

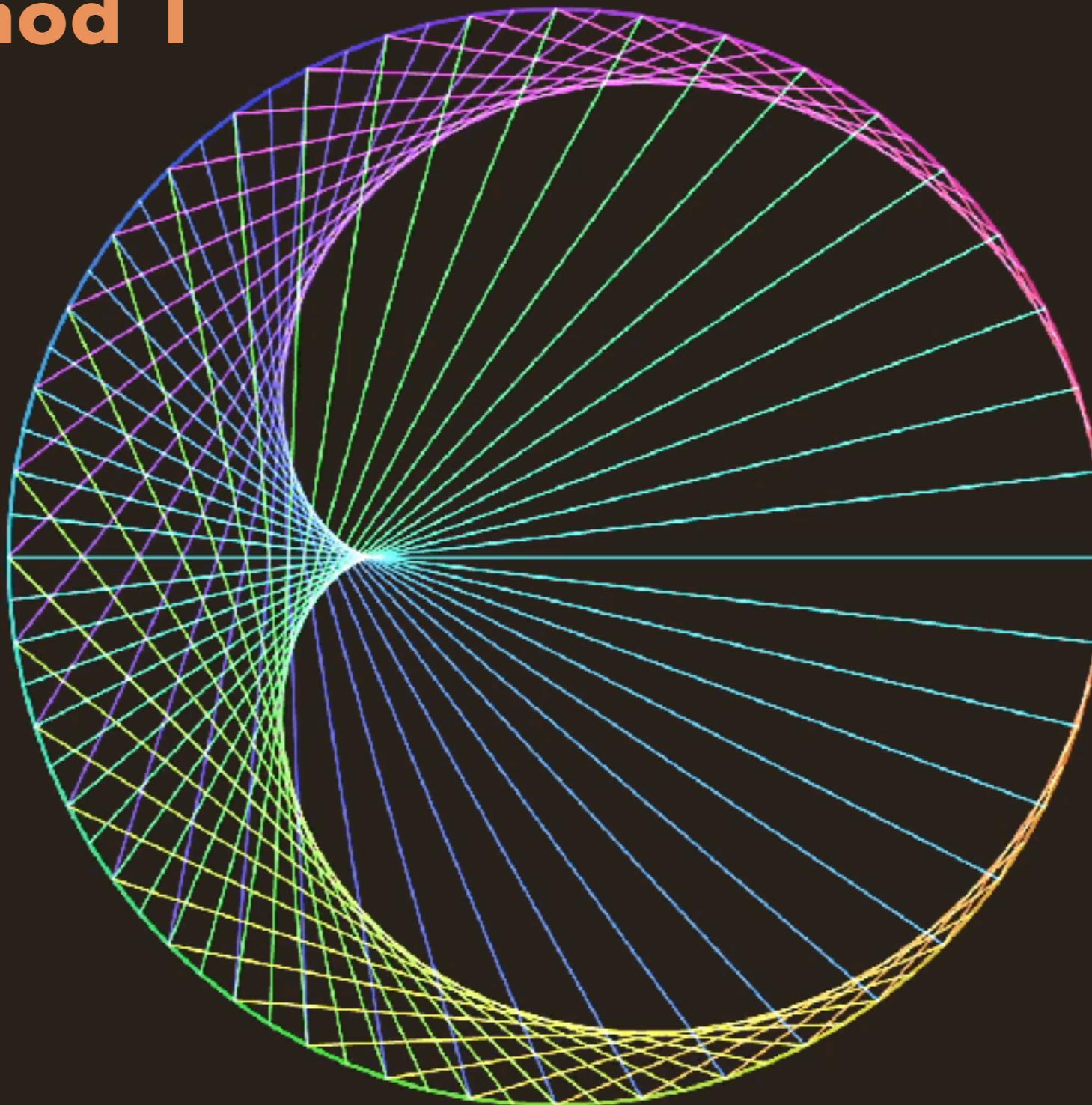
Elliot Kienzle

Hyperbolic String Art

**Many Cheerful
Facts**

Building the Cardioid

$x \rightarrow 2x \bmod 1$

