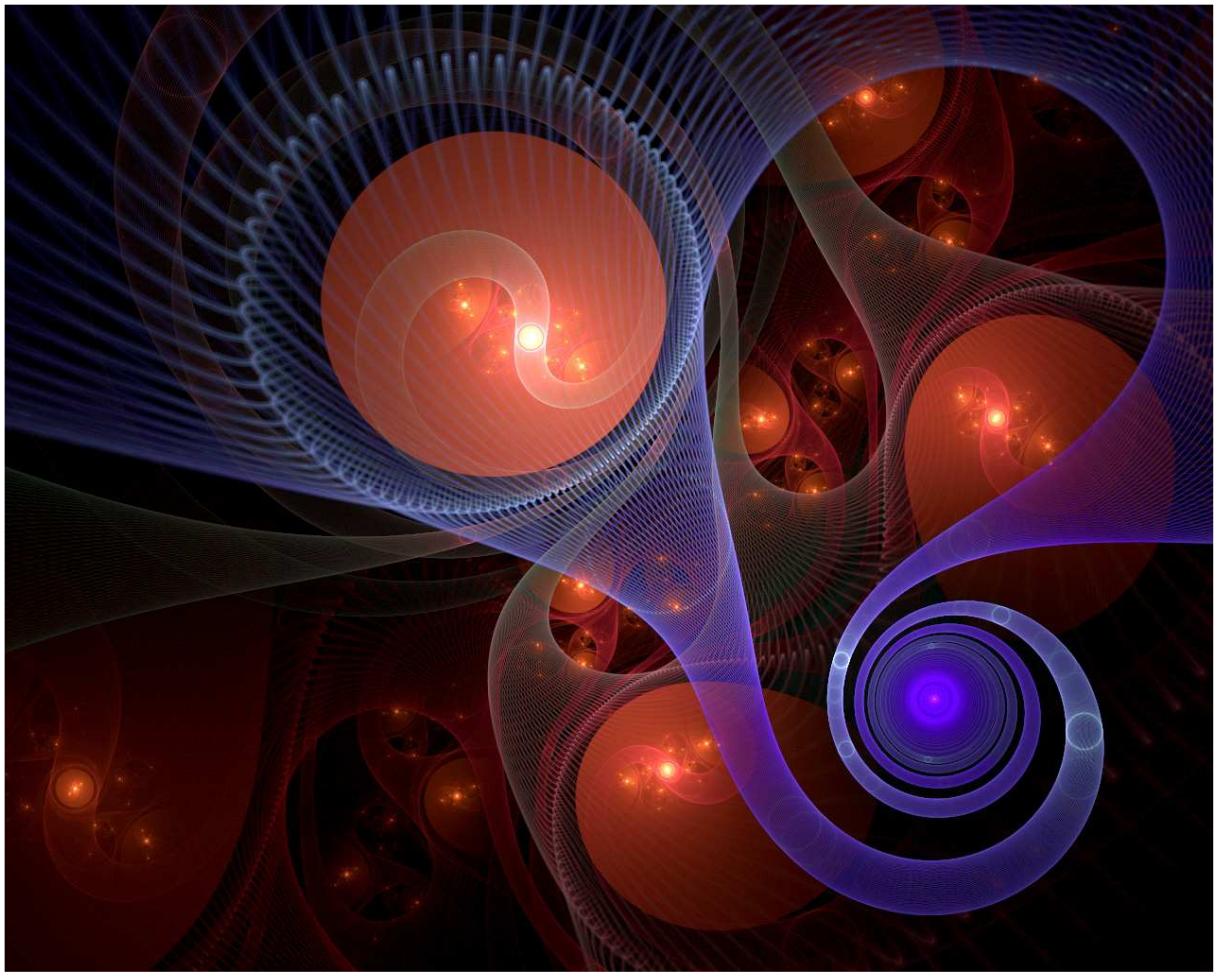

Apophysis Wire and Tube Fractals Tutorial 1.0

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Summary

1. Introduction

In this tutorial, I suppose you have a basic knowledge of Apophysis and its transform editor. I will not describe the windows and menus, how to add transforms and change variations.

If you don't know how to do this, there are a lot of Apophysis tutorials available, and you should read them first. For instance, there is a very good description of the transform editor in 2B2H Tutorial.

