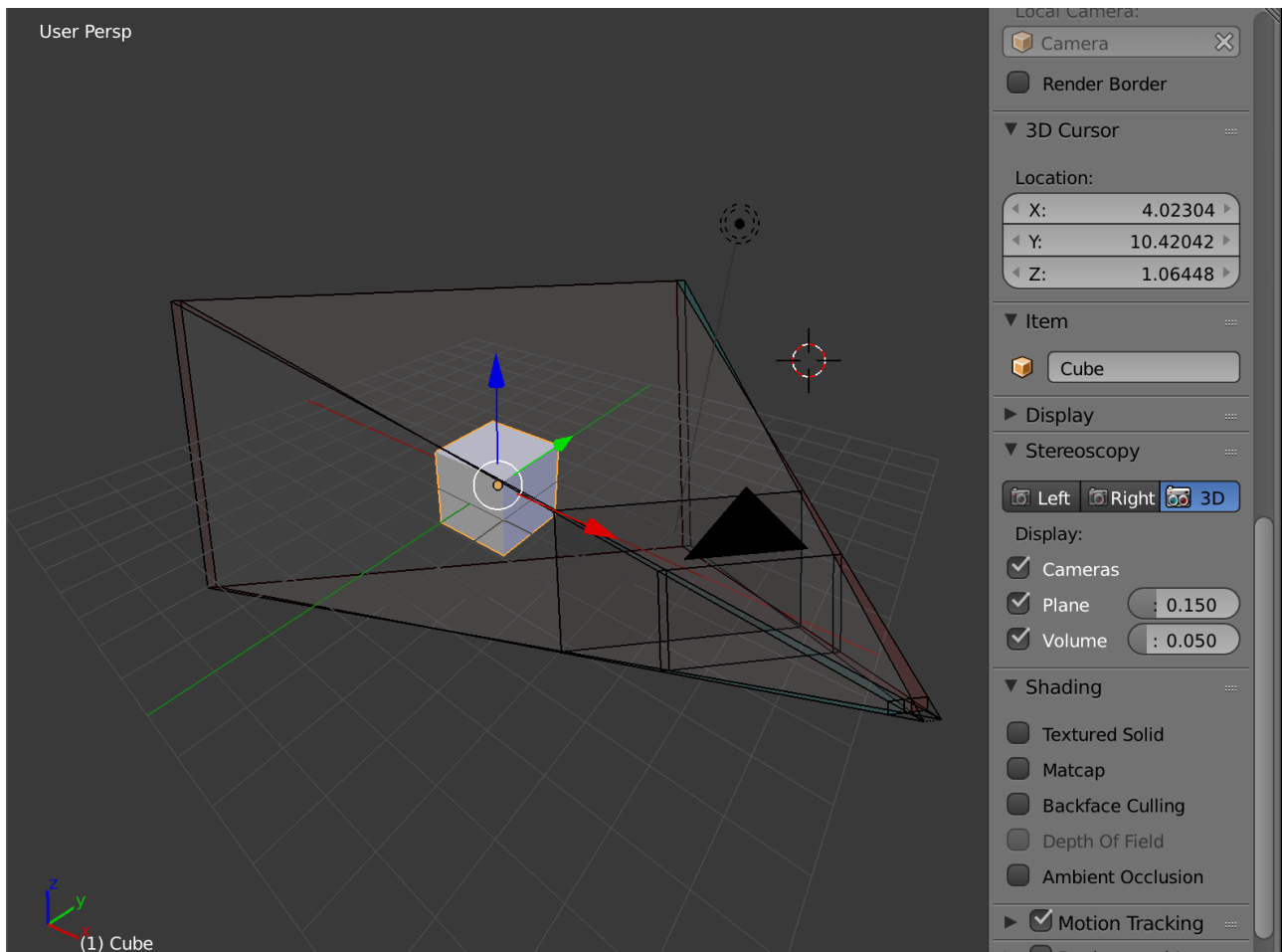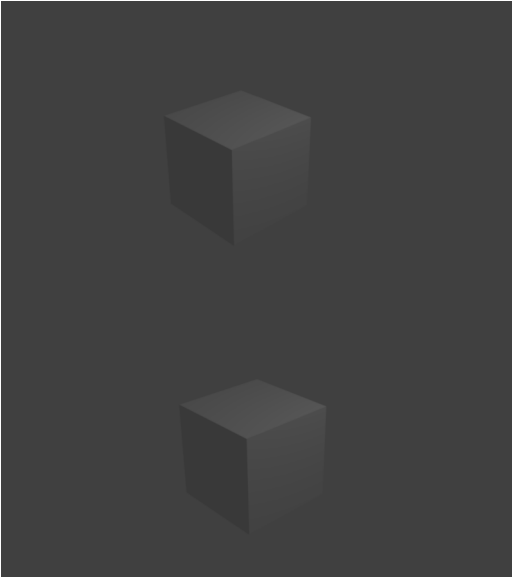
Now, go in the Properties window to the