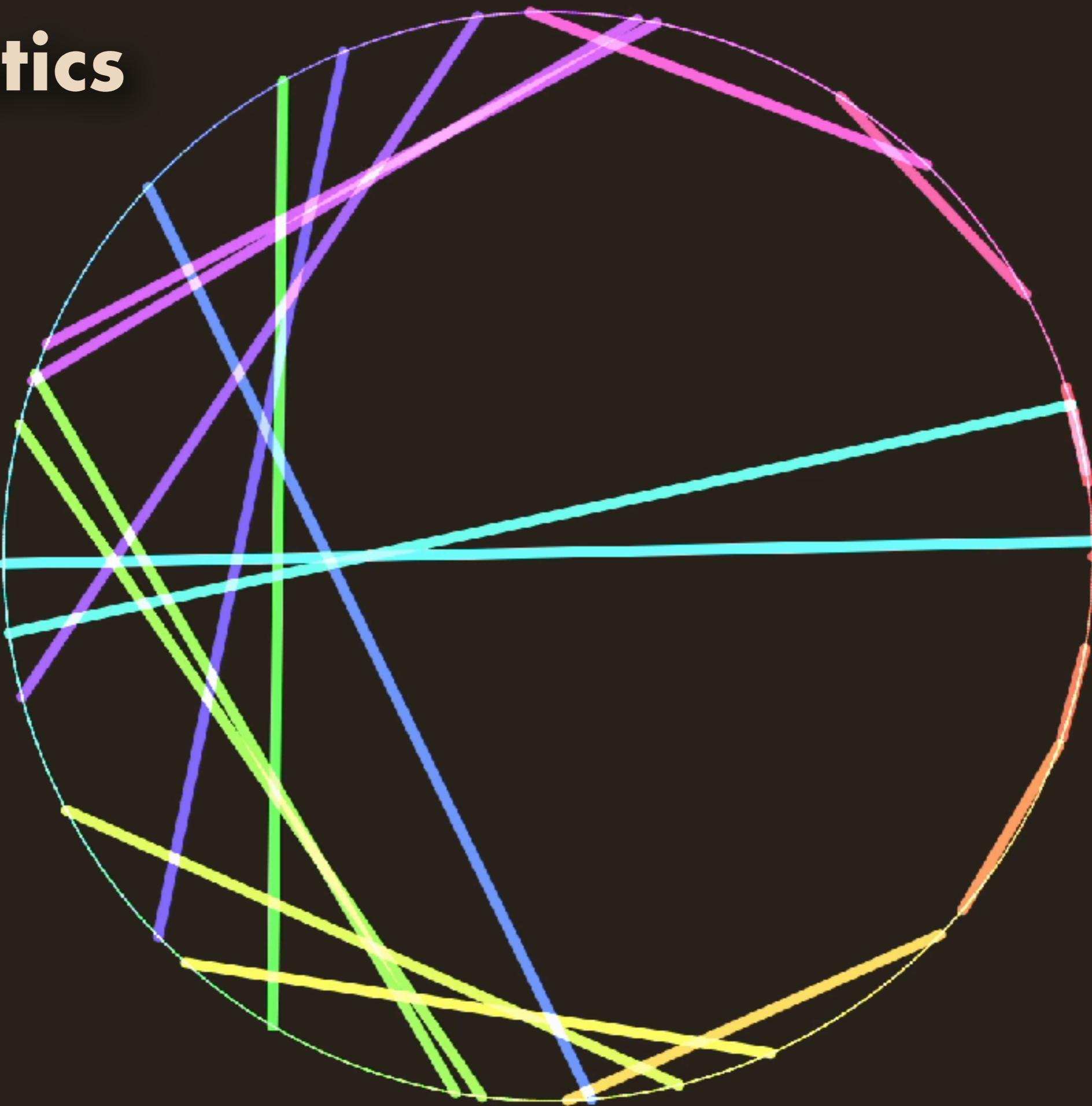


Immeasurable disappointment

$x \rightarrow \exp(5x) \bmod 1$



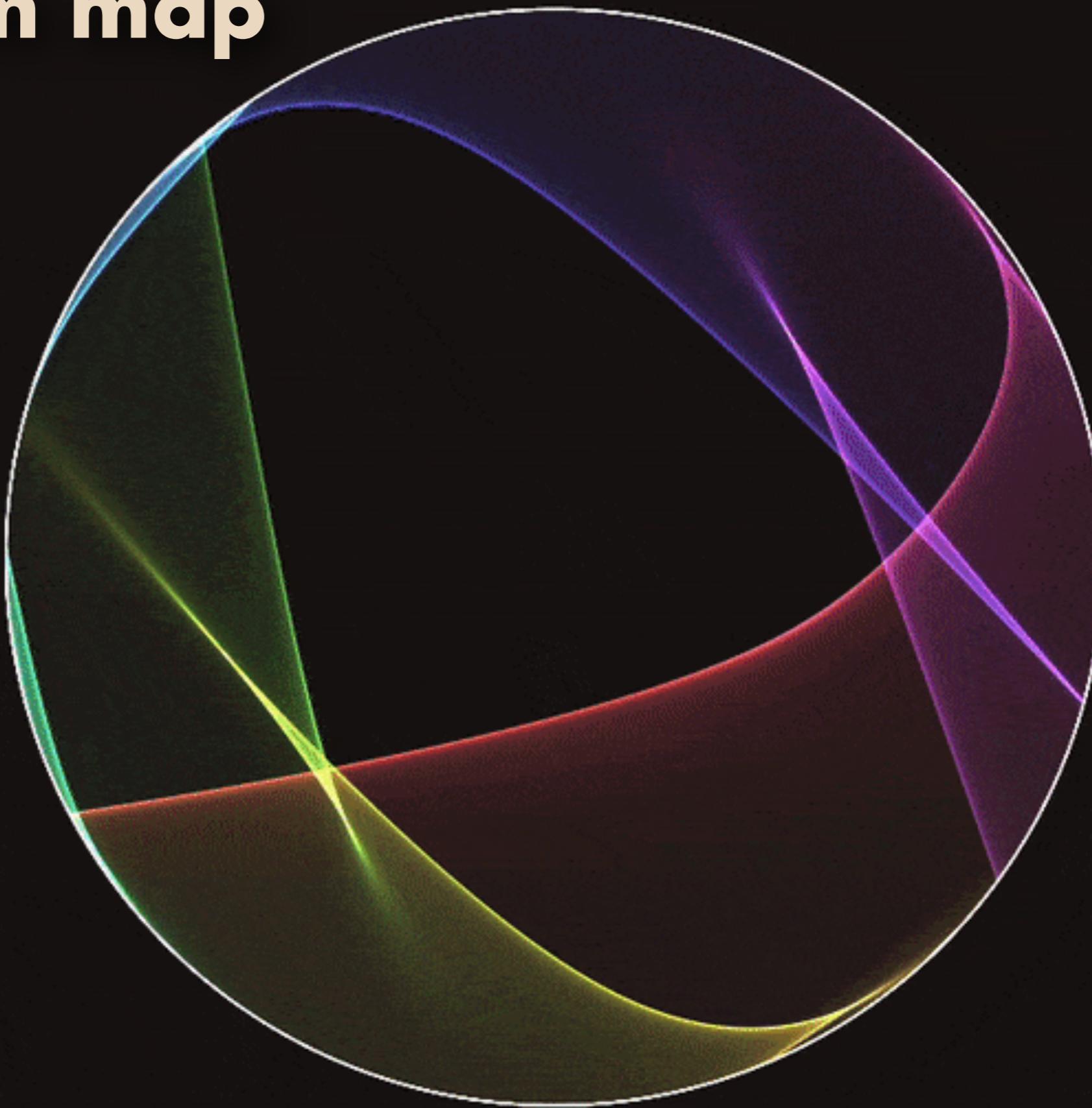
Caustics



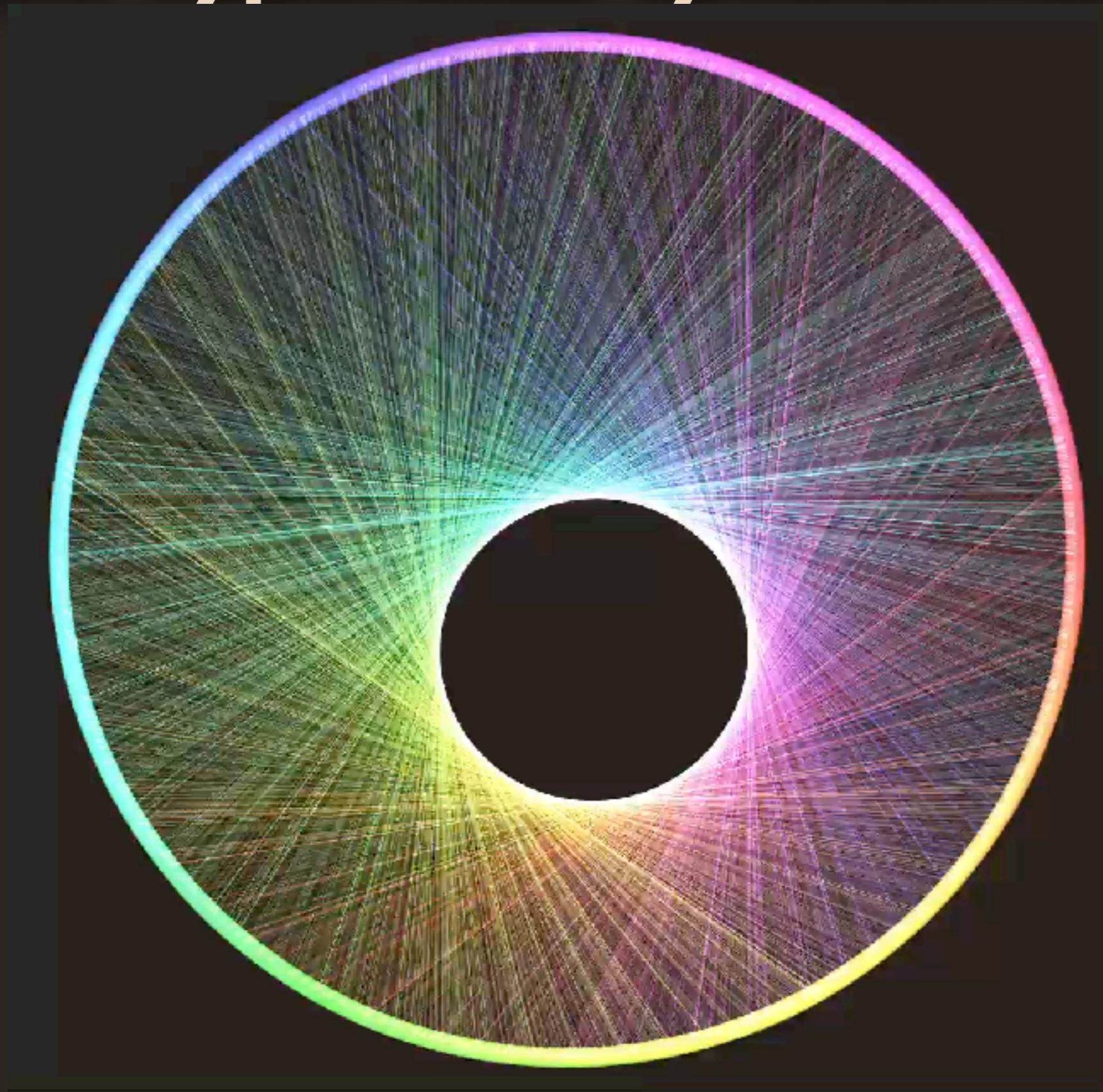