Also, do not expect to produce fractals such as those shown in the sample gallery immediately. I have written this tutorial in such a way that you will have all the elements needed to produce them, but *you will have to experiment*.

Each time an important parameter is introduced, I have tried to give you a precise definition of its role and the range of values you can try. A parameter that can have values between 0.1 and 10 may produce *completely different results* at 0.1, 0.9, 2.7, 5.3 and 10. So, don't hesitate to try all the values you can, and don't forget this can be done on several different parameters.

Due to the number of parameters and usable ranges of values, this class of fractals can produce a huge number of very different images. I'm just beginning to discover what it can do myself, and I hope you will have fun experimenting with it, and will find your own style of wire and tube fractals.

Before we open the transform editor and start making fractals, I would like to thank WelshWench who helped me a lot during the writing of this document.

2. Making a basic "Spheres & Wires" flame

2.1. Open the transform editor and click on the **New blank flame** button.

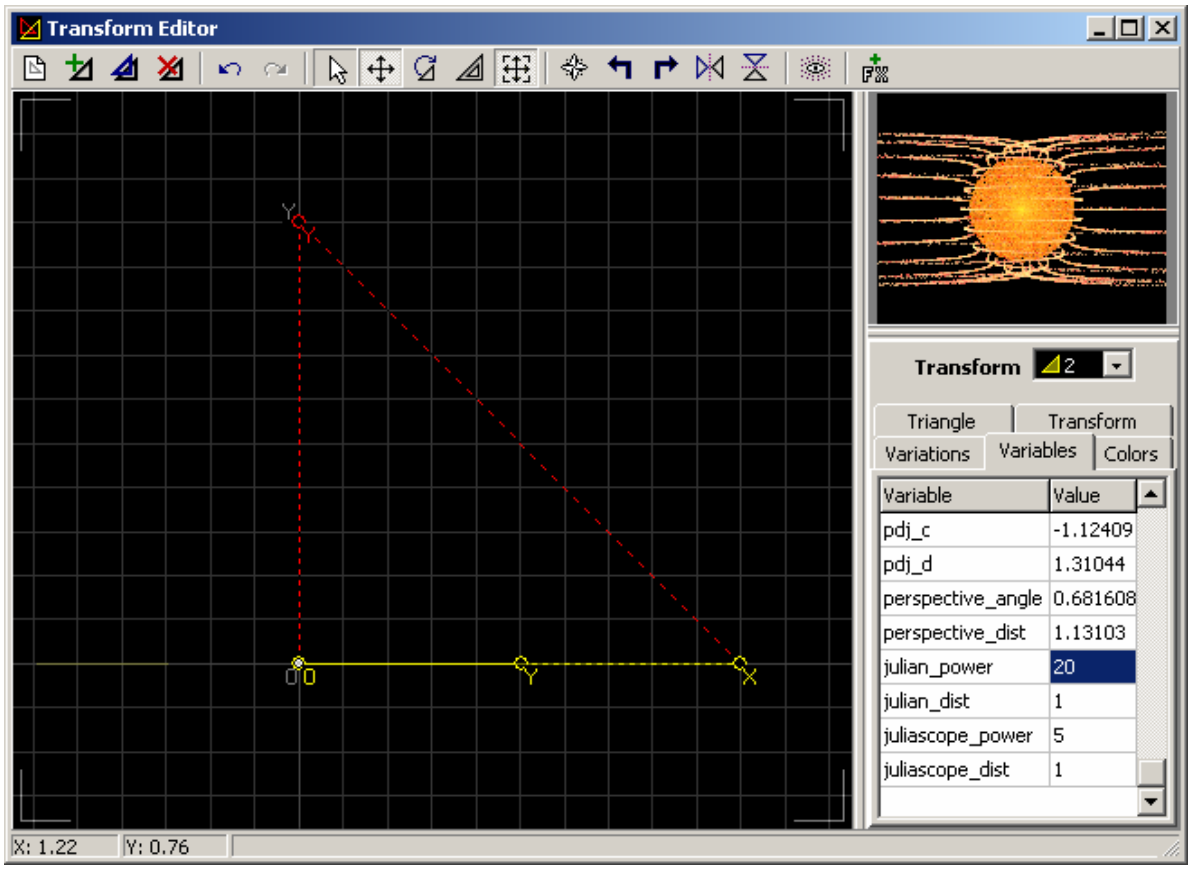
2.2 Select **transform 1**, and in the variations tab, set **linear to 0** and **blur to 0.7**. This parameter controls the diameter of the spheres.

