



THE ART OF NATHAN SELIKOFF

Aesthetic Explorations of Algorithmic Space

www.nathanselikoff.com

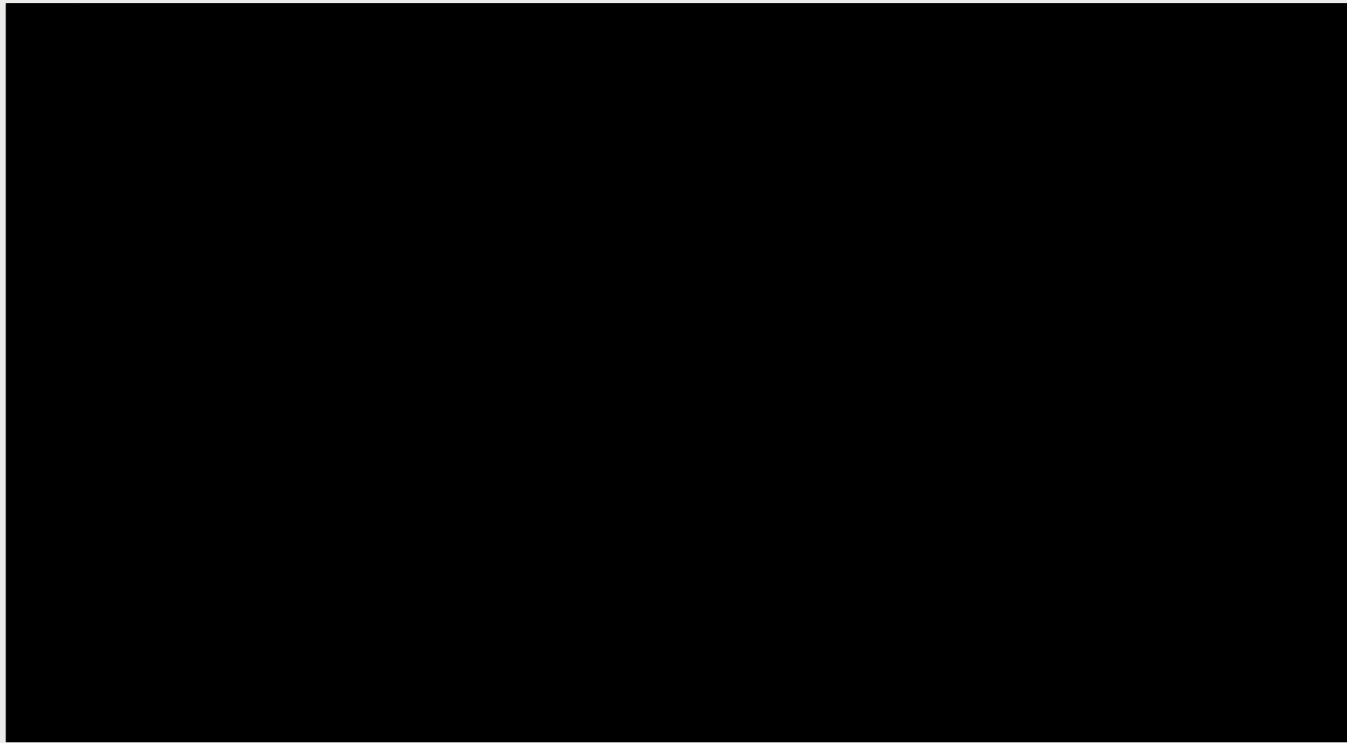
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A SOCIETY OF STICKPEOPLE
REAL-TIME INTERACTIVE SOFTWARE DEMO





A SOCIETY OF STICKPEOPLE

REAL-TIME INTERACTIVE SOFTWARE DEMO



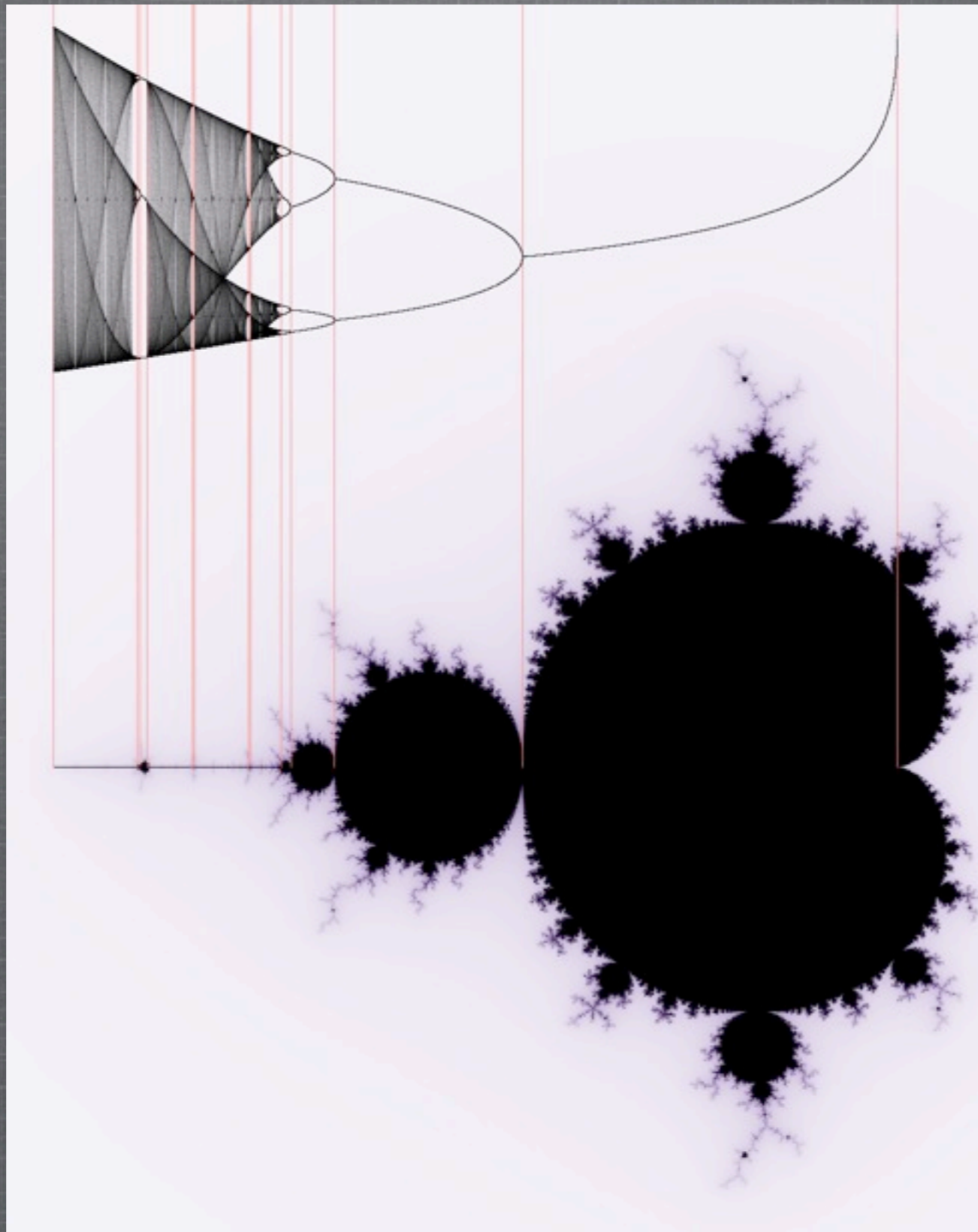
variables
 materials
 number of
 amt of material
 number of
 amt of mat'l req'd
 response
 efficiency
 waste
 out making glass
 speed

and finish them, and what is the finishing criteria? time?
 and what is the transition?

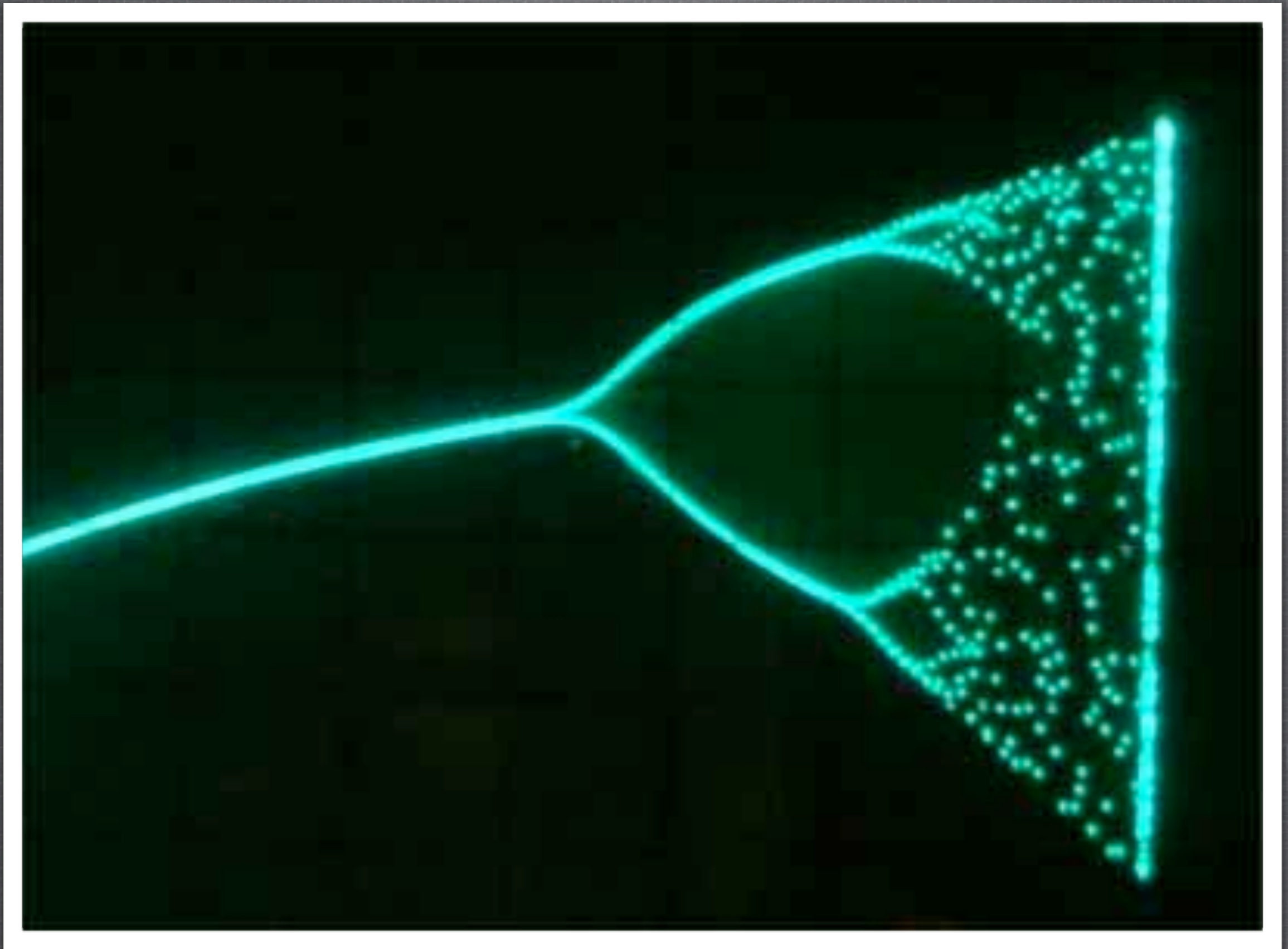
Trackball movement = camera rotation?
 Button 1 = Sustainable growth
 Button 2 = unsustainable growth
 Button 3 = reset and save image

| | |
|--|---|
| <p><u>sustainable</u> just environmental impact ↓ resource use ↓ lifestyle is simple, comfortable but less affluent design to last / repair satisfaction / sufficient / content local / less travel / work close to home community / cooperation / sharing coffee and wine, less work waste ↓ philosophy of consumption humility</p> | <p><u>unsustainable</u> unjust environmental impact ↑ resource use ↑ (depletion) lifestyle is complicated, maybe seeking comfort but more affluent designed to last obsolescence dissatisfaction / insufficient more travel / commute individualism & self-sufficiency, leading business competition waste ↑ idea that resources are infinite arrogance</p> |
|--|---|