tab "Render" and activate "Stereo 3D":
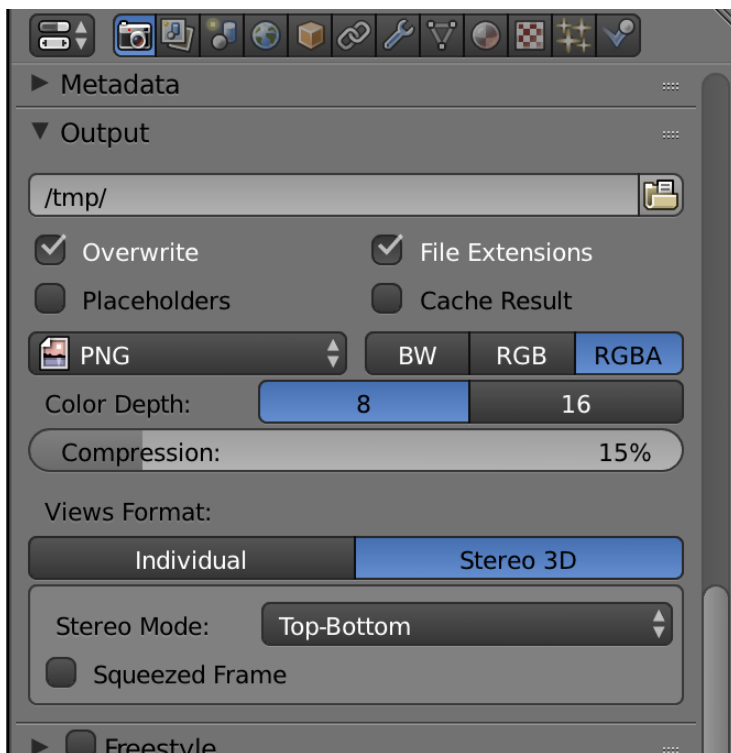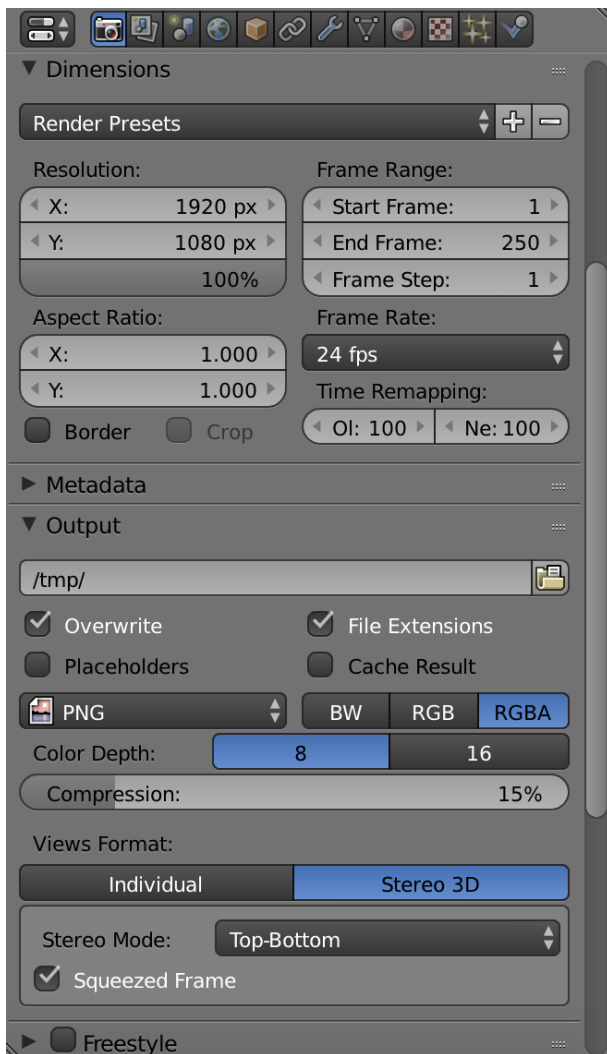