2.3. Select **transform 2**, and set **blur to 0.01** (this parameter controls the diameter of the wires) and **julian to 1**. The linear variation is required here, and must *not* be set to 0. **Transform 2** must be: **linear 1, blur 0.01, julian 1**.

2.4. In the *Variables* tab, set **julian_power to 20** (this controls the number of wires) and **julian_dist to 1**.

2.5. Now click the **Y** point of the yellow triangle (**transform 2**) and move it to the middle of **[OX]** (the exact position of Y on the line is not important at all, but the triangle must be flat).

At this step, you should see a sphere with wires around it. If not, restart from the beginning and/or change your gradient.



Save this flame, it can serve as a starting point for many wire/tube fractals.

3. Adding some complexity to the fractal

So, what can we do with this simple flame?

3.1. Add a third transform (**Adds a new triangle** button).

3.2. On **transform 3**, set **linear to 0** and **julian to 1**.

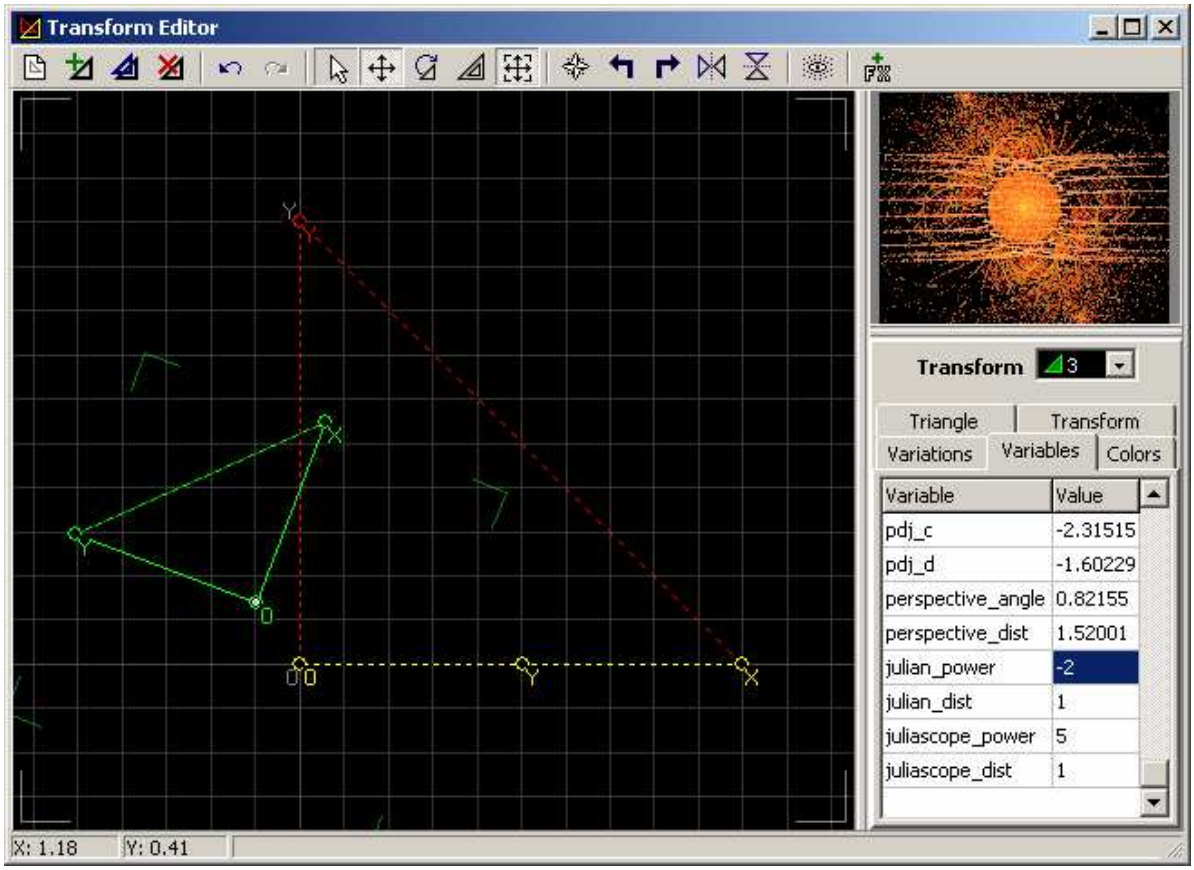
3.3. In the *Variables* tab, set **julian_power to 2** and **julian_dist to 1**.