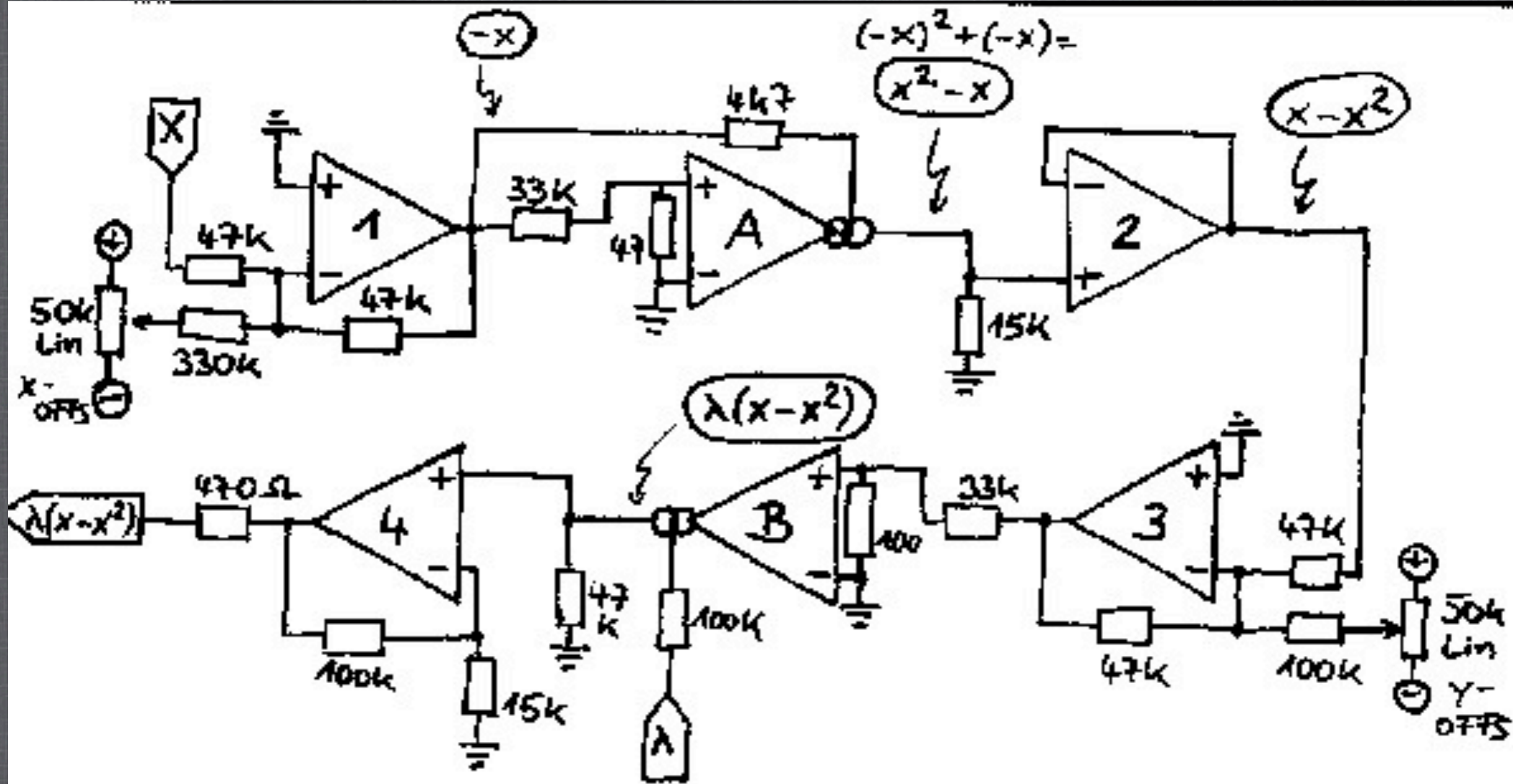
choice



BACKGROUND
Logistic map & Mandelbrot set



BACKGROUND
Logistic map & Mandelbrot set



1-4 : TL074

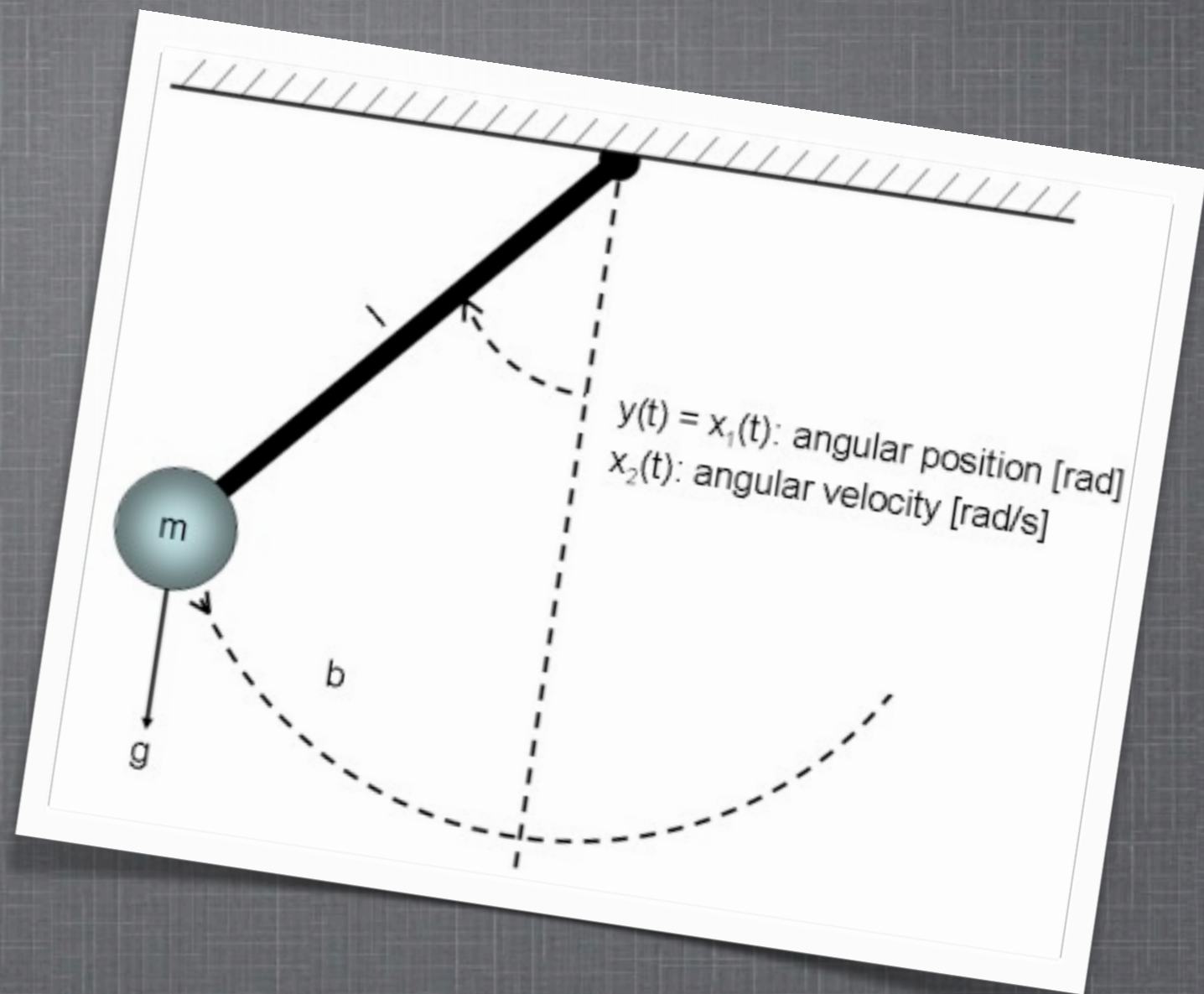
A/B : NE5517

⊕ = +12V

⊖ = -12V

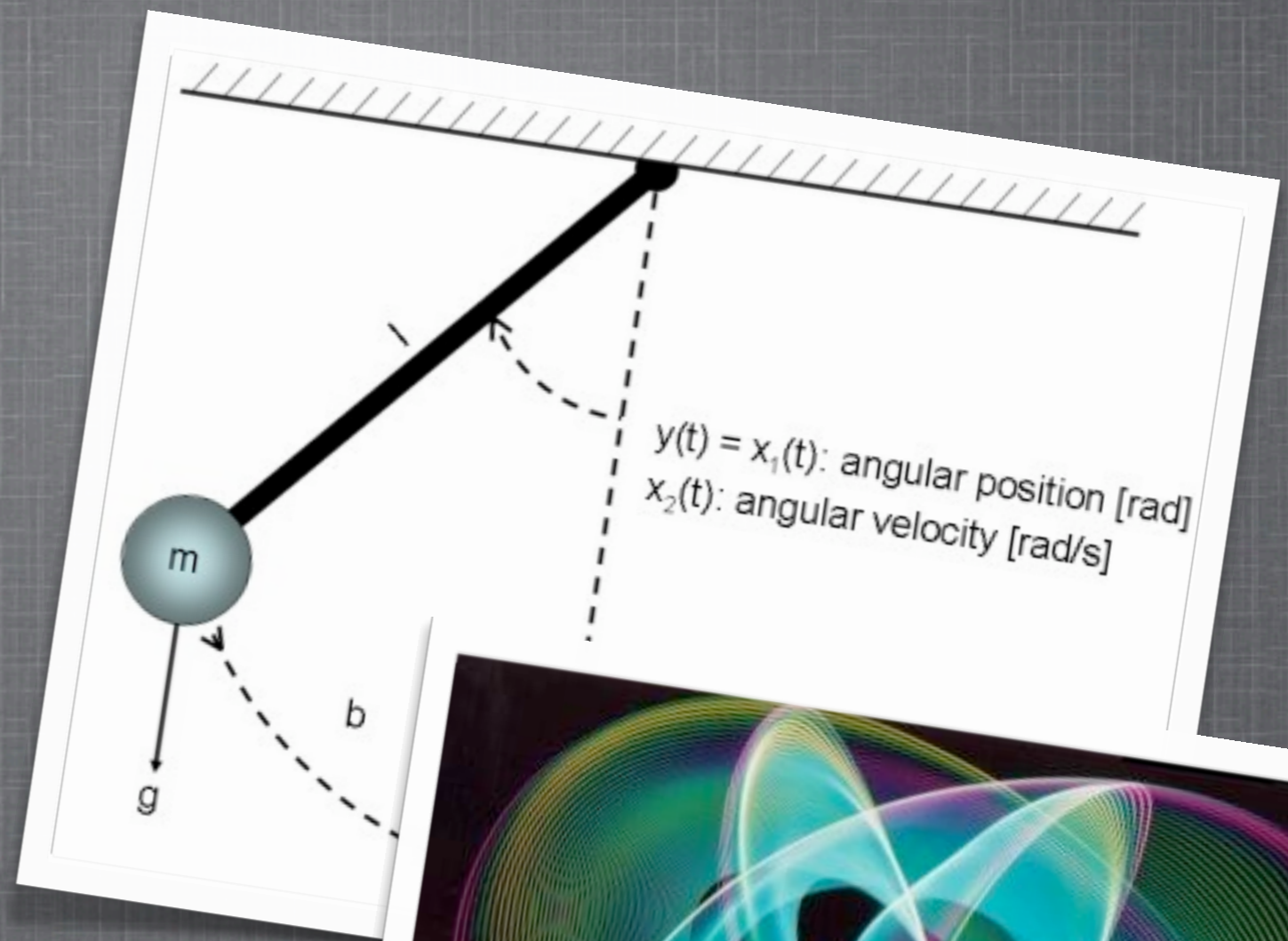
BACKGROUND

Logistic map & Mandelbrot set



BACKGROUND

Pendula

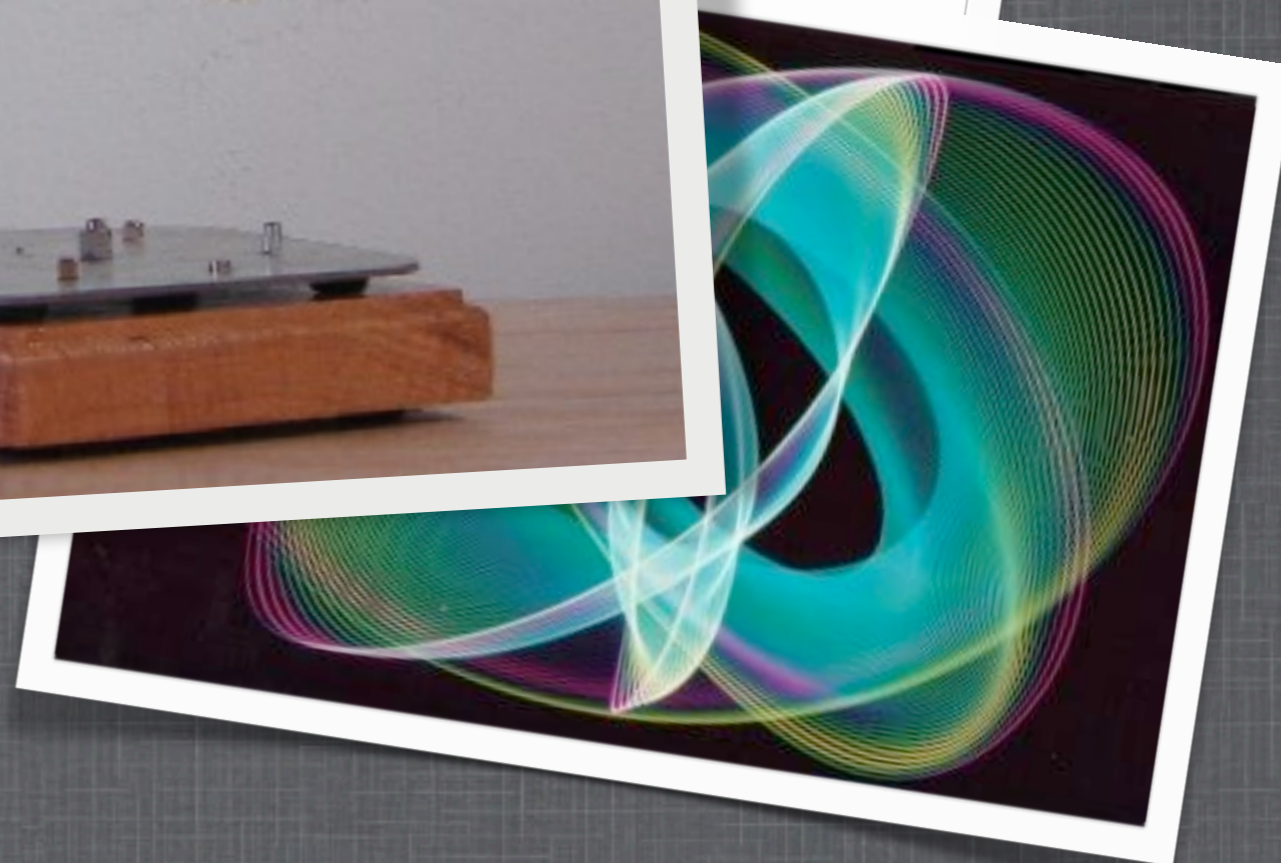


BACKGROUND

Pendula



Angular position [rad]
Angular velocity [rad/s]

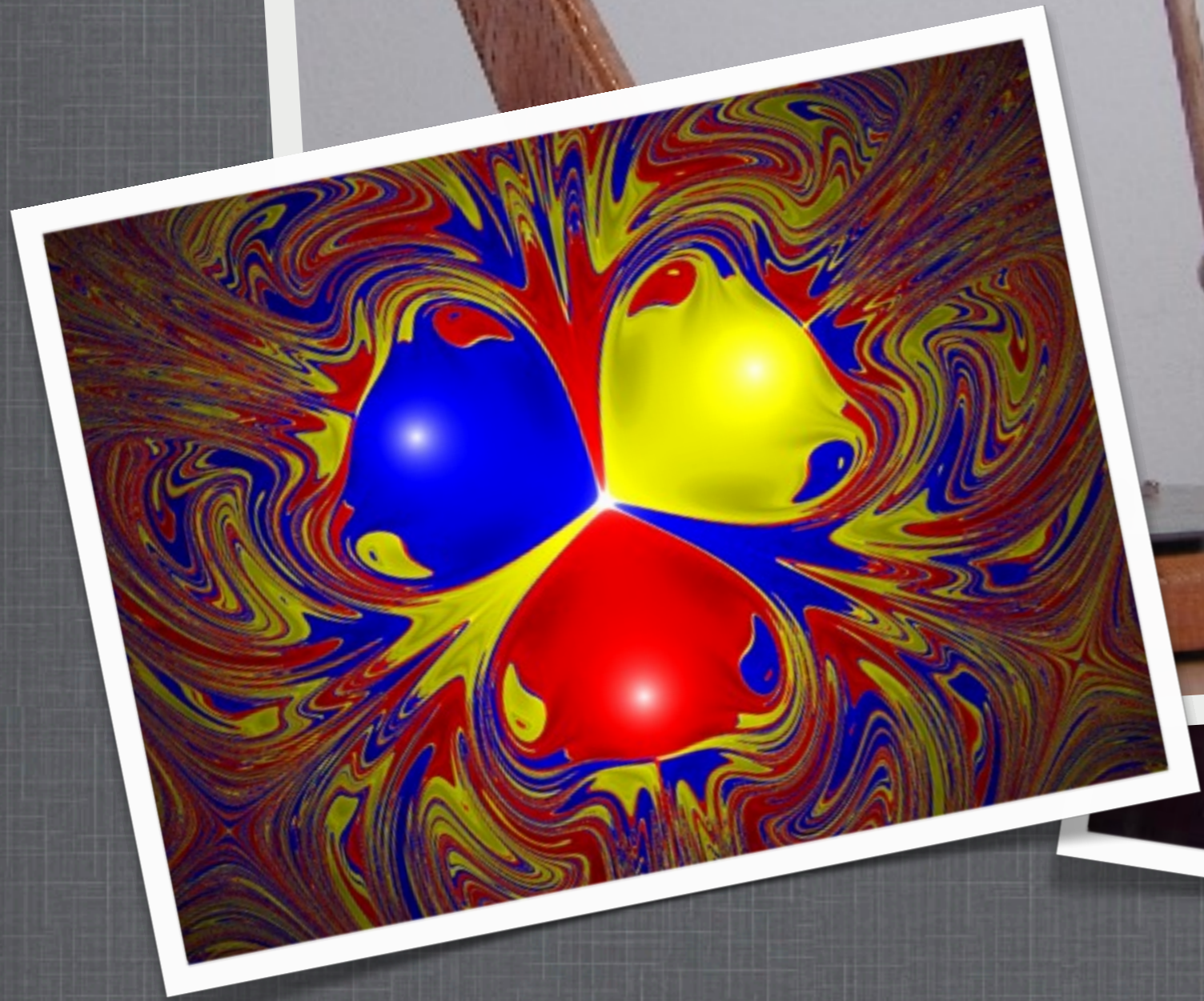


BACKGROUND

Pendula

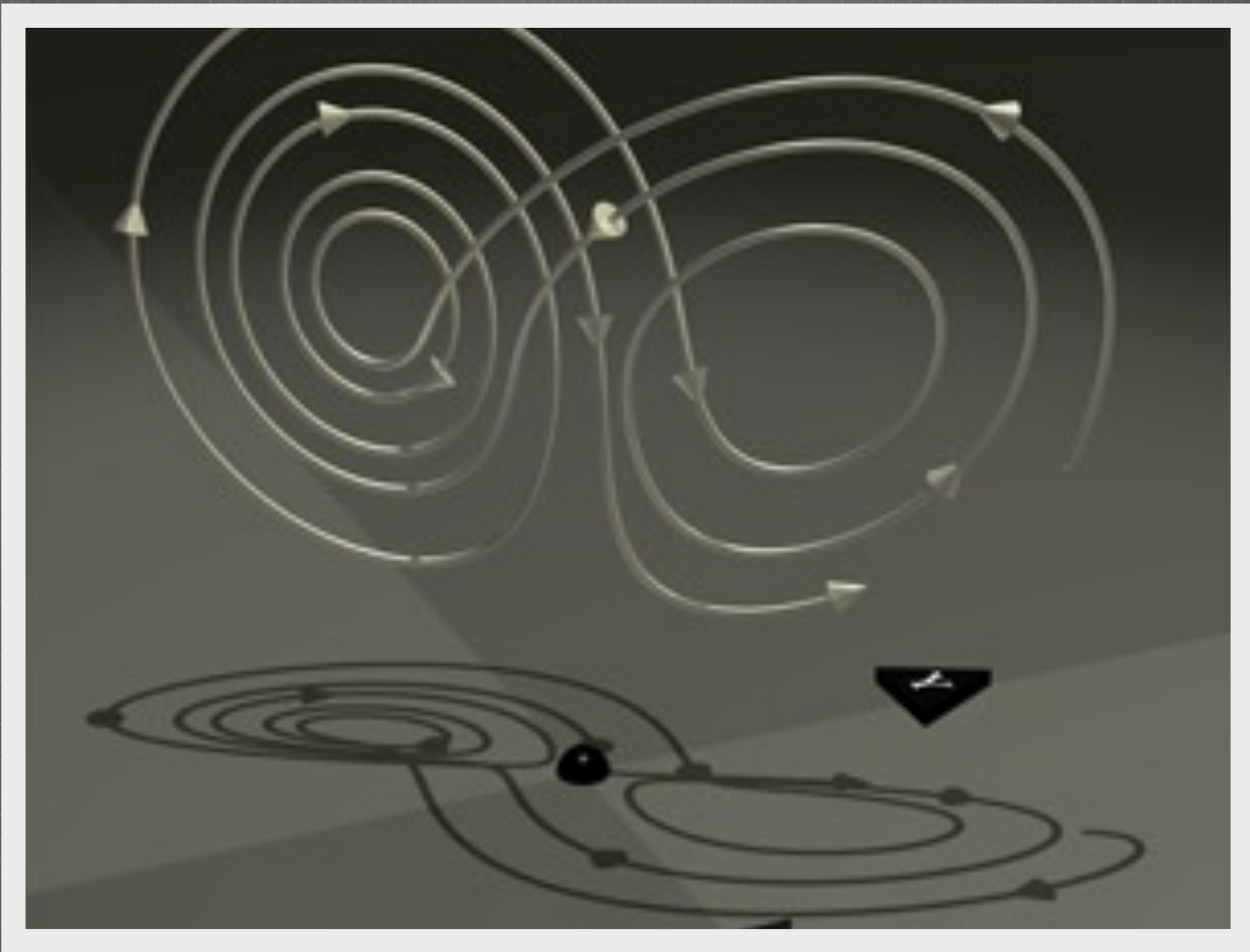


Angular position [rad]
Angular velocity [rad/s]



