**Butterfly Curve**

The Butterfly Curve is given by the following polar equation:

We can convert to the following parametric equations:

Source: [Wikipedia](https://en.wikipedia.org/wiki/Butterfly_curve_(transcendental))

**Code Overview of Flying Butterfly**

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| --- |
| Background {      skyColor [0 0 1 0 .5 1 1 1 1 ]  Defines background colour & viewpoint      skyAngle [1.3 2]        }  Viewpoint {position 1.36355 2.60605 6.09531  orientation -0.815403 0.57305 0.0820486 0.525578}  FTransform {      cycleInterval 0.25  Defines motion of one wing      loop TRUE      parameters [0 1 0 1]      rotation "x=0; y=0; z=1; a=0.3\*pi\*t;"      children [  DEF wing FShape {  Defines colour of wing      appearance FAppearance {          material FMaterial {              diffuseColor "r=abs(sin(u\*4\*pi)); g=abs(sin(w\*3\*pi)); b=abs(sin(w\*2\*pi));"          }      }      geometry FGeometry {  Defines geometry of wing          resolution [50 3]          definition "          x=v\*sin(u\*pi)\*( exp(cos(u\*pi)) -2\*cos(4\*u\*pi)-(sin(u\*pi/12))^5 );          z=v\*cos(u\*pi)\*( exp(cos(u\*pi)) -2\*cos(4\*u\*pi)-(sin(u\*pi/12))^5 );          y=0;"      }     }  ]}  FTransform {      cycleInterval 0.25  Making a second wing      loop TRUE      parameters [1 2 0 1]      rotation "x=0; y=0; z=1; a=-0.3\*pi\*t;"      children [ USE wing ]} |