Cardioid



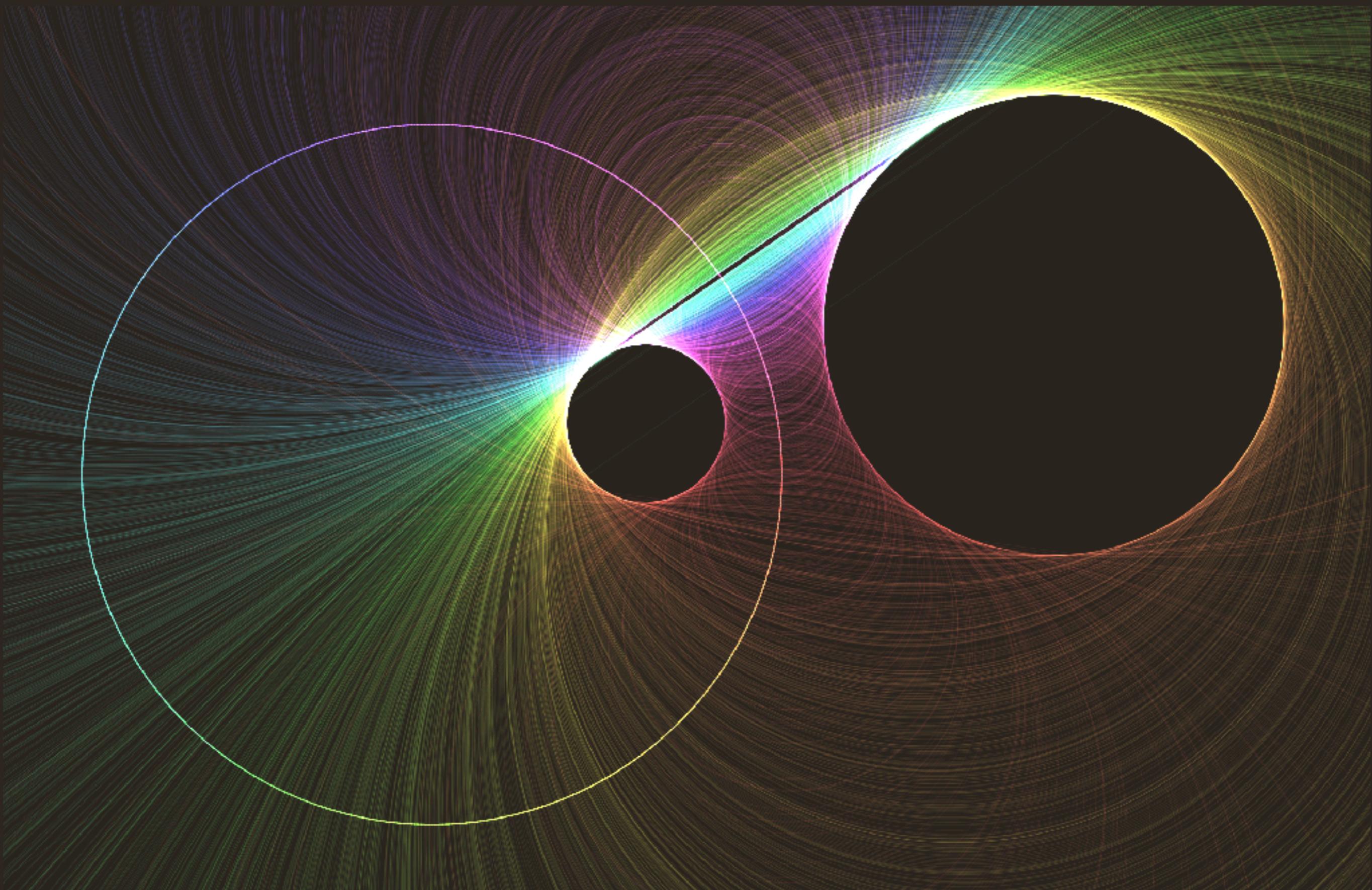
Random map



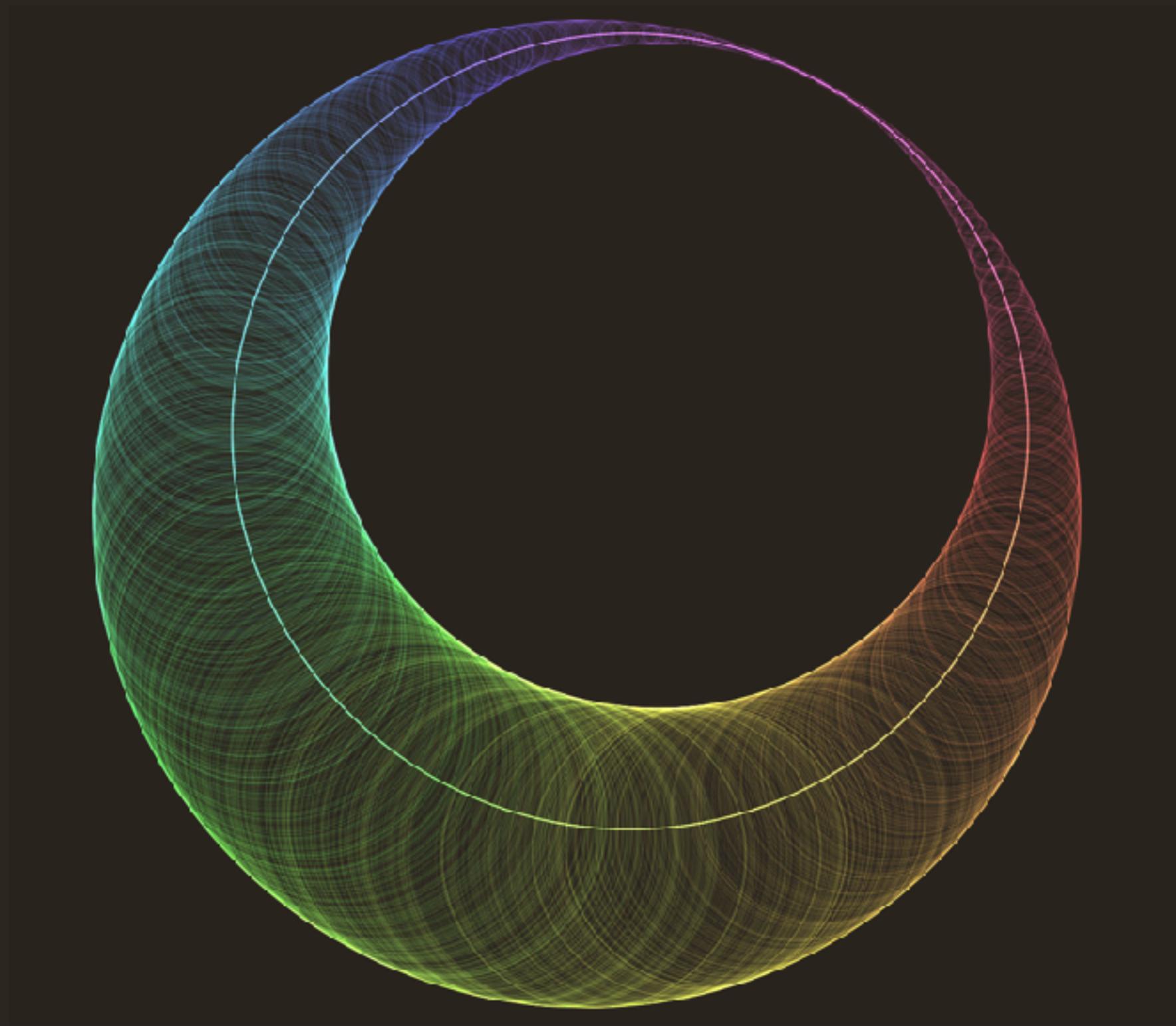
Beltrami hyperbolic symmetries



Elliptic Möbius Transform