BACKGROUND

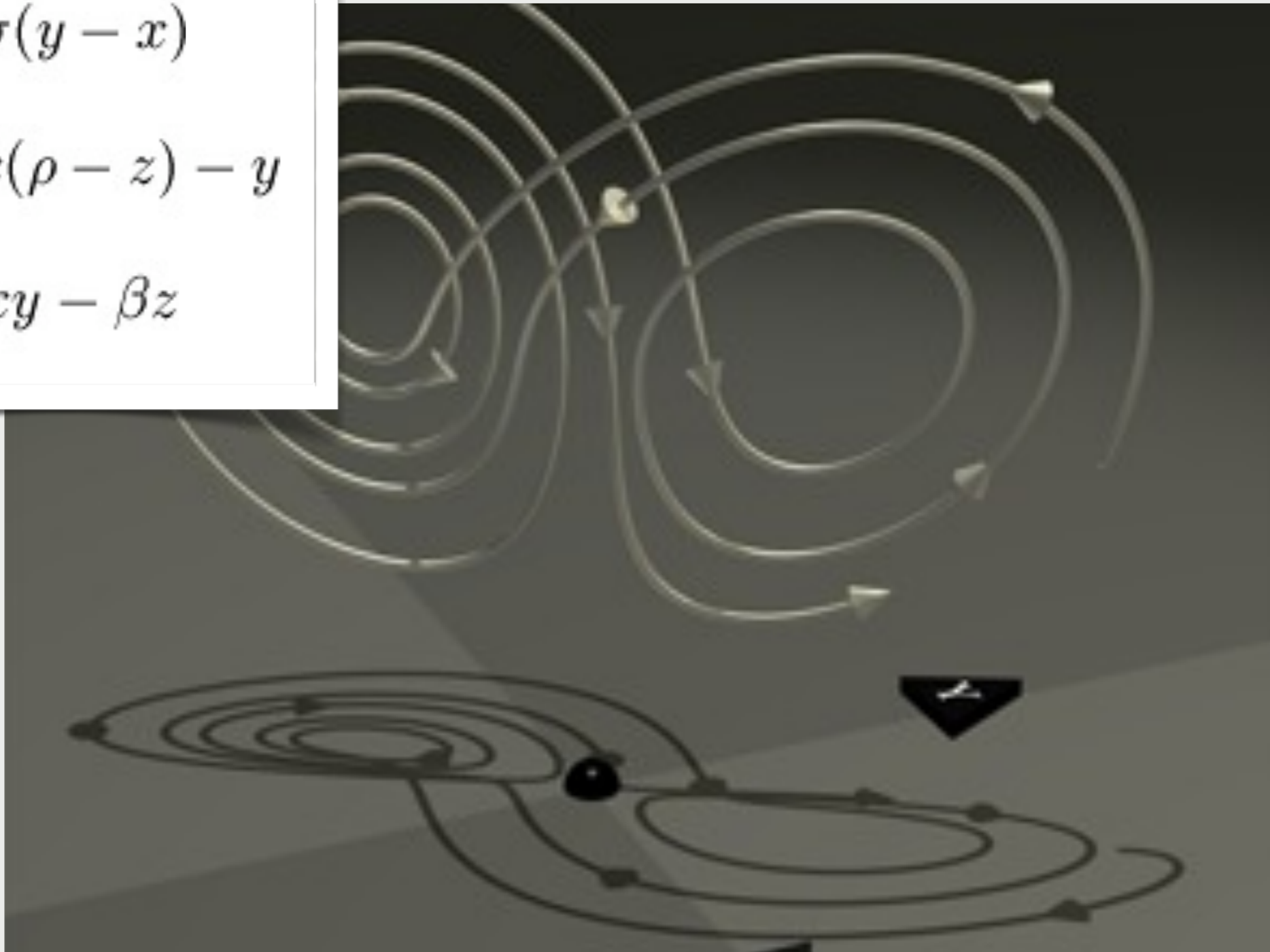
Pendula



BACKGROUND

Lorenz

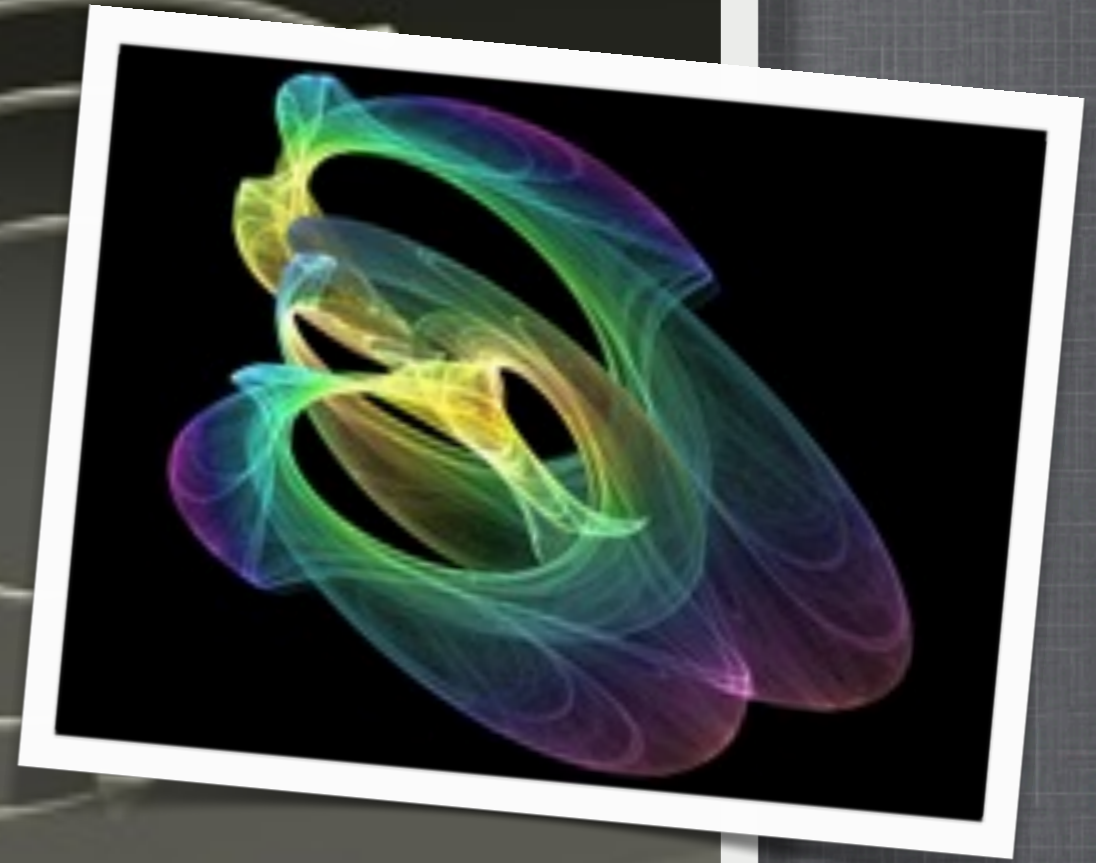
$$\begin{aligned}\frac{dx}{dt} &= \sigma(y - x) \\ \frac{dy}{dt} &= x(\rho - z) - y \\ \frac{dz}{dt} &= xy - \beta z\end{aligned}$$



BACKGROUND

Lorenz

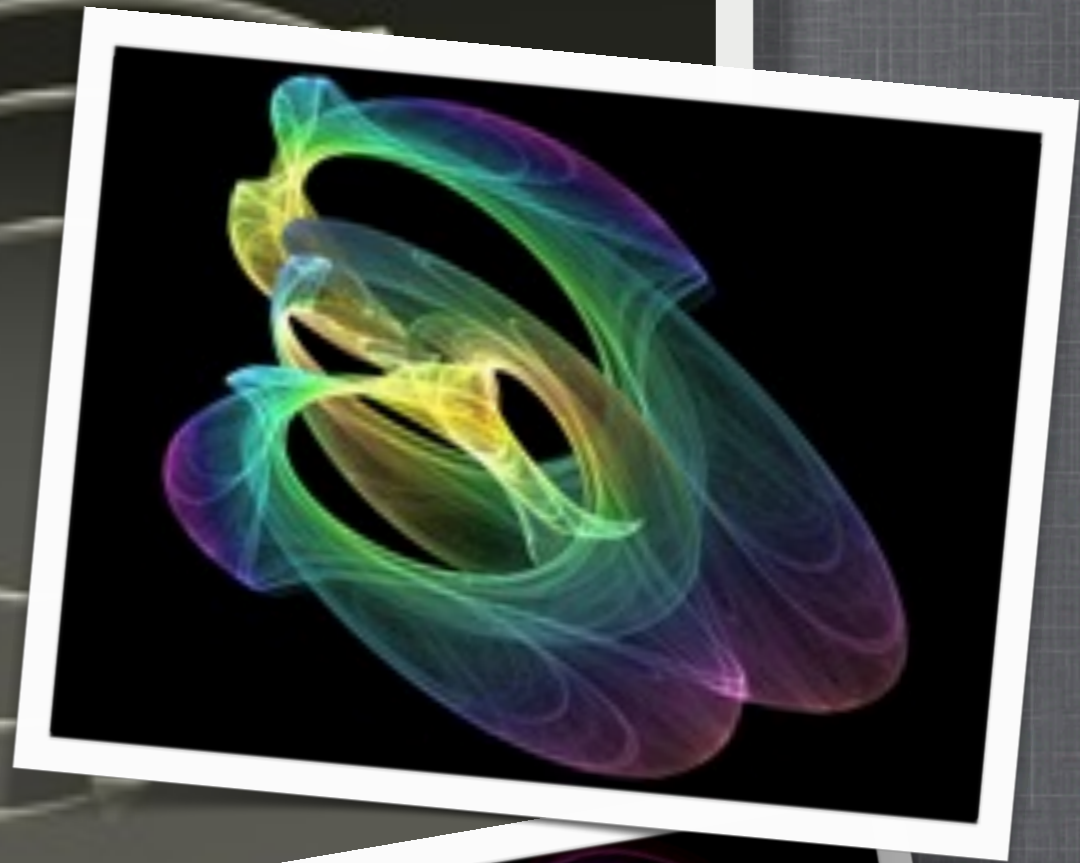
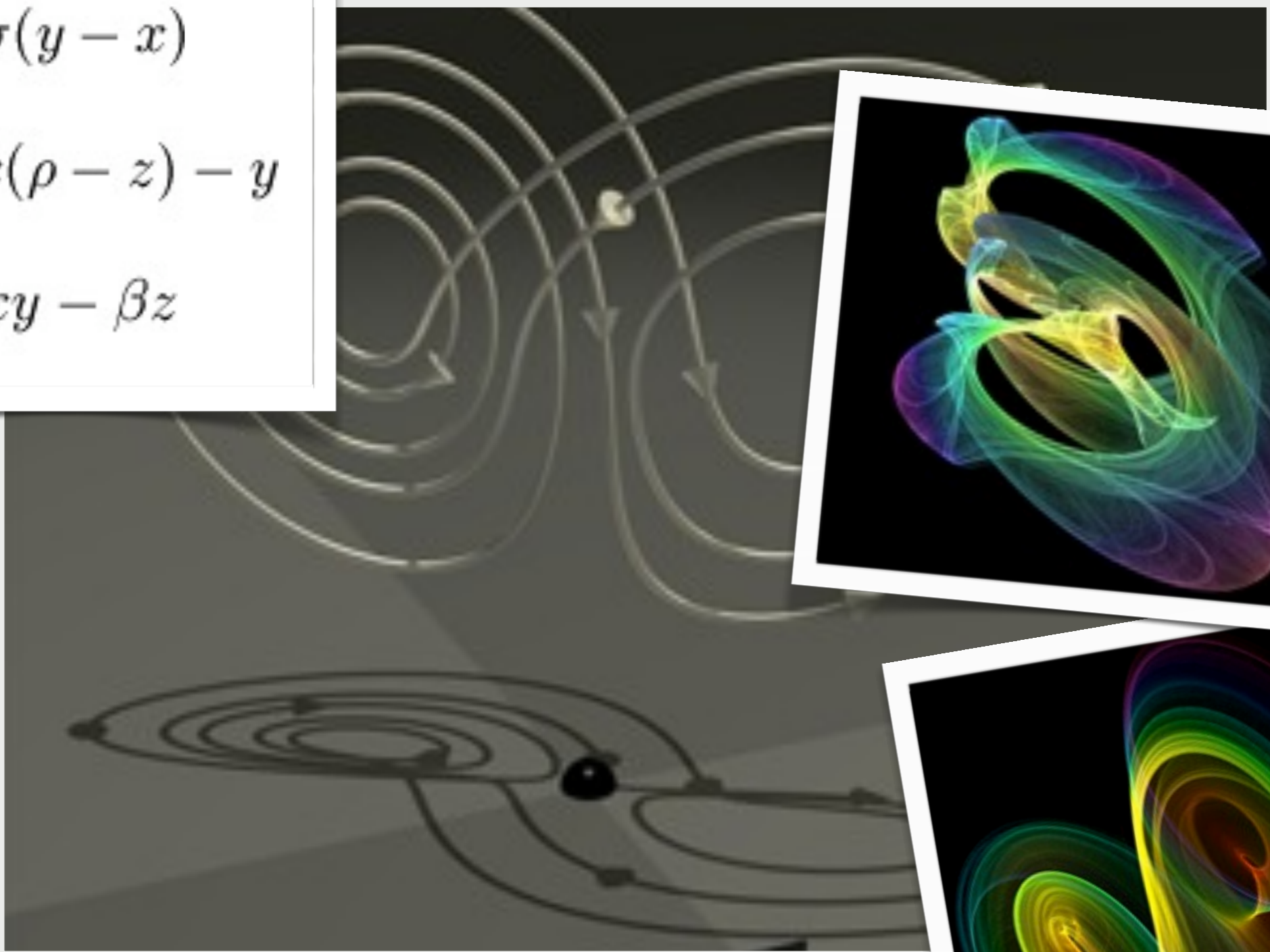
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Lorenz