Here you see now the different Stereo 3D formats – you can change them according to your stereo settings.

The resulting image looks like this:

If you want to use the regular format compatible to, e.g., 3D TVs, you should use a squeezed format, top/bottom or side-by-side. Make also sure that the Resolution is set to 100%, to have full HD resolution. Use, e.g., 50%, for fast test rendering.

Full HD, Squeezed

Now, the final question is: where can we change the settings for the 3D camera. Select the camera, and in the properties window, change to perspective
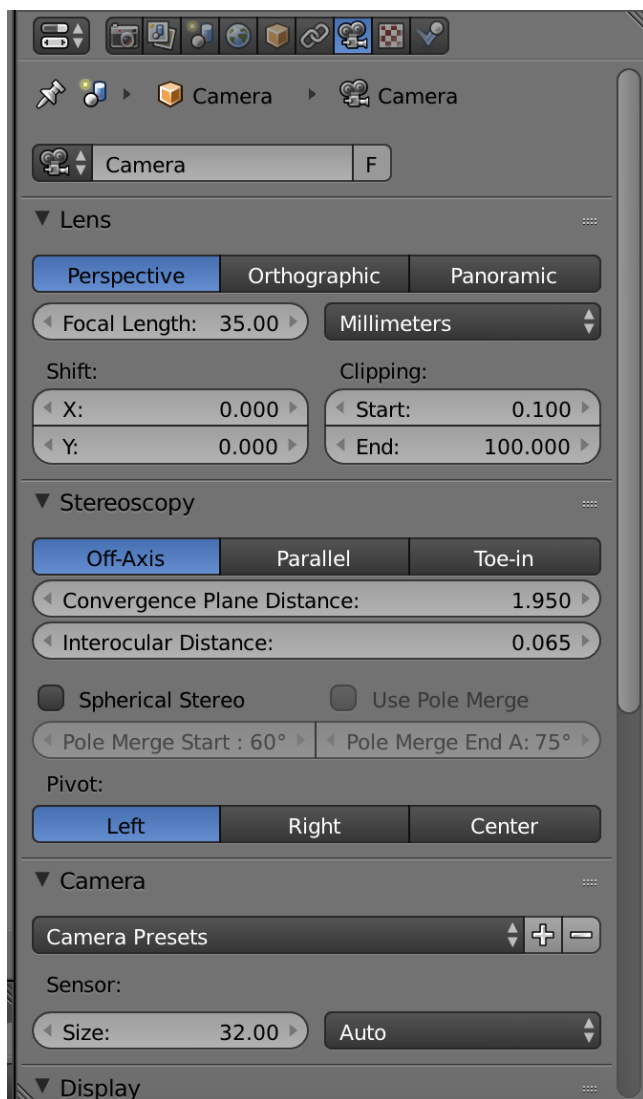
With Intermolecular Distance, you change the eye distance. With the convergence distance, you change the position of the projection plane.