Now, play with the green triangle (**transform 3**): resize it, rotate it, and move it around.

You can already make very interesting wire fractals with these parameters, or simple variations of them.

For instance, on **transform 3**, I suggest you to try:

julian 5, julian_power 2
julian 1, julian_power -2



Moving, rotating, resizing the green triangle (**transform 3**) will produce a lot of different fractals, and you can try other values of **julian** and **julian_power** as well.

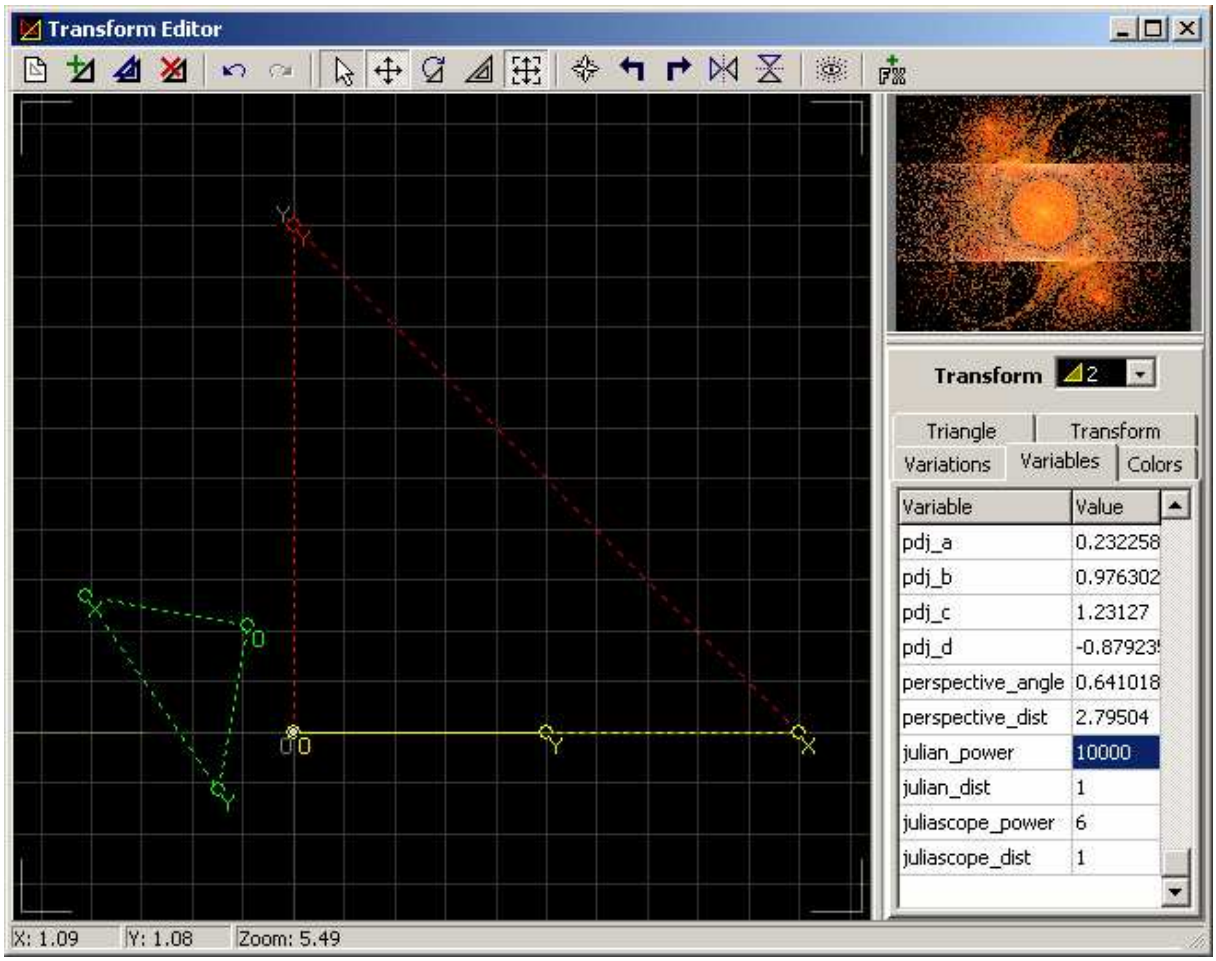
4. Tube fractals

Converting a "wire fractal" into a "tube fractal" is very simple.