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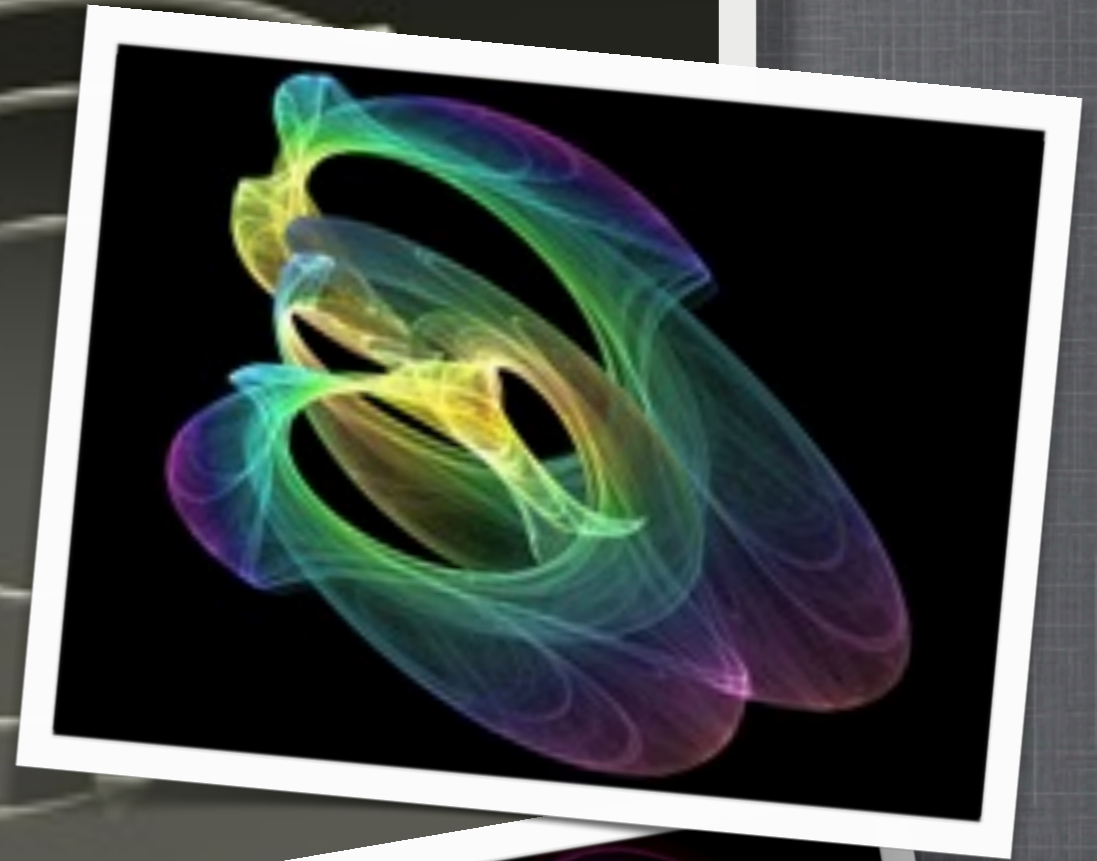
Lorenz