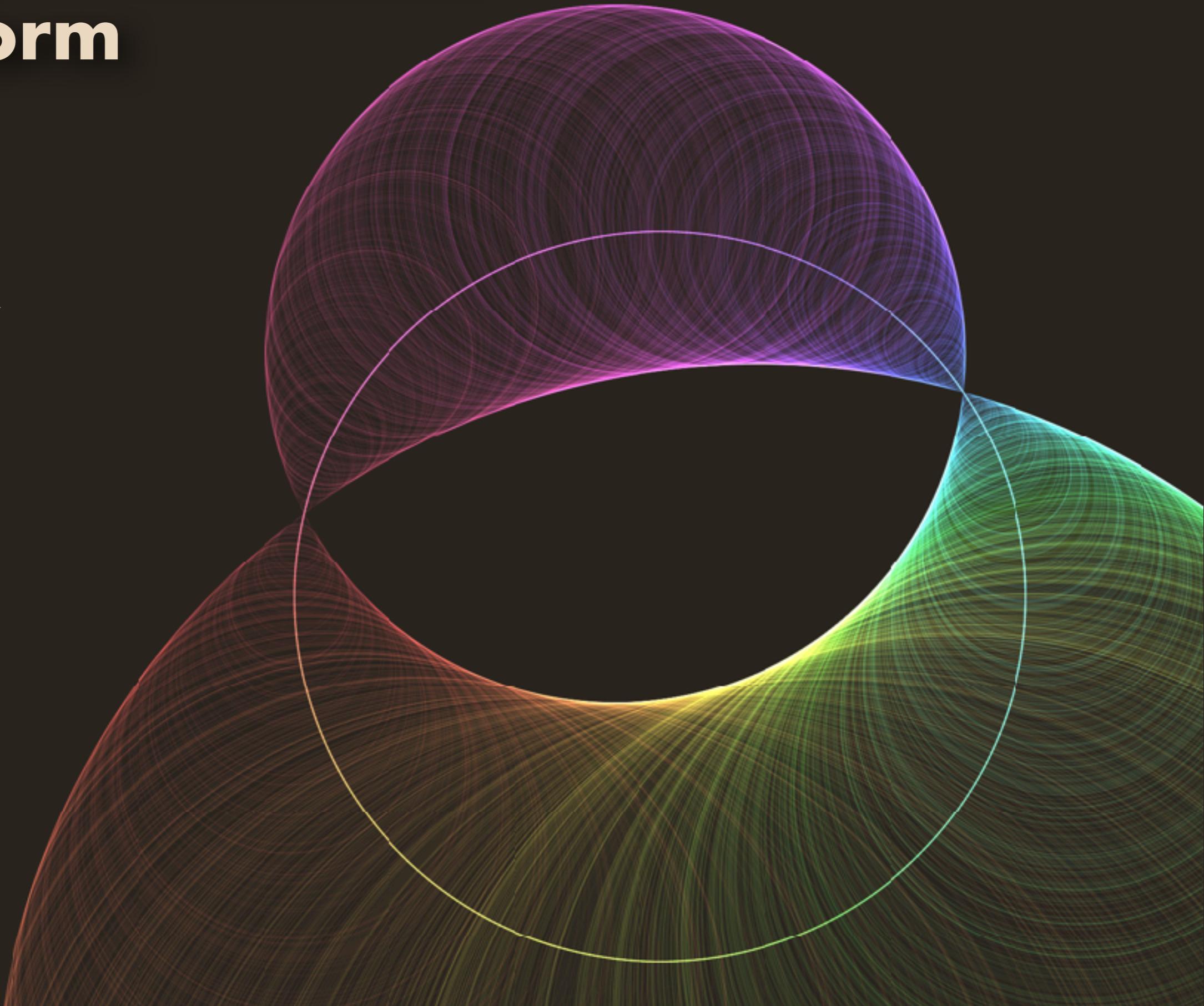


Parabolic Möbius Transform

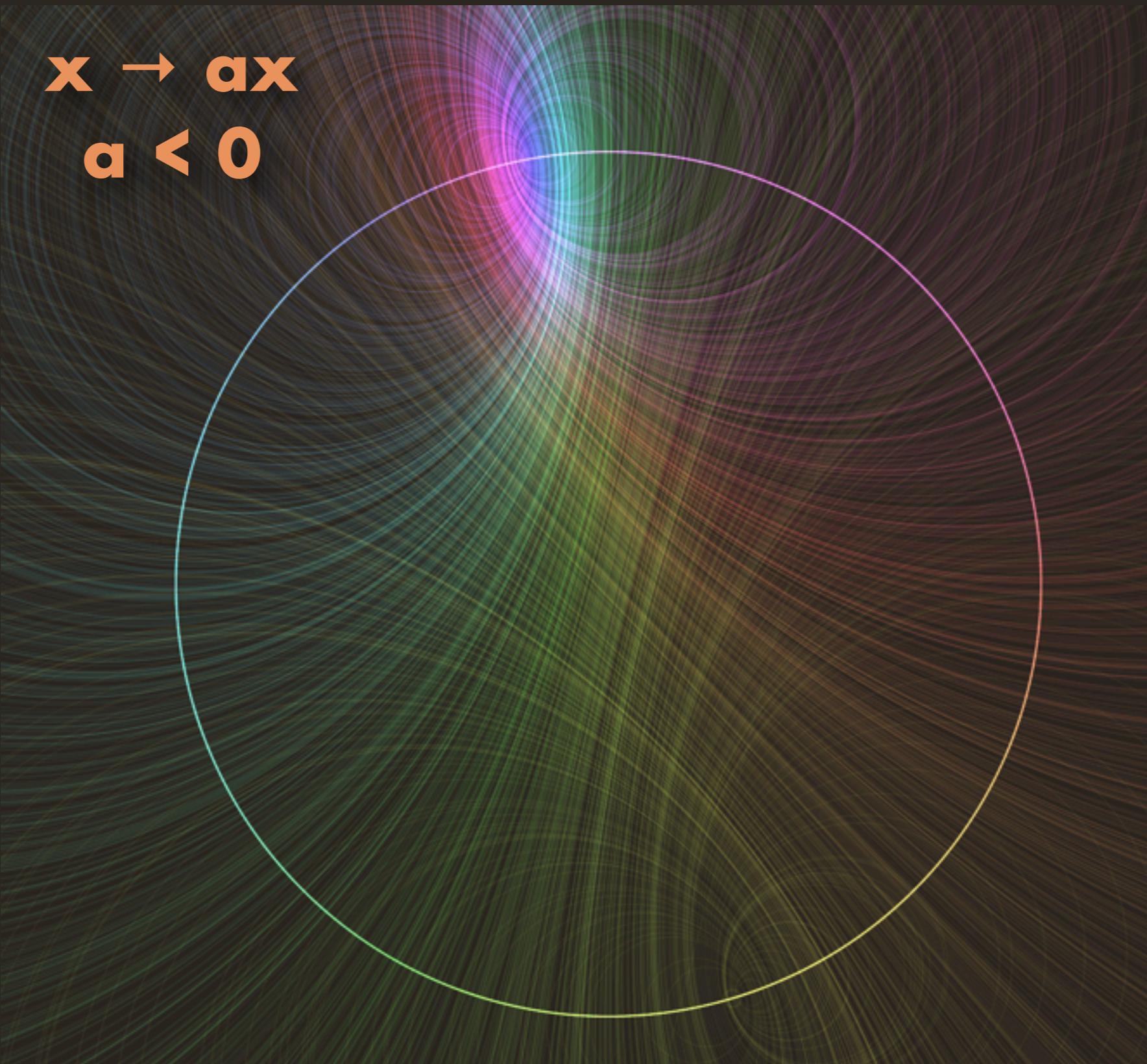


Hyperbolic Möbius Transform

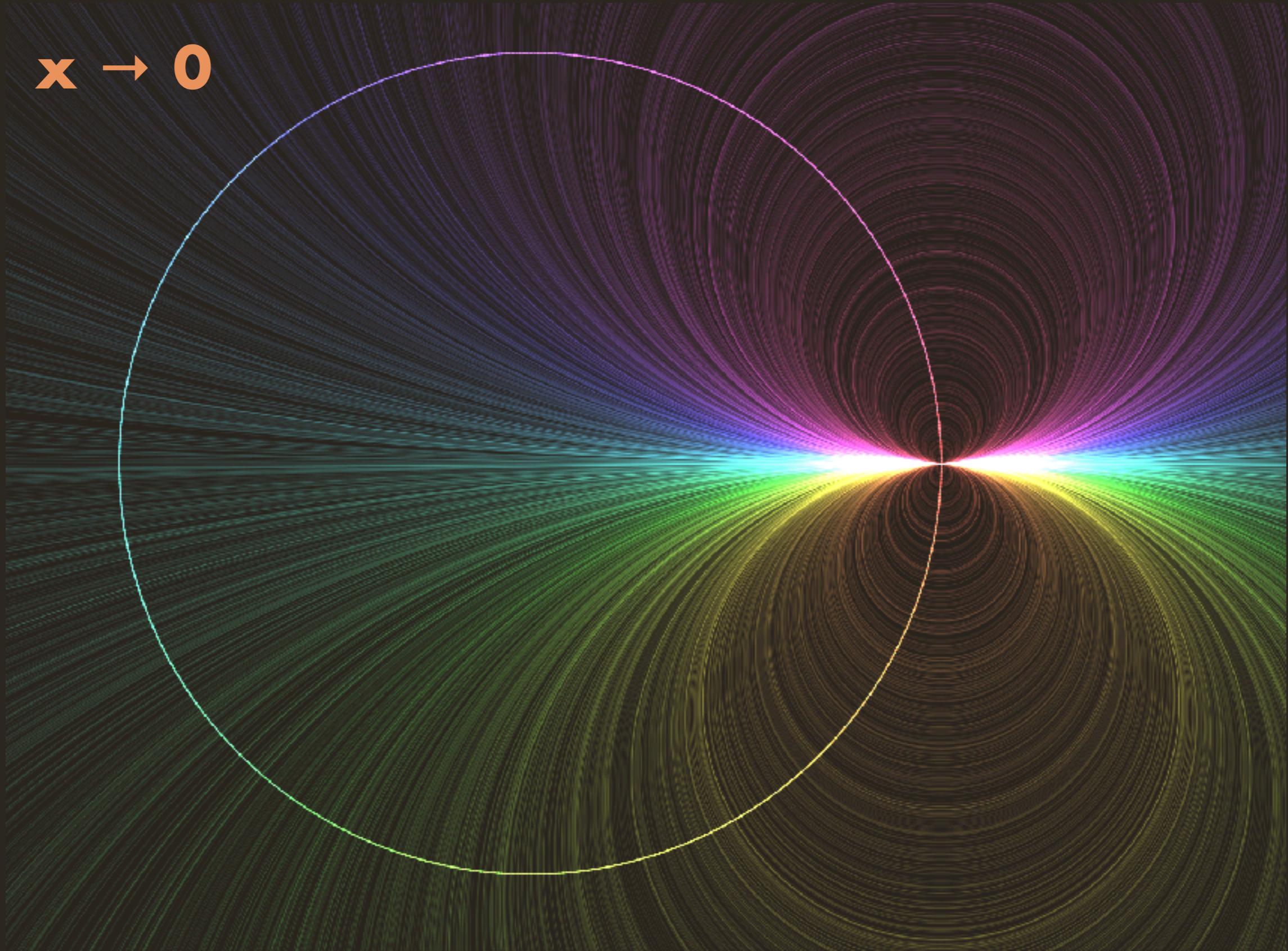