Creating a Camera Path

Now, we will create a circular camera path which can be used to observe an object from all sides. We want to create a 360° view of an object.

The example images use an environment modeled in another tutorial. Feel free to take another scene or just the standard starting Blender scene to work with this tutorial.

First, create a circle:

Add → Curve → Circle

Place the center of the circle to an object which want to observe in 360°.
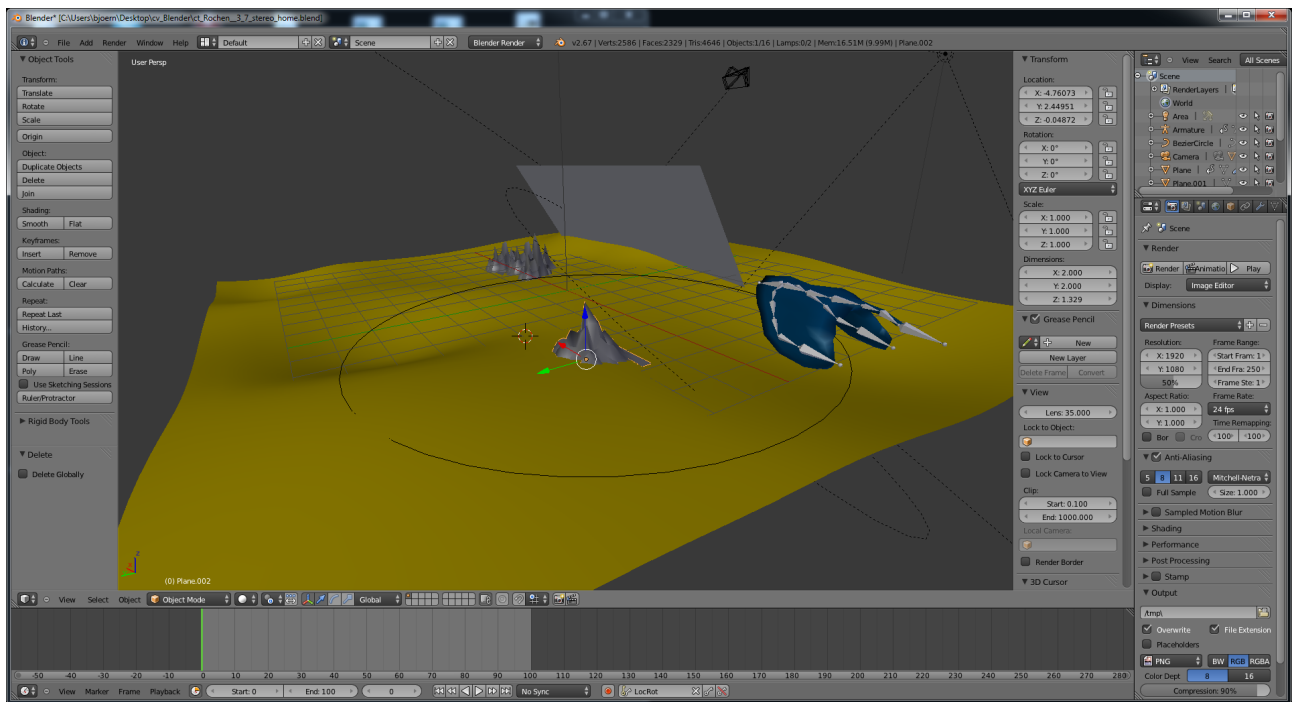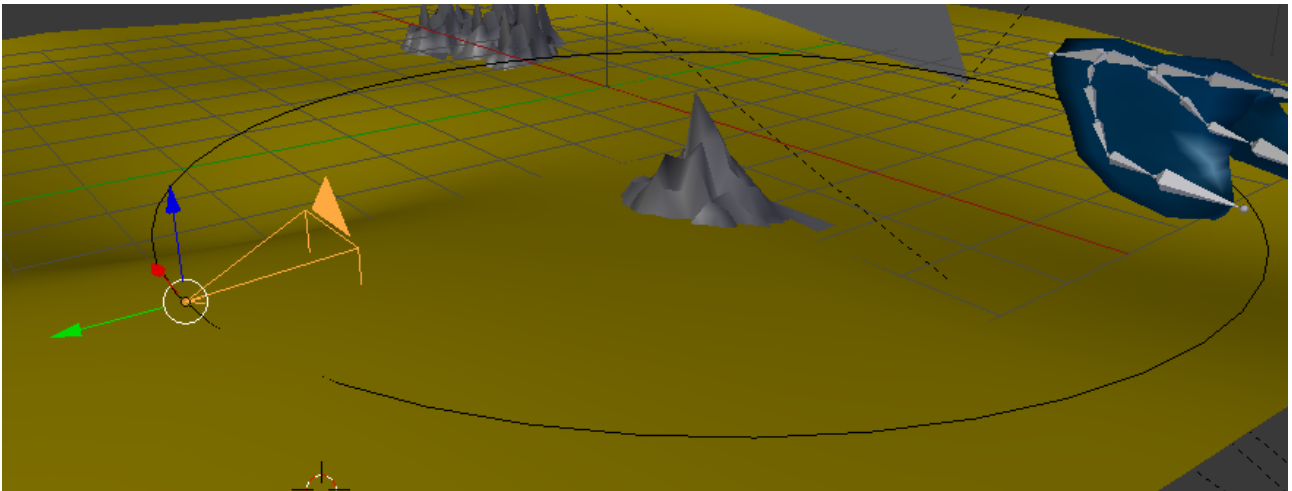