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```
xn = x + a*d*(y-x);  
yn = y + d*(b*x - y - z*x);  
zn = z + d*(x*y - c*z);
```

BACKGROUND

Lorenz

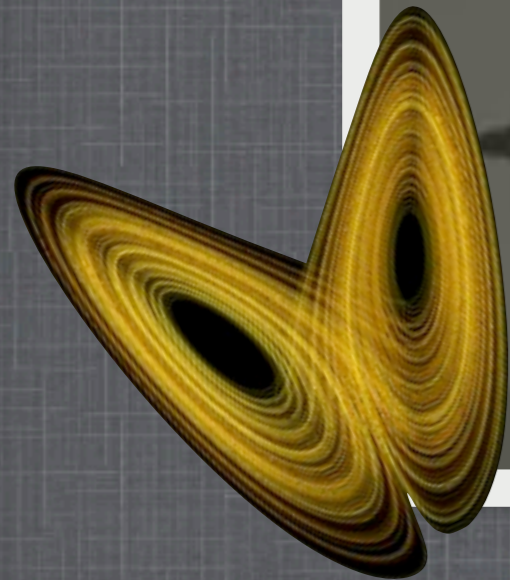
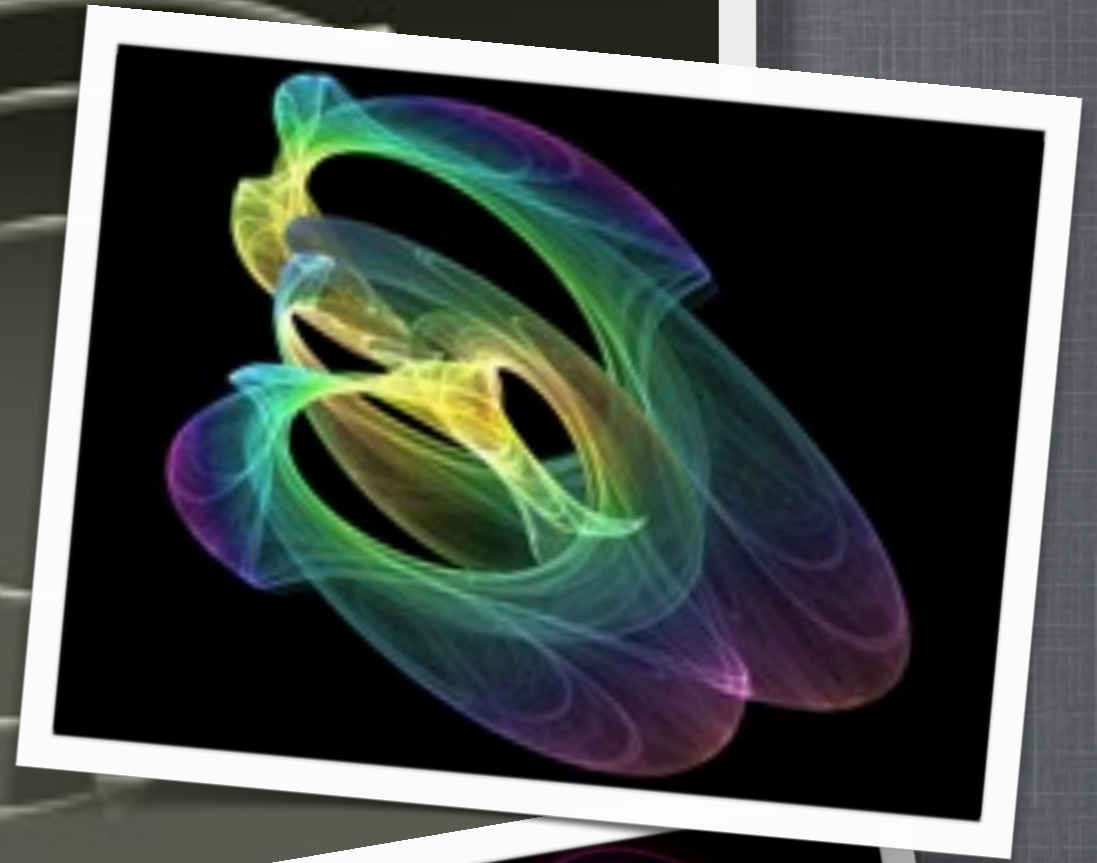


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BACKGROUND

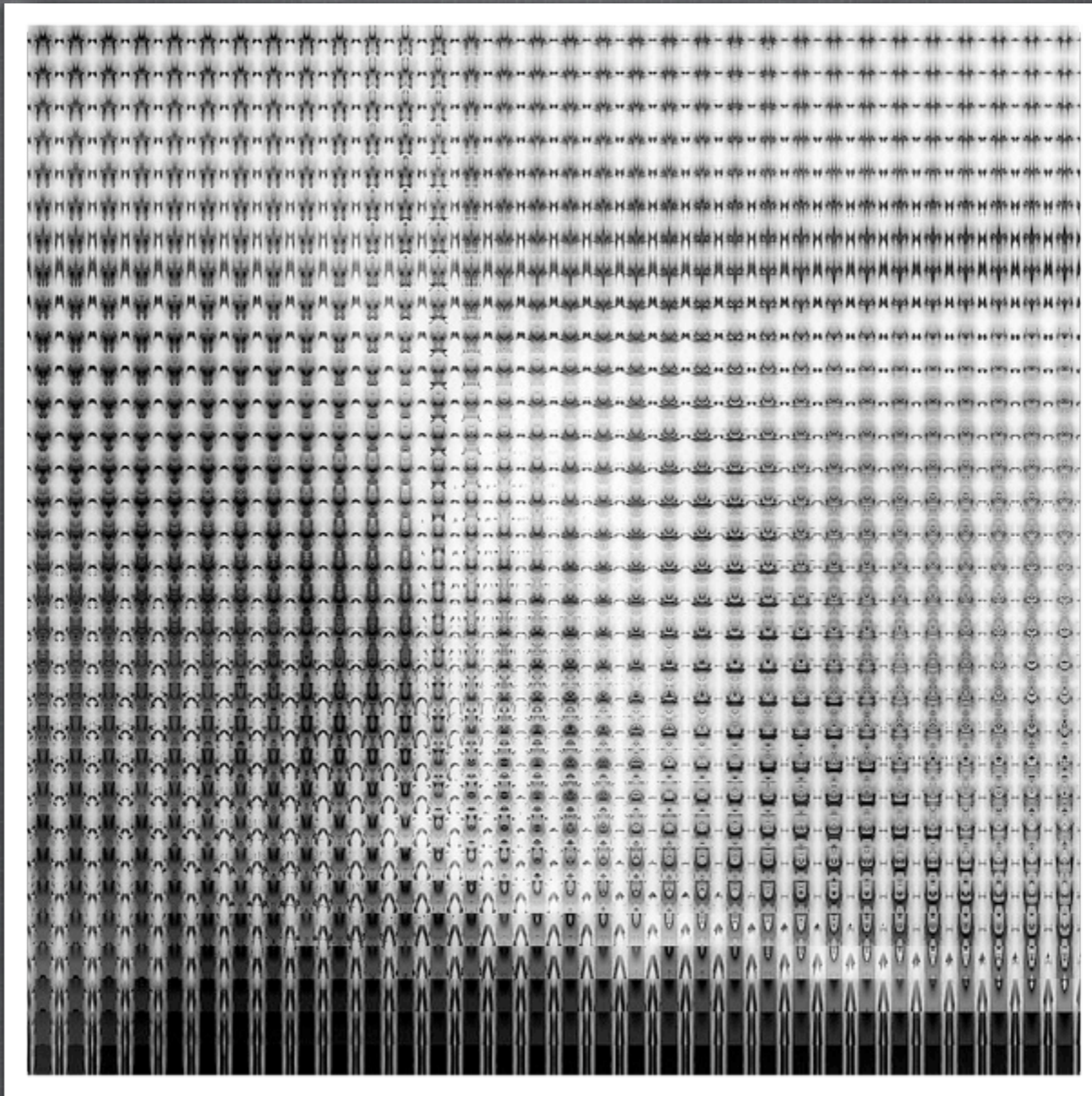
Lorenz



ÆXPLORATION

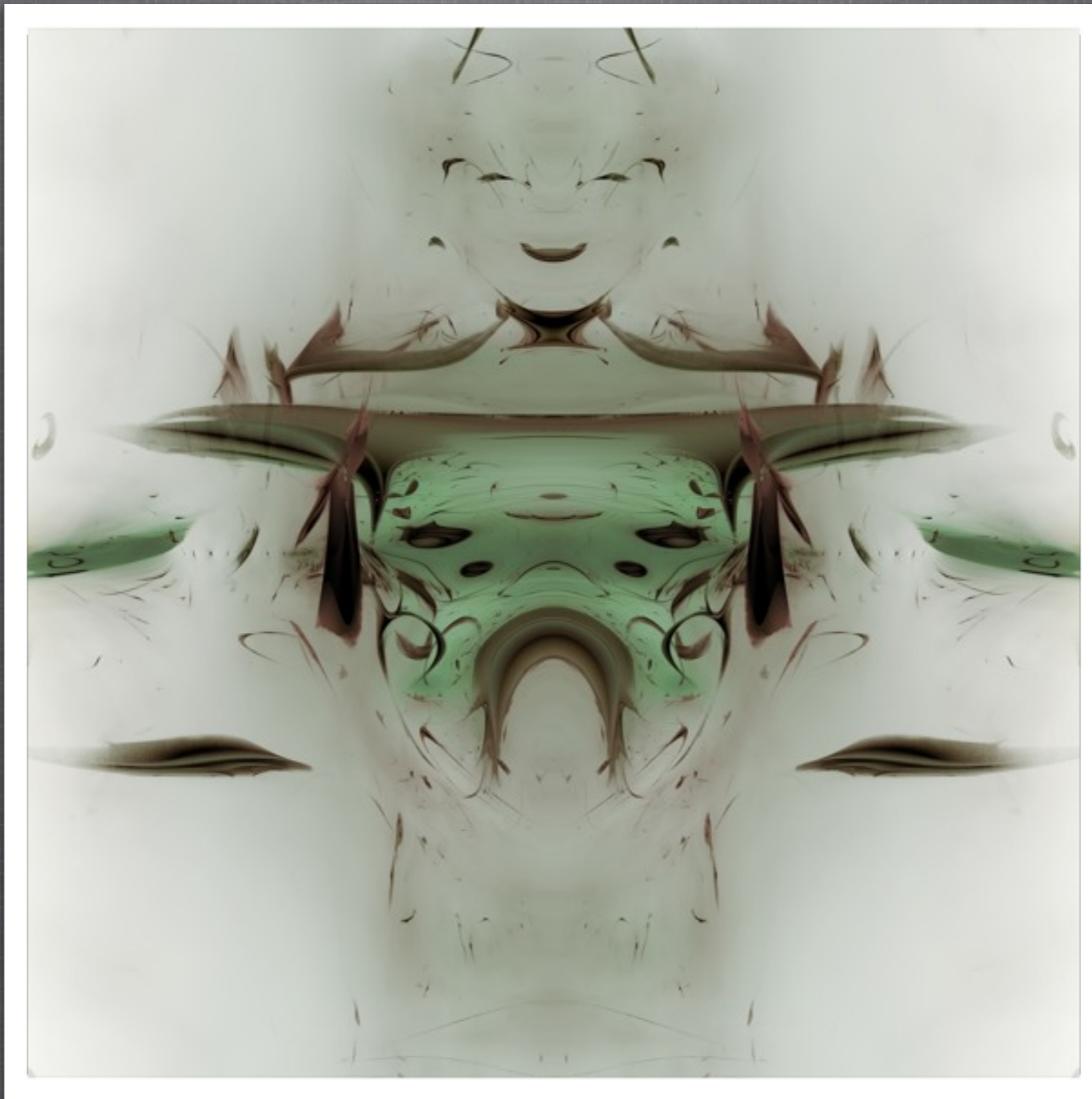
Real-time Interactive Software Demo