$x \rightarrow ax$
 $a > 0$



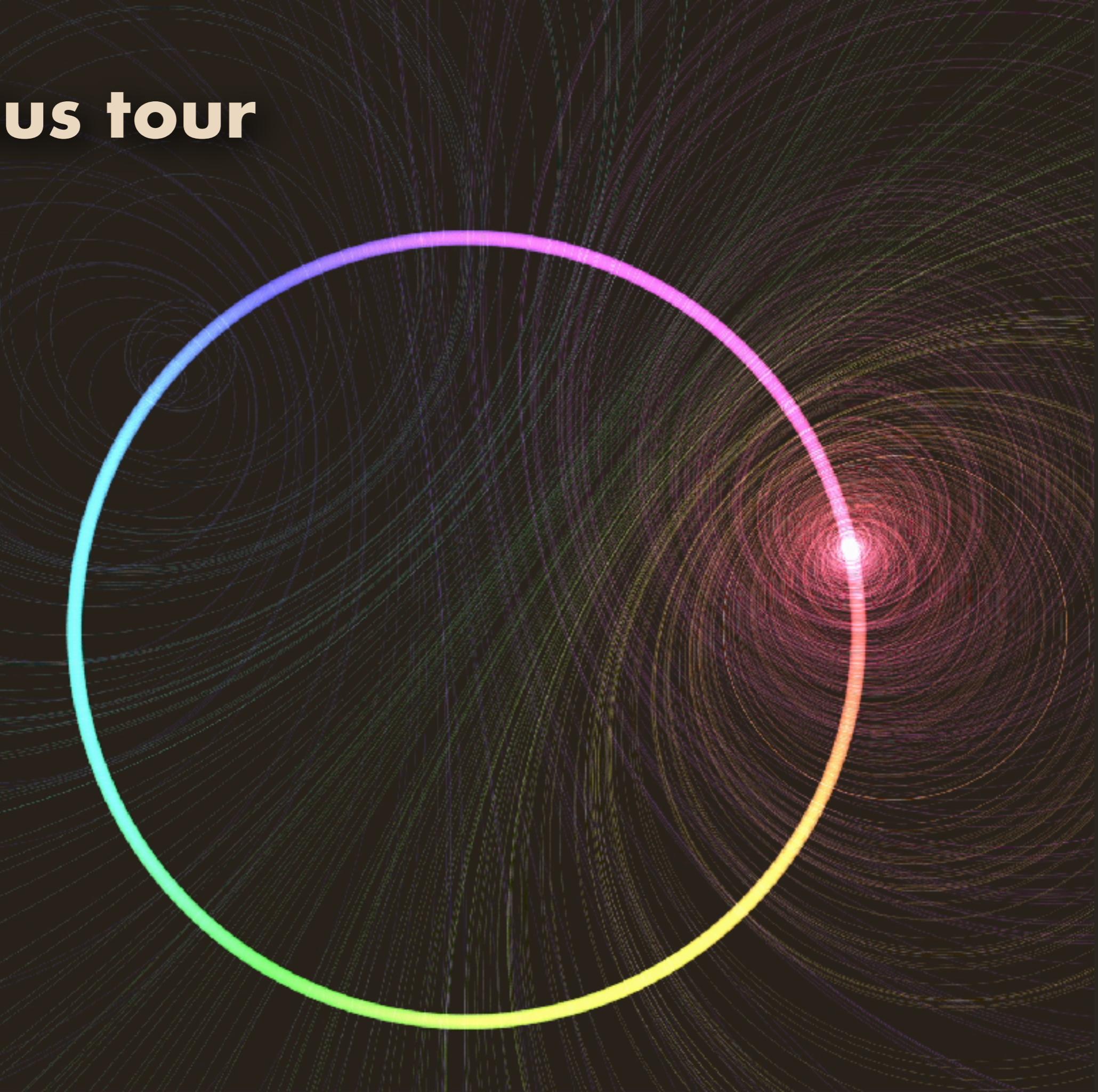
Glide Möbius Transform



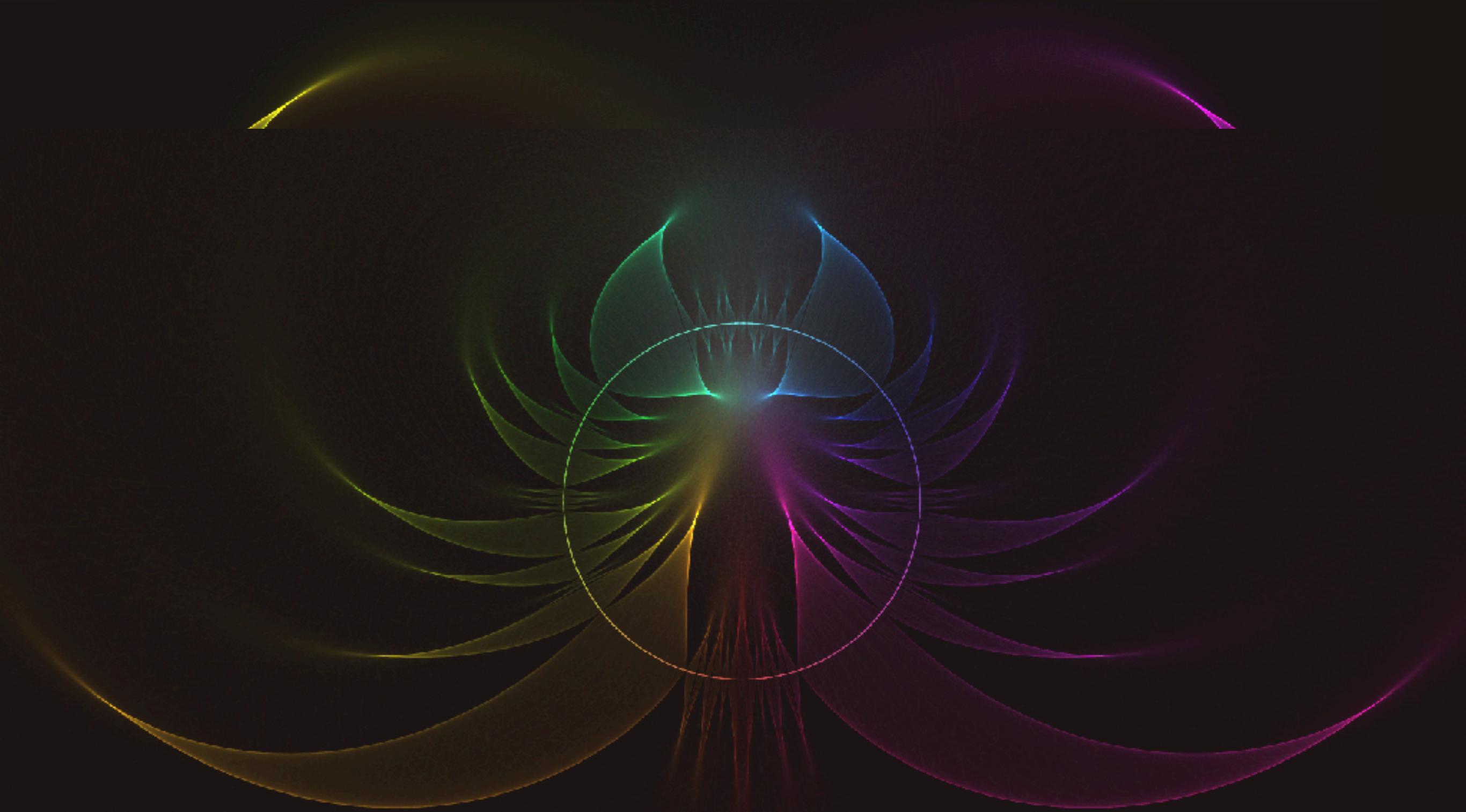
Singular Möbius Transform