Lets start with a simple experiment: select **transform 2**, and in the *Variables* tab, replace **julian_power 20** by **julian_power 50**. Do you see what happens? The number of wires has increased.

By increasing this value a lot more, the wires will merge and form a solid tube at any scale: try **julian_power 10000**.

Here is your first tube fractal!



5. Going further

To make more complex fractals, simply add transforms and variations.

Whatever you do, the following controls are available on the basic flame:

Transform 1 - **Blur 0.7** controls the diameter of spheres. You can try **blur 0.1** or any other value, or remove blur and try another variation. For instance, if you set **blur to 0** and **sinusoidal to 1**, you will get squares instead of spheres.

Transform 2 - This transform is very variation-friendly:

linear 1 - This is what "extends" the wires or tubes, but other variations can do it too in different ways. For instance, remove linear and try **sinusoidal 2**. Almost all variations work well on this transform, don't hesitate to try them one by one with different values (0.1 to 10), then combine them.

blur 0.01 - This is what controls the diameter of the wires in wire fractals. You can raise it when the number of wires is not too important (**julian_power** set to low values, like 2-10).

For instance, try **blur 0.1** and **julian_power 5**. The wires will be transformed into "blurred tubes", and you can make another interesting type of fractals with them.

julian_power 20 - This controls the number of wires, typical values are:

julian_power	**Fractal type**
2-10	Light wire fractal
10-100	Wire tubular fractal
100-10000	Tube fractal

6. Sample gallery

These fractals are made with 3 or 4 transforms, using the techniques described in this tutorial.

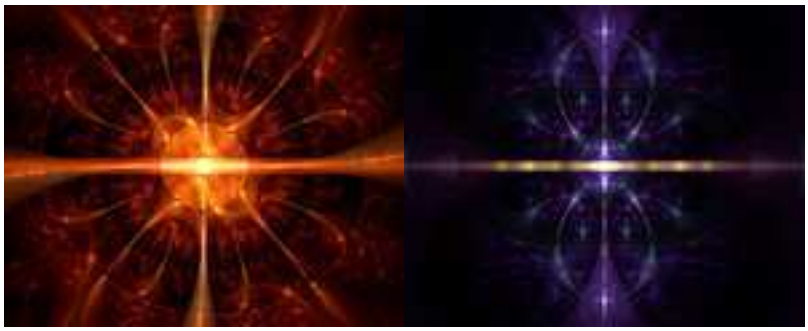
The fourth transform is most of the time a very simple linear transform used to duplicate some areas of the fractal and increase the number of details in the final picture.

Please be aware that all these fractals are copyright CygX1, thus *you are not allowed to reproduce the exact same pictures*. However, I have written this tutorial in such a way that you should have all the elements needed to experiment and, I hope, find your own style of wire and tubes fractals.

Have fun experimenting, I'm looking forward to your own wire and tubes fractal creations!