EXPLORING & CHARACTERIZING THE SYSTEM

Lyapunov Exponent, Faces of Chaos



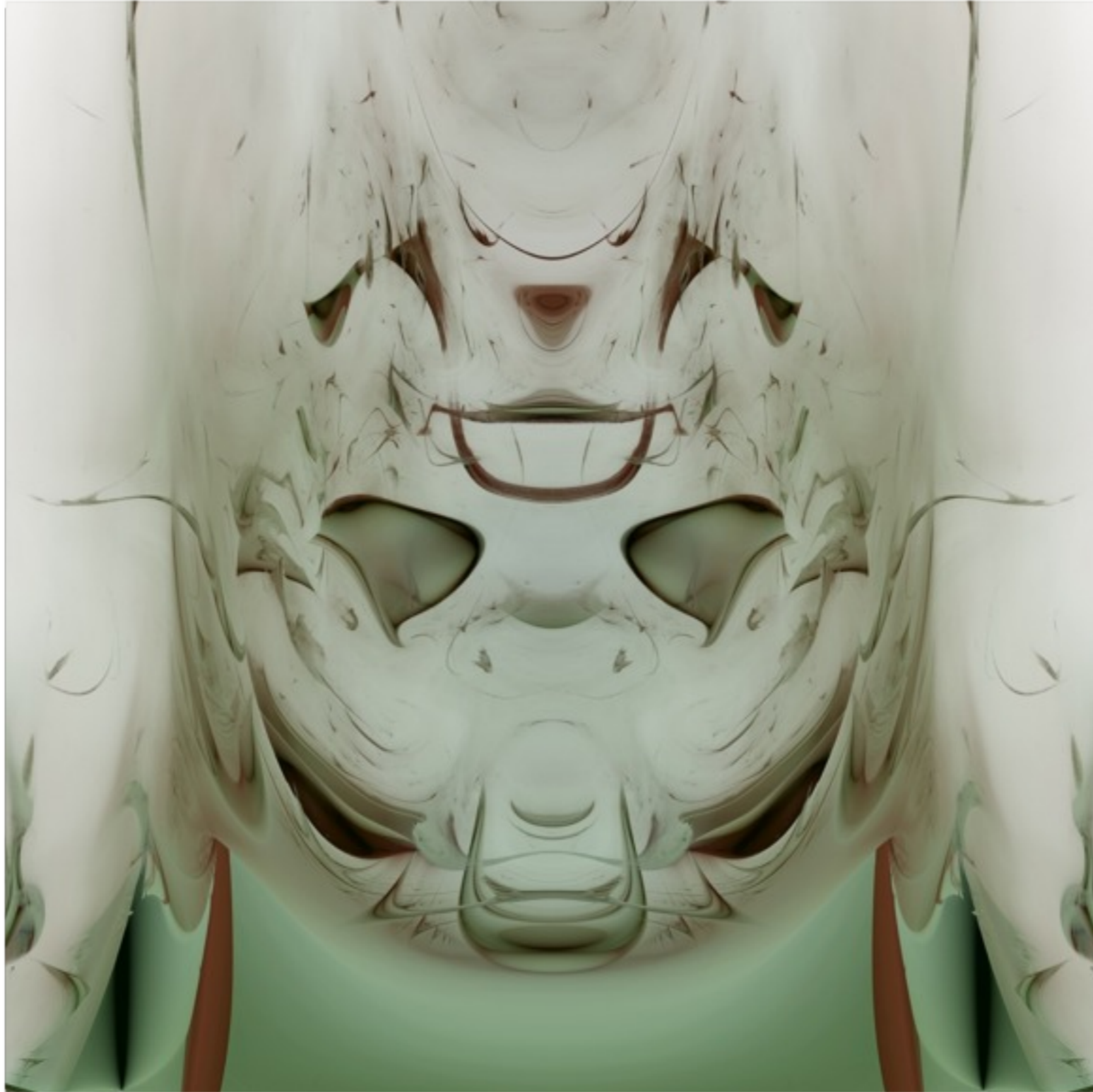
EXPLORING & CHARACTERIZING THE SYSTEM

Lyapunov Exponent, Faces of Chaos



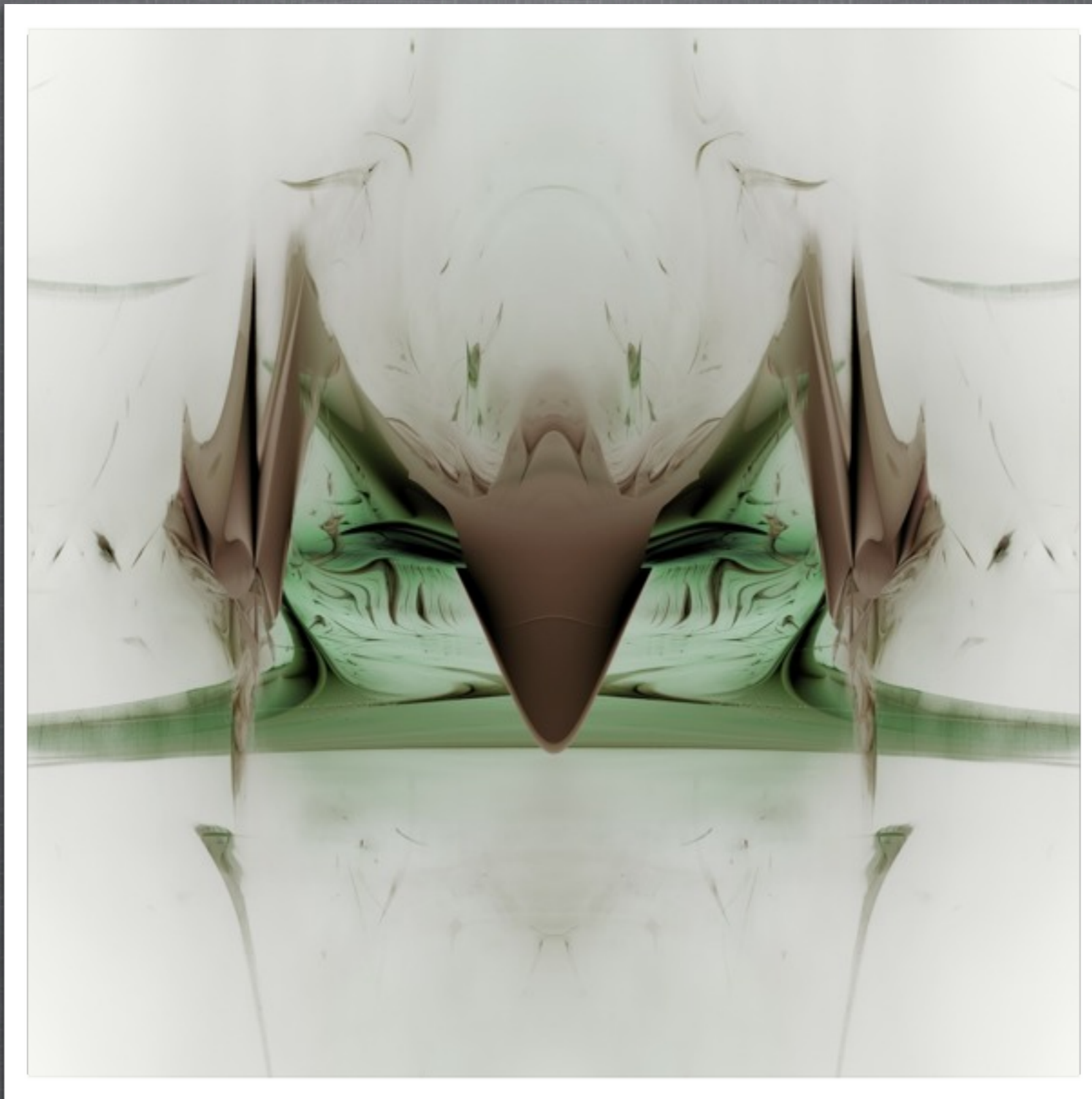
EXPLORING & CHARACTERIZING THE SYSTEM

Lyapunov Exponent, Faces of Chaos



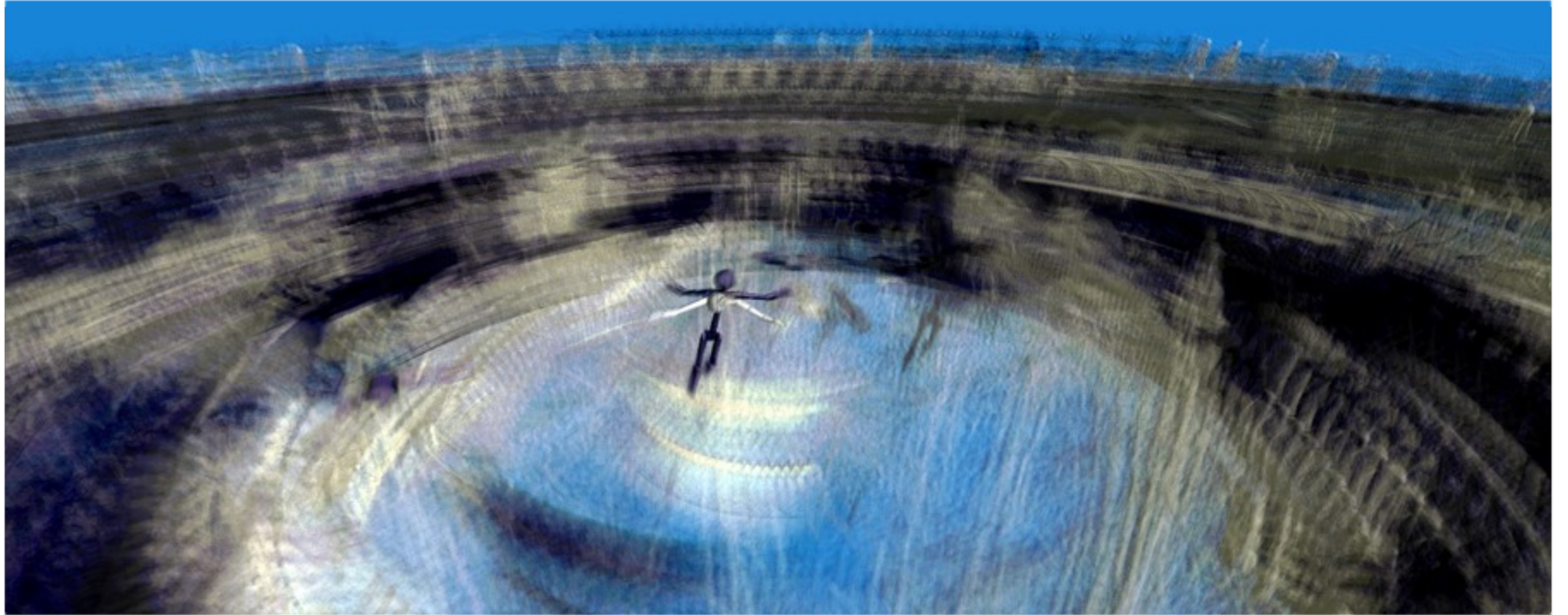
EXPLORING & CHARACTERIZING THE SYSTEM

Lyapunov Exponent, Faces of Chaos



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Lyapunov Exponent, Faces of Chaos



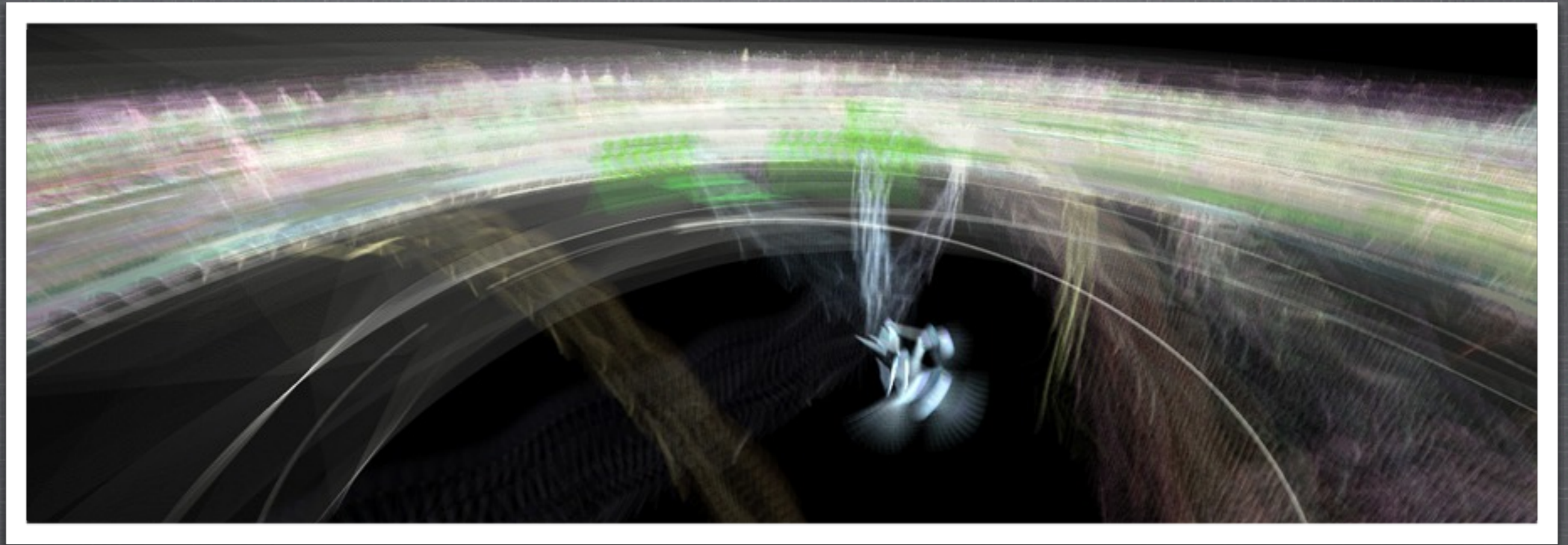
DIGITAL CHRONOPHOTOGRAPHY

A Society of Stickpeople



DIGITAL CHRONOPHOTOGRAPHY

A Society of Stickpeople



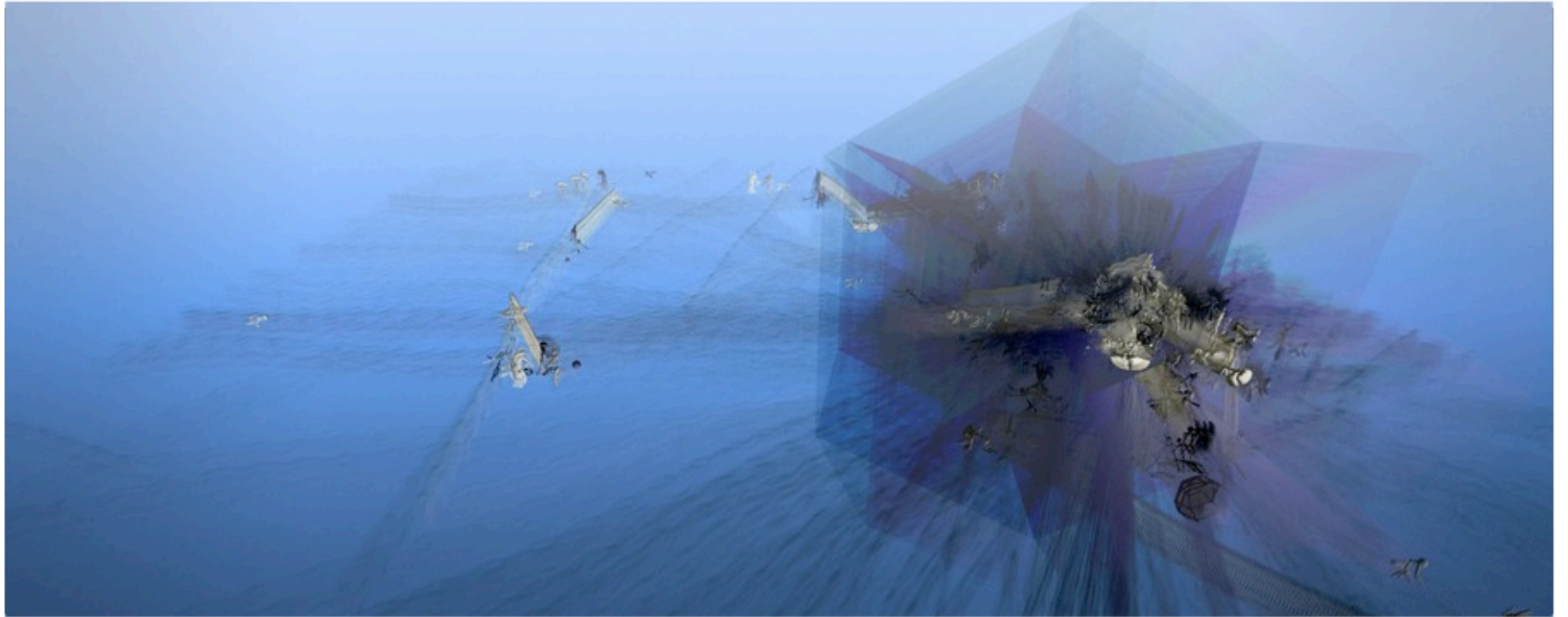
DIGITAL CHRONOPHOTOGRAPHY

A Society of Stickpeople



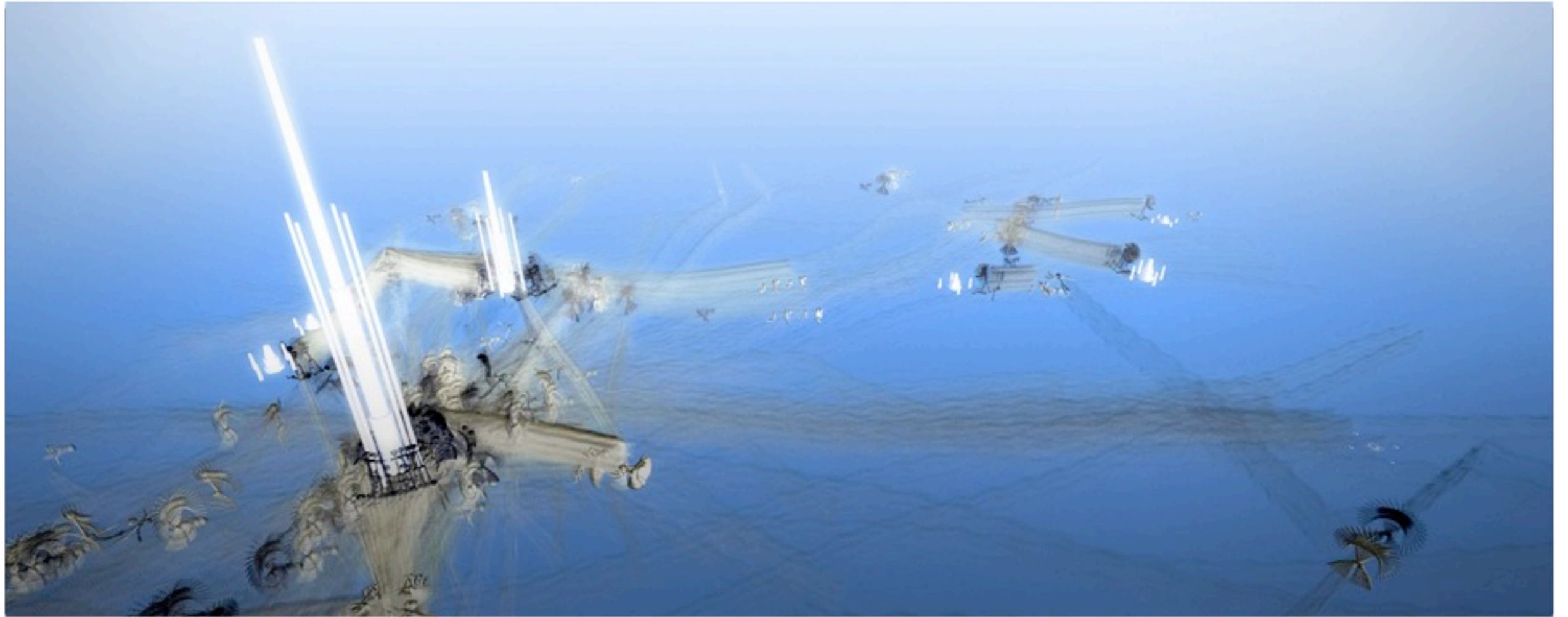
DIGITAL CHRONOPHOTOGRAPHY

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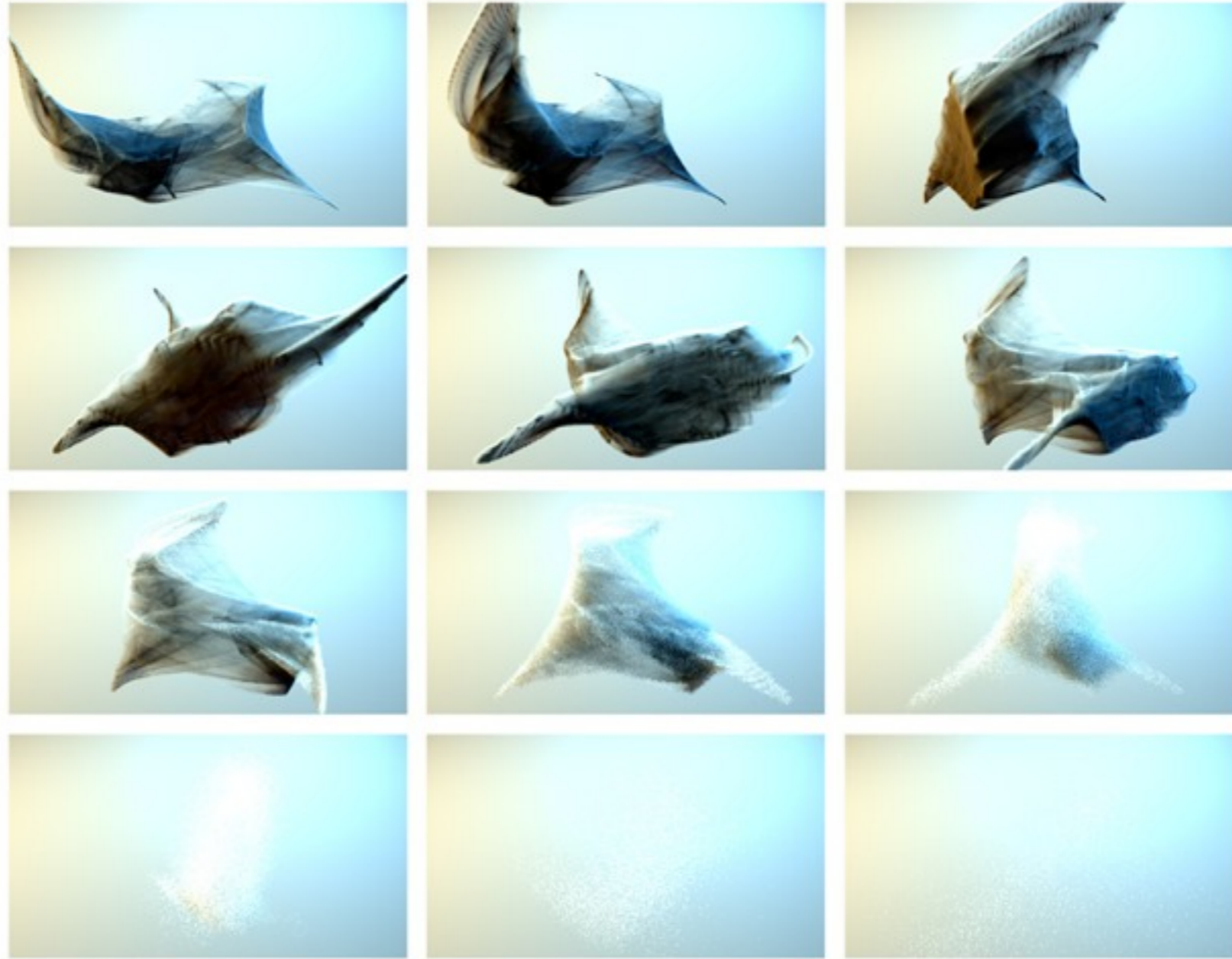