Now, add a new camera to the scene:

Add → Camera

To define the camera as the active one (which means, it is shown if you are pressing the NUM key 0) just select the camera and press CTRL+0 (the NUM key)

Now move the camera across the circle, pointing towards the object in the center.
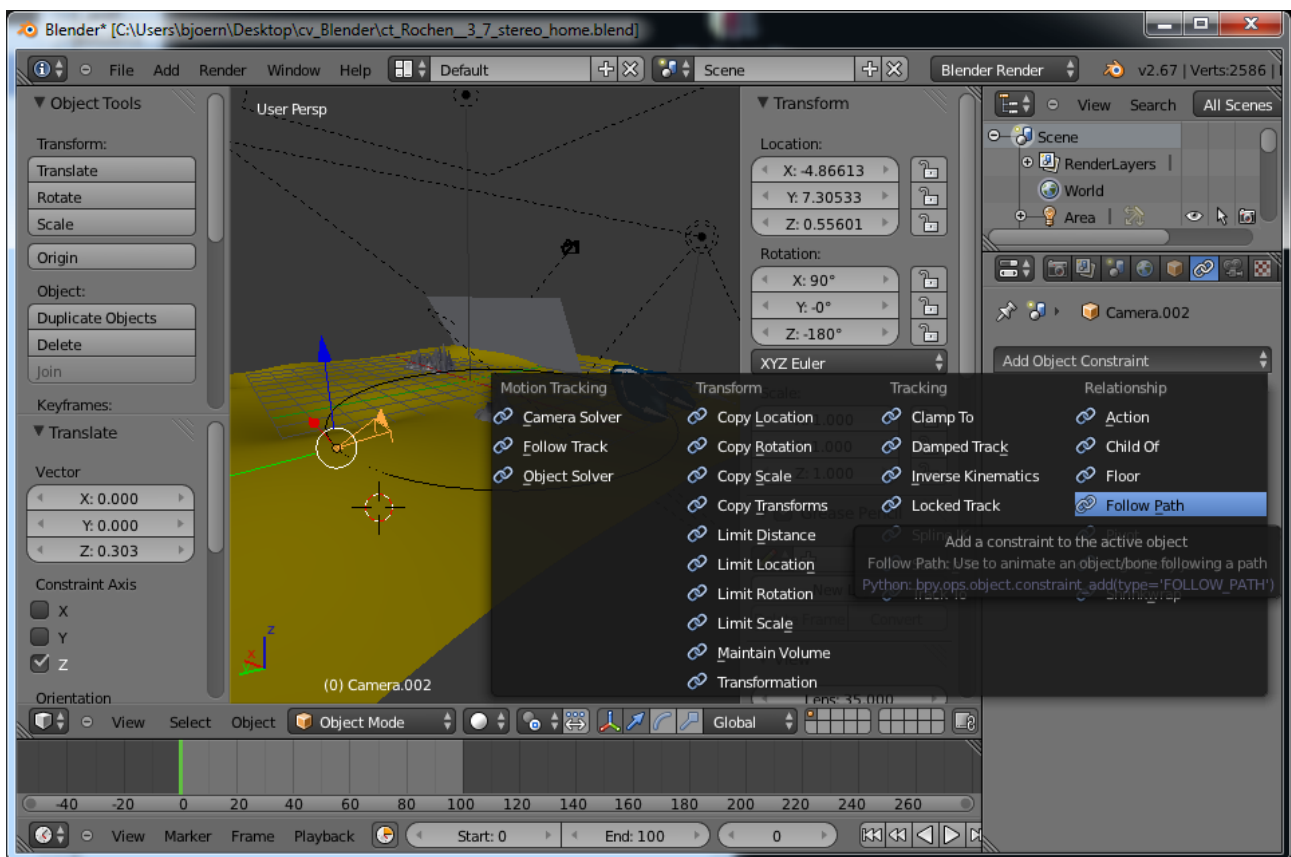
Please be aware that in this example the local Y axis of the camera is pointing outwards the circle, this will important for the following settings
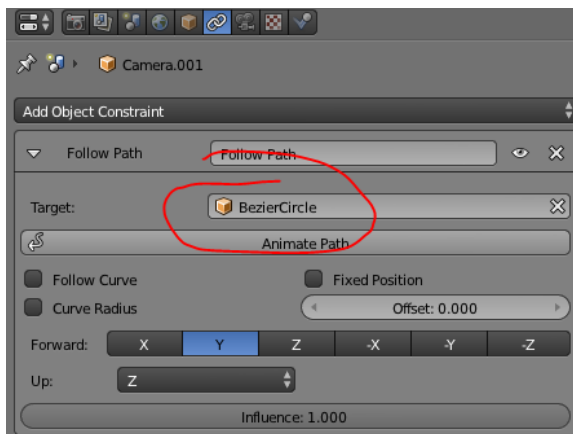
Now, the camera has to be attached to the circle. This is done by using the "Follow Path" contraint:

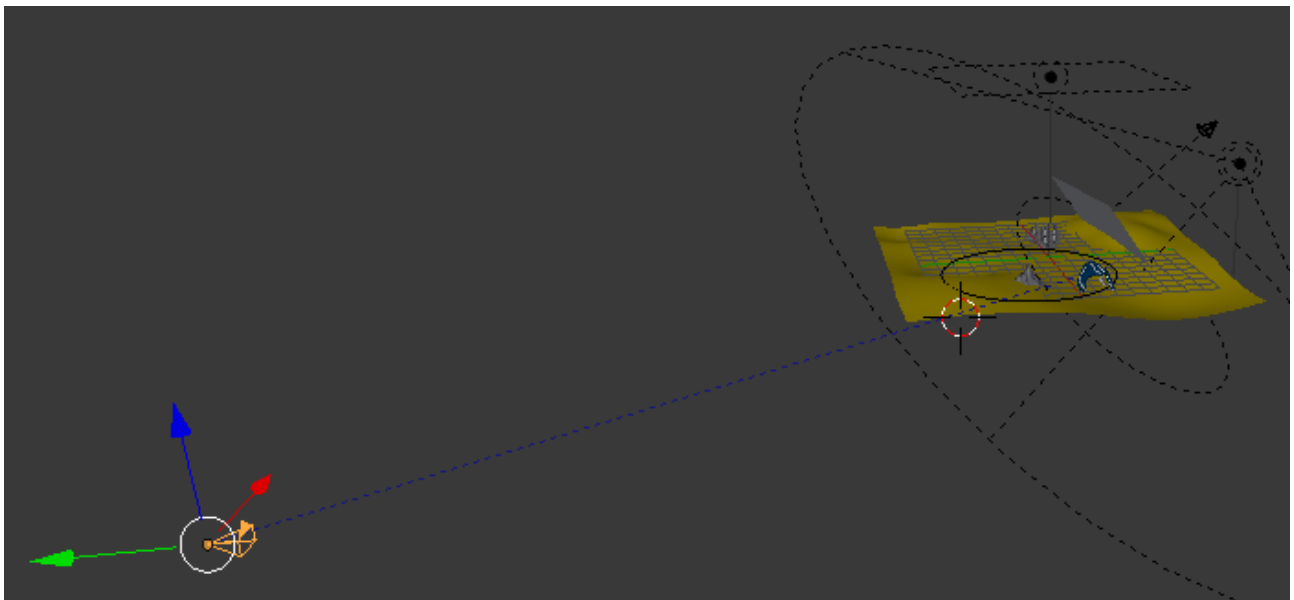First, select the camera, go to the constraints section and select

→ Add Constraint → Follow Path

Go now to the constraint dialog and select as the target the BezierCircle:

You will see now that the camera somehow disappeared from the previous position:

Here, the linkage between the camera and the circle is shown by a blue line. This line points to a specific position. Change the position of the camera so that it matches the position of the blue line on the circle. In other words, if you do not see the blue line anymore, you are finished with the placement. Now, you only have to correct the rotation so that the camera is pointing towards the center of the circle.
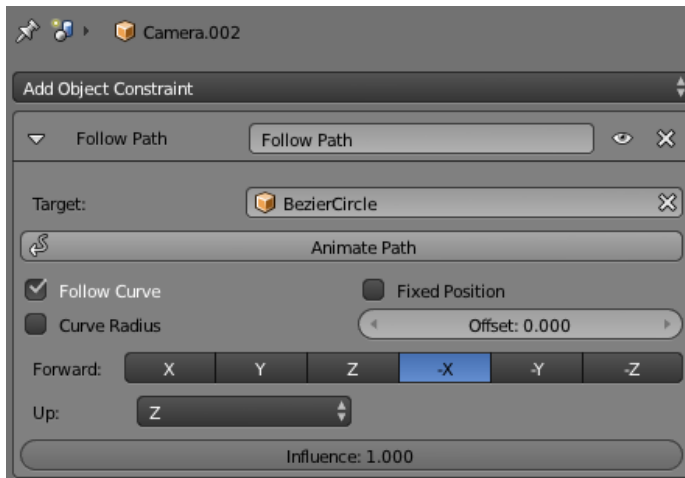
Click "Animate Path". If you move now the animation by using the time line:

you will see that the camera moves and follows the path, but the rotation does not change, it always

points straight ahead, along the local Y axis.

To change this, go to the Follow Path contraint and activate "Follow Curve" and change the Forward selection to "-X".

Now, the forward axis of the camera has changed from +Y to -X, causing a 90° rotation towards the center. (The settings here always depend on the local axis of the camera!)

Target Camera

There is also another option to handle the camera; just transform it to a target camera.

For this purpose, just create a camera and add the constraint "Damped Track".

Create no e.g. a dummy object, Add → Empty → Cube

Select the camera and add the "Damped Track" constraint:

→ Add Constraint → Damped Track

The camera will now always point towards the "Target" which you will have to define as the empty object