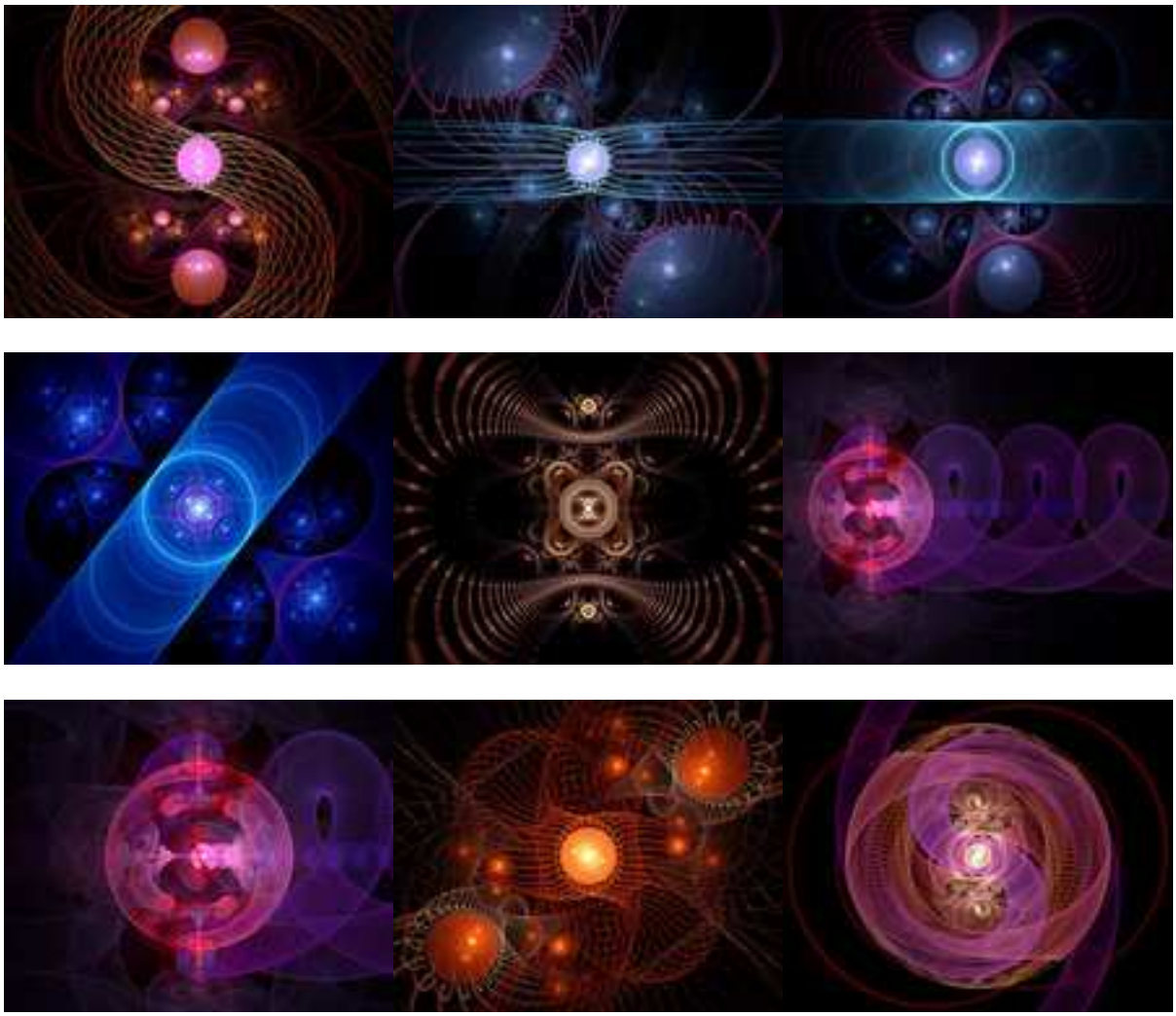
6.1. Light wire fractals

Spring explosion
Electric plants
Alien resurrection
Nursery

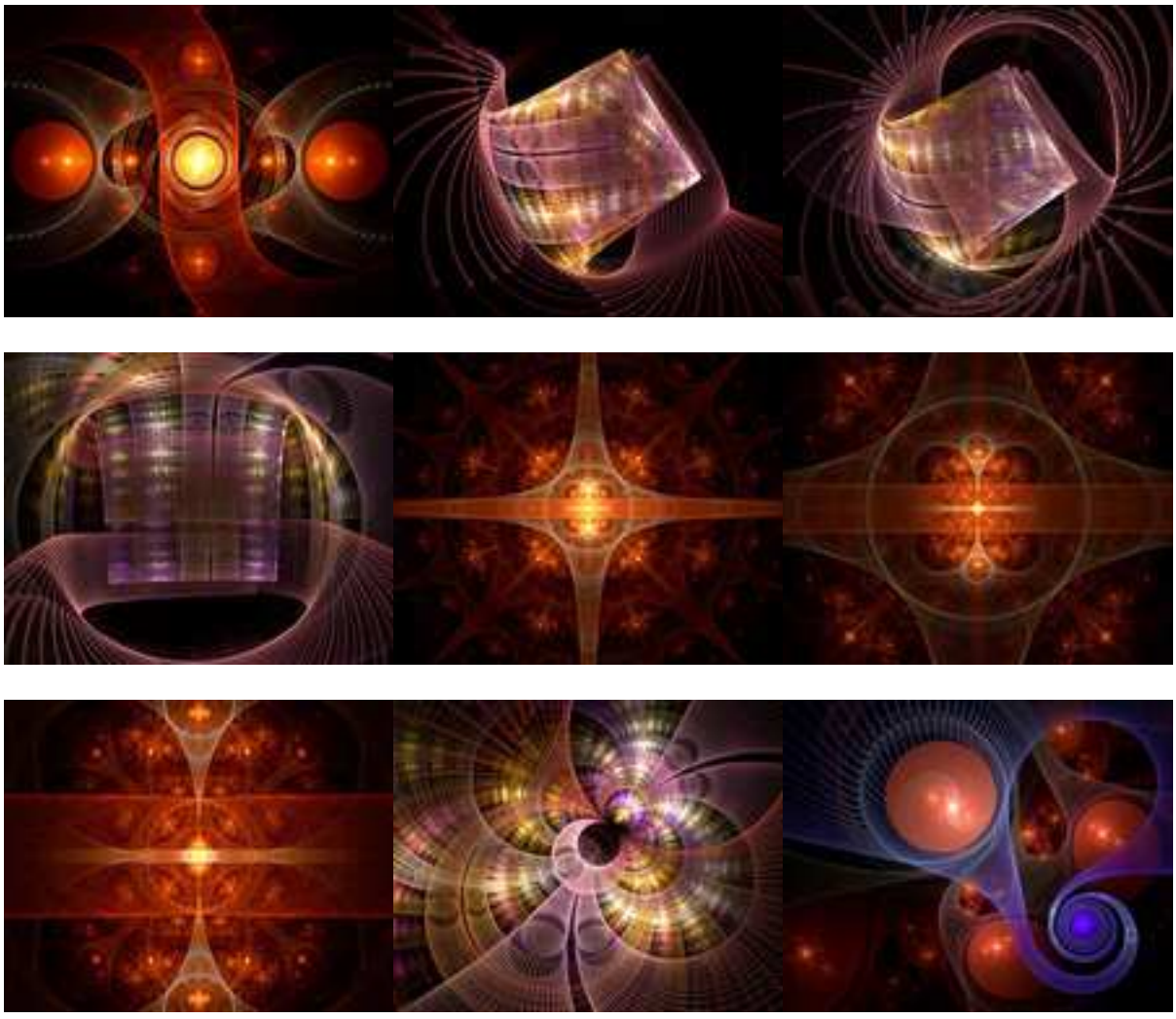


6.2. Wire tubular fractals

S
Wired
Core, Blue core
Dive
Explorer, Explorer II
Network nodes
S2

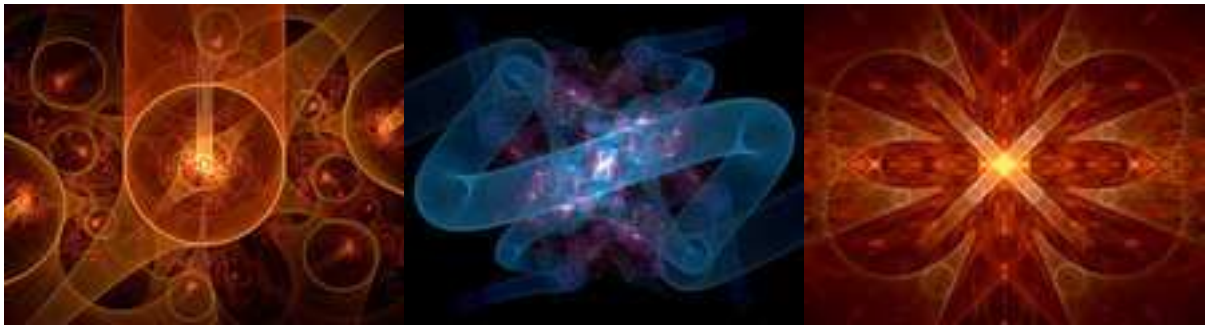


Spacetime warper
Project A1, Project A2, Project A3
Eiffel Dome I, Eiffel Dome II, Eiffel Dome III
Time tunnel
Bubble Universes



6.3. Tube fractals

Space cartography
False perspectives
The experiment
Compass
Wormholes
X, Fly above X
Aquatubes
Emerald generator



Labyrinth
5D Ultra Pinball
Red abstract
Ethereal flower
Night vision
Turbulence
Interferences