Möbius tour

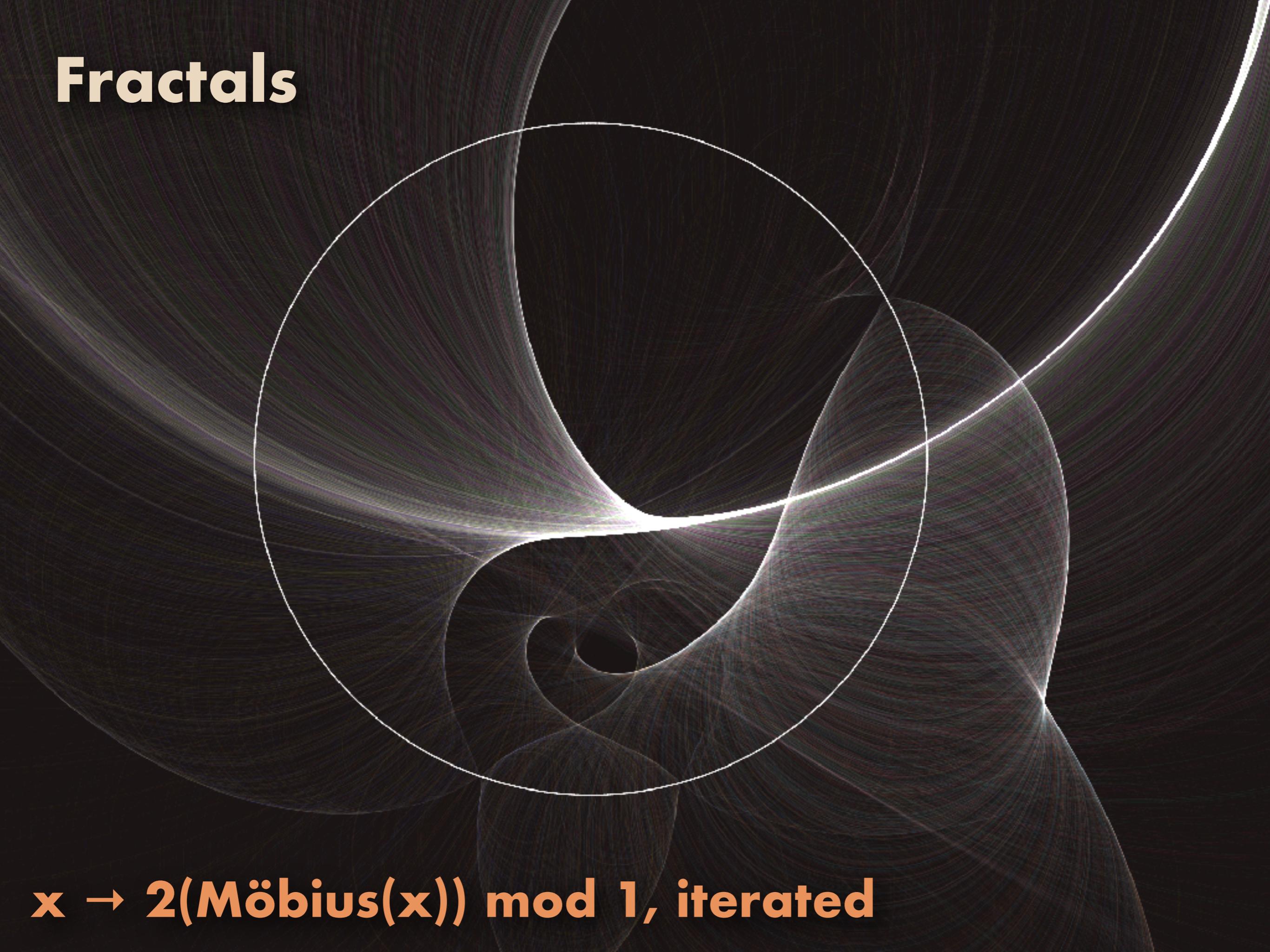


Fractals



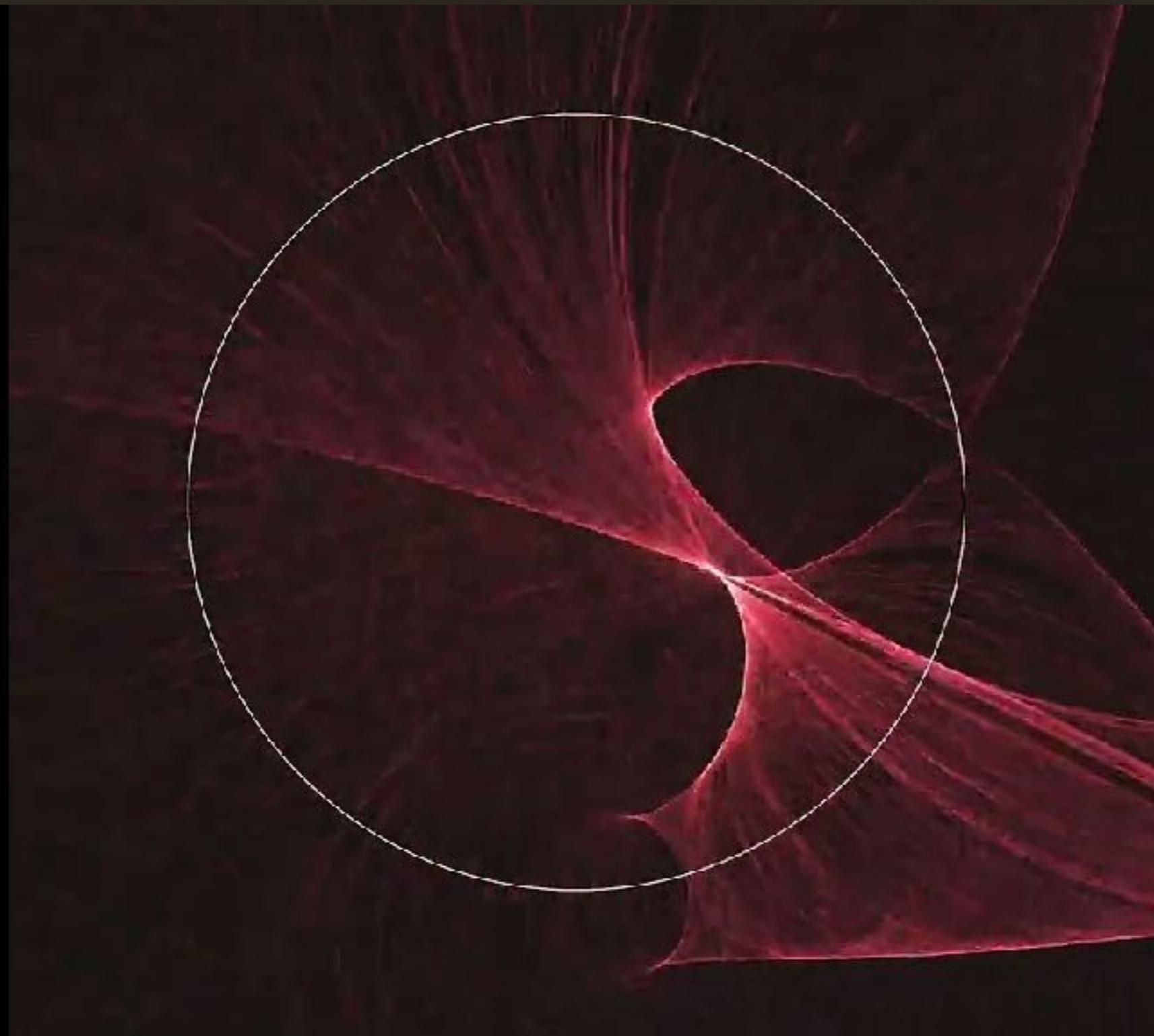
$x \rightarrow 2(\text{Möbius}(x)) \bmod 1$, iterated

Fractals



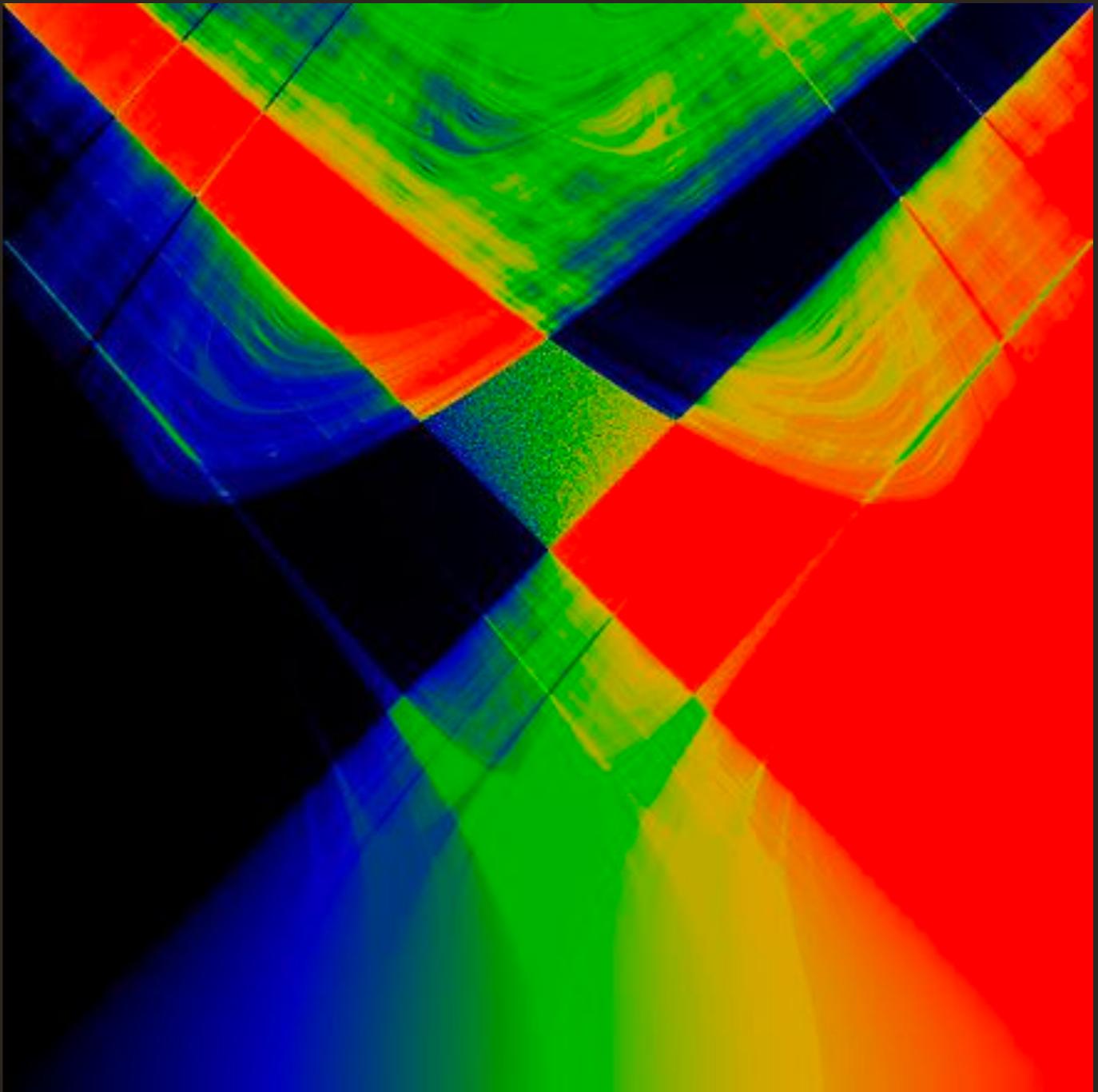
$x \rightarrow 2(\text{M\"obius}(x)) \bmod 1$, iterated