DIGITAL CHRONOPHOTOGRAPHY

A Society of Stickpeople



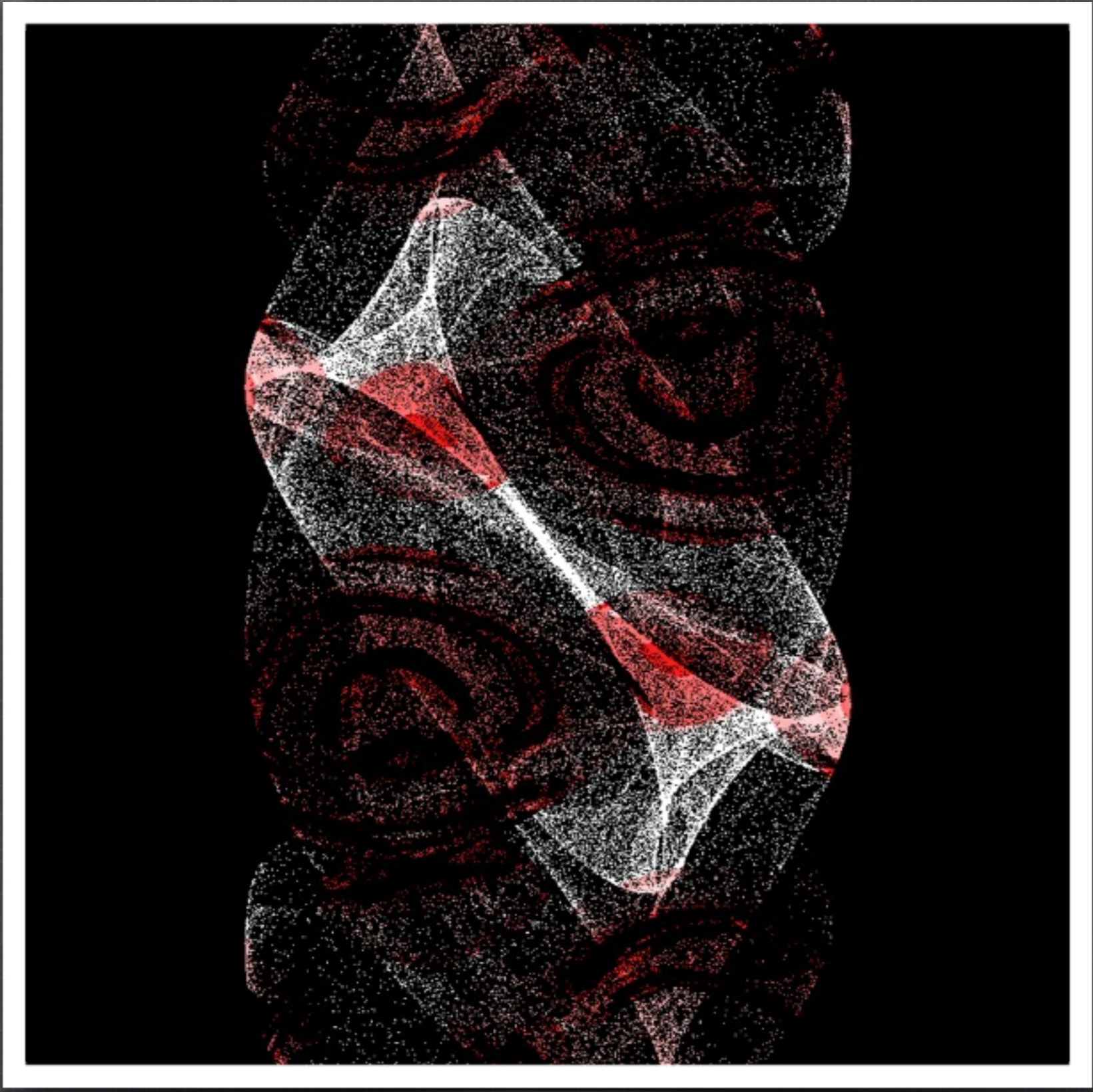
EXPLORING FORM
Volumetric Rendering Techniques



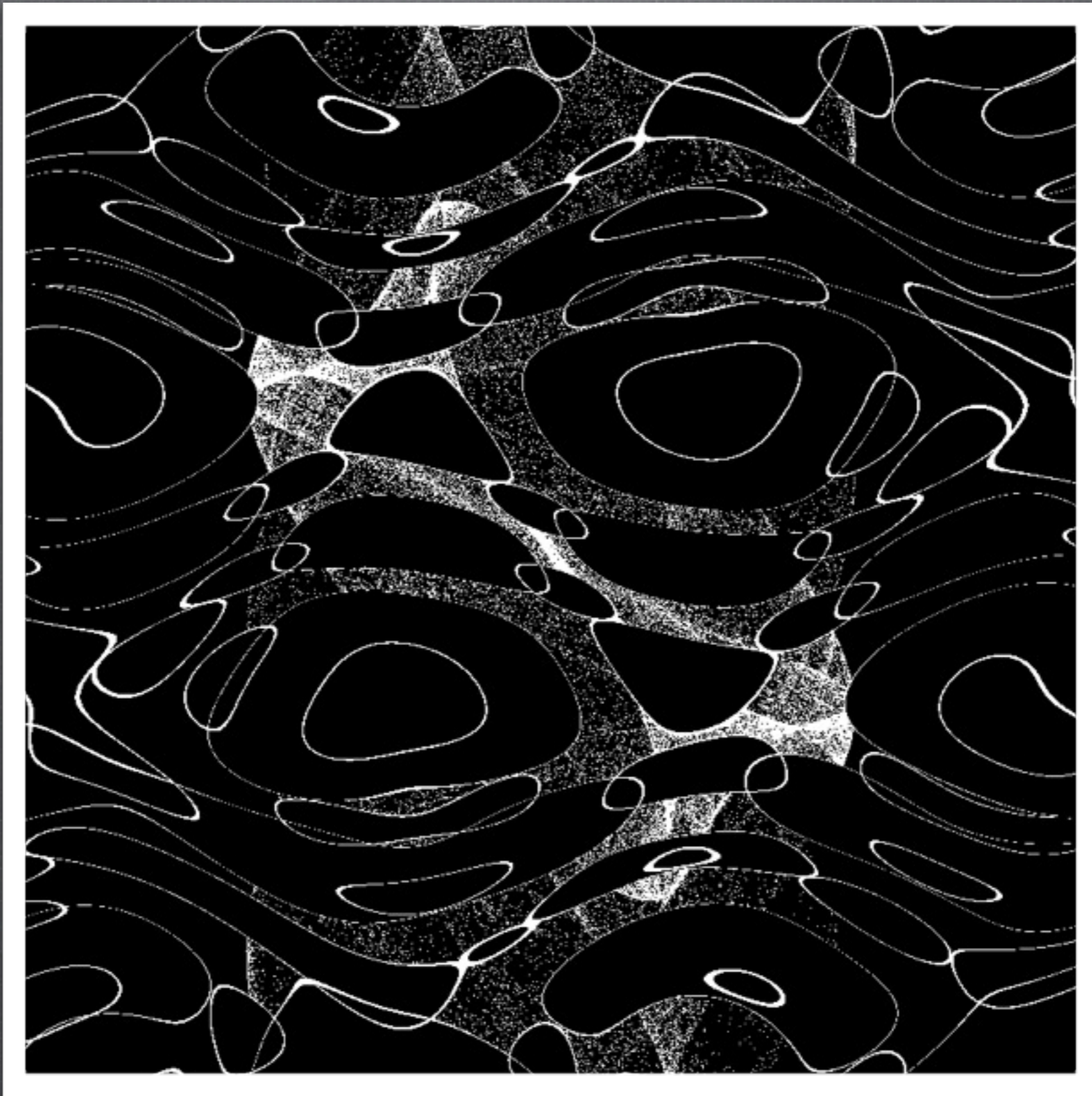
NATHAN SELIKOFF ATLANTIC CENTER FOR THE ARTS NEW SMYRNA BEACH, FL - 2008

EXPLORING FORM

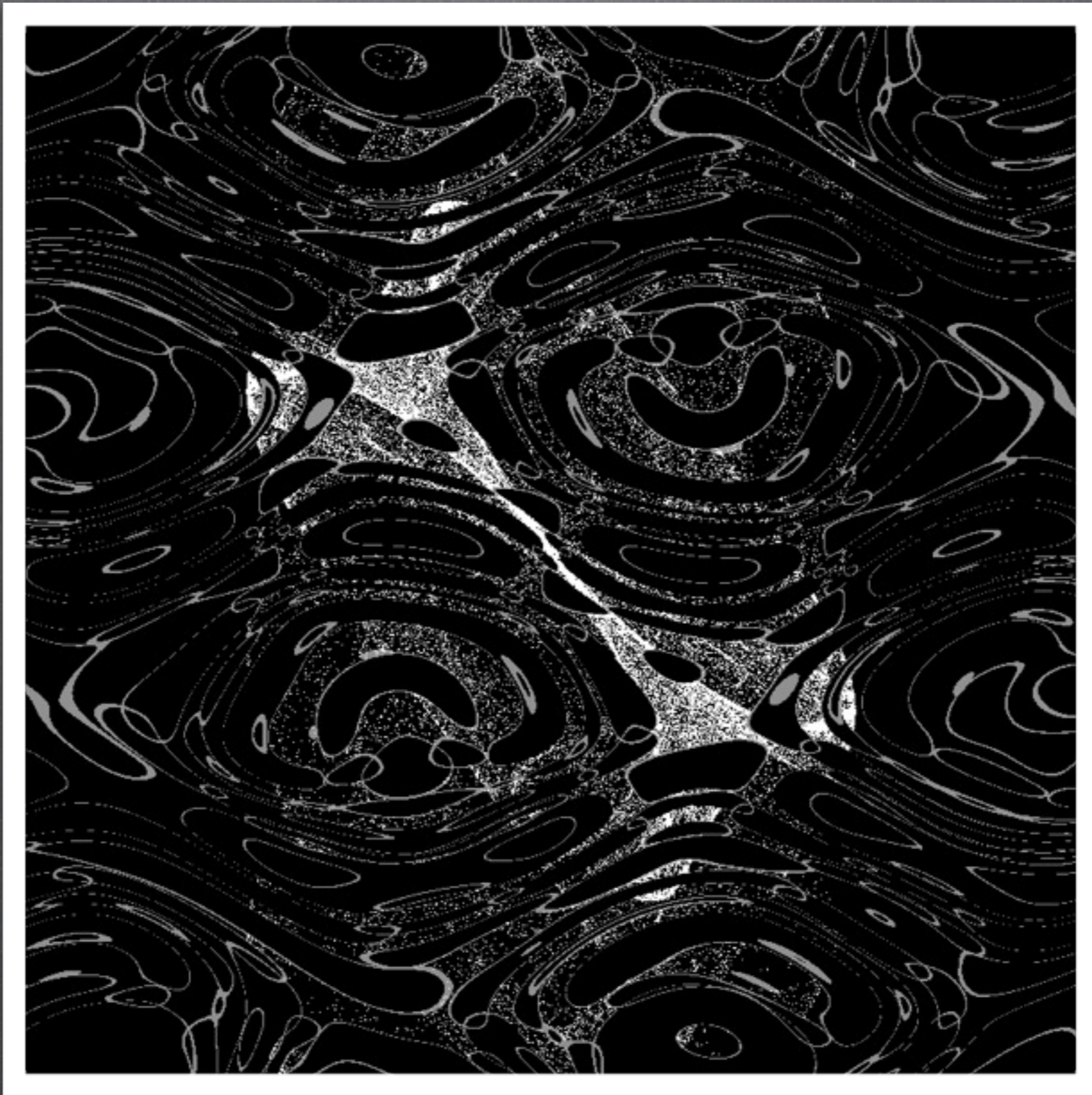
Volumetric Rendering Techniques



FILLING SPACE & QUESTIONING RELATIONSHIPS