Arnold Tongues

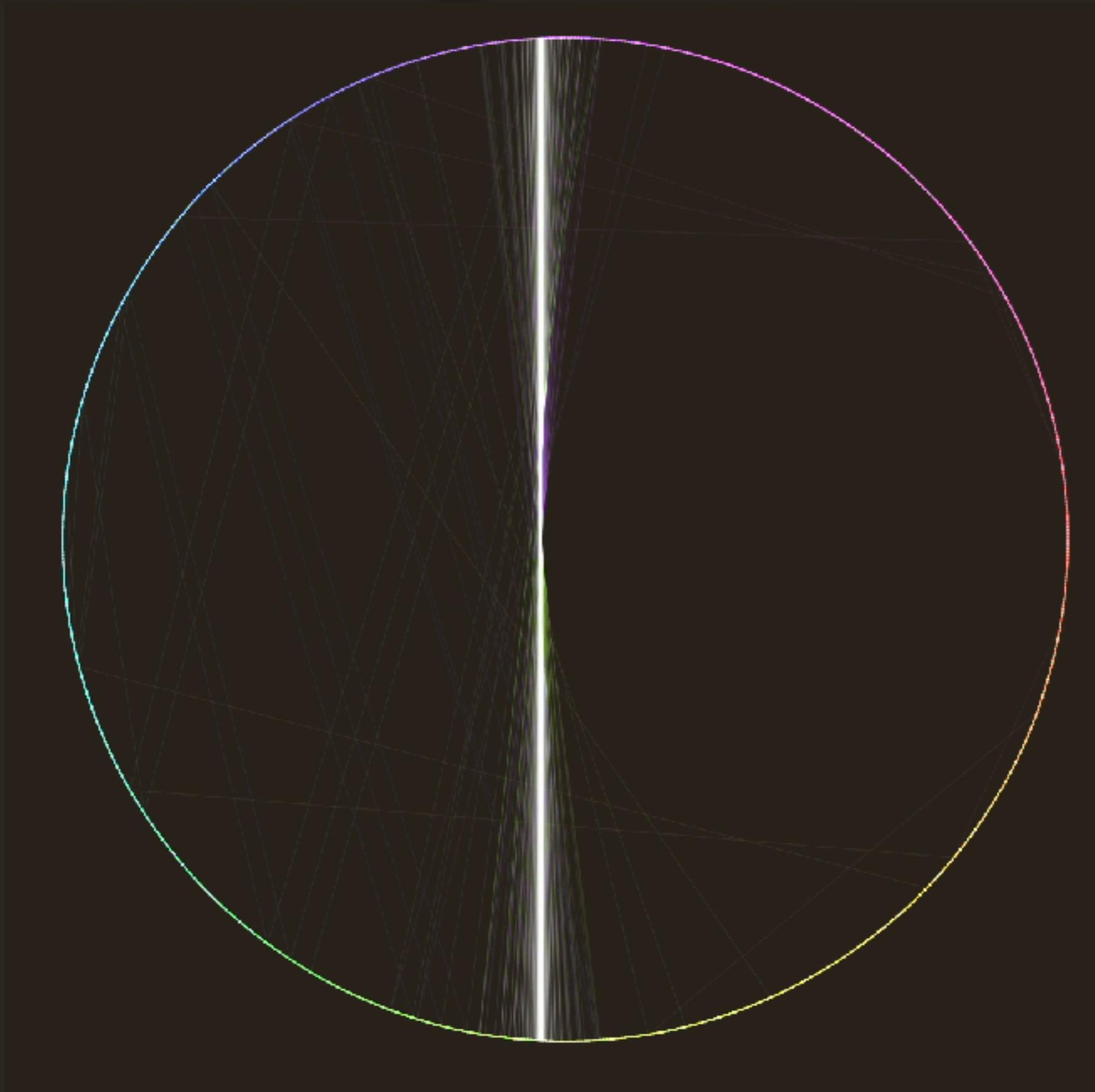


Arnold Tongues

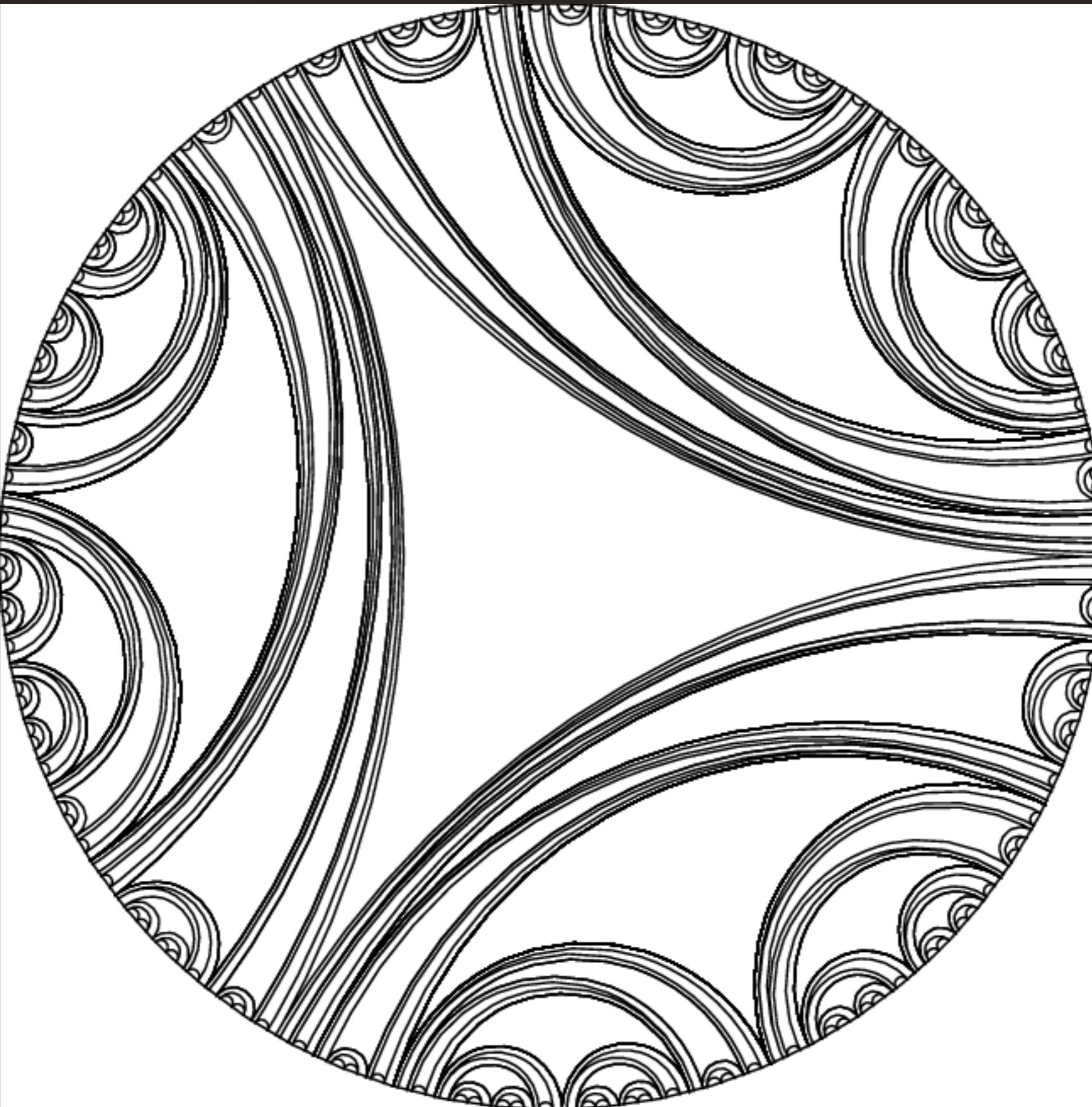
$x \rightarrow$
 $x + \Omega + K \sin(2\pi x)$
mod 1



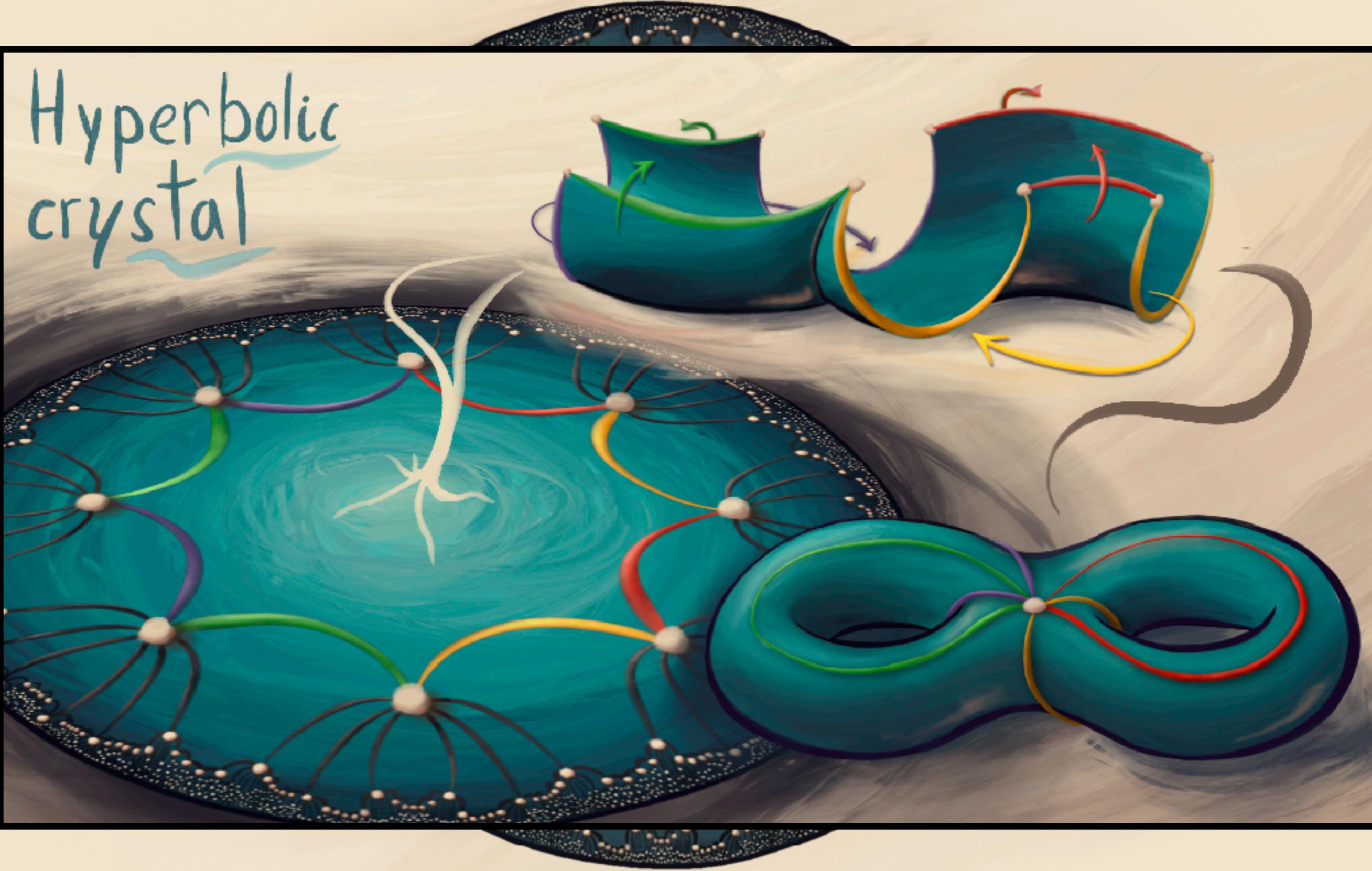
Period doubling cascade



Geodesic Lamination



Hyperbolic crystal



Pretty pictures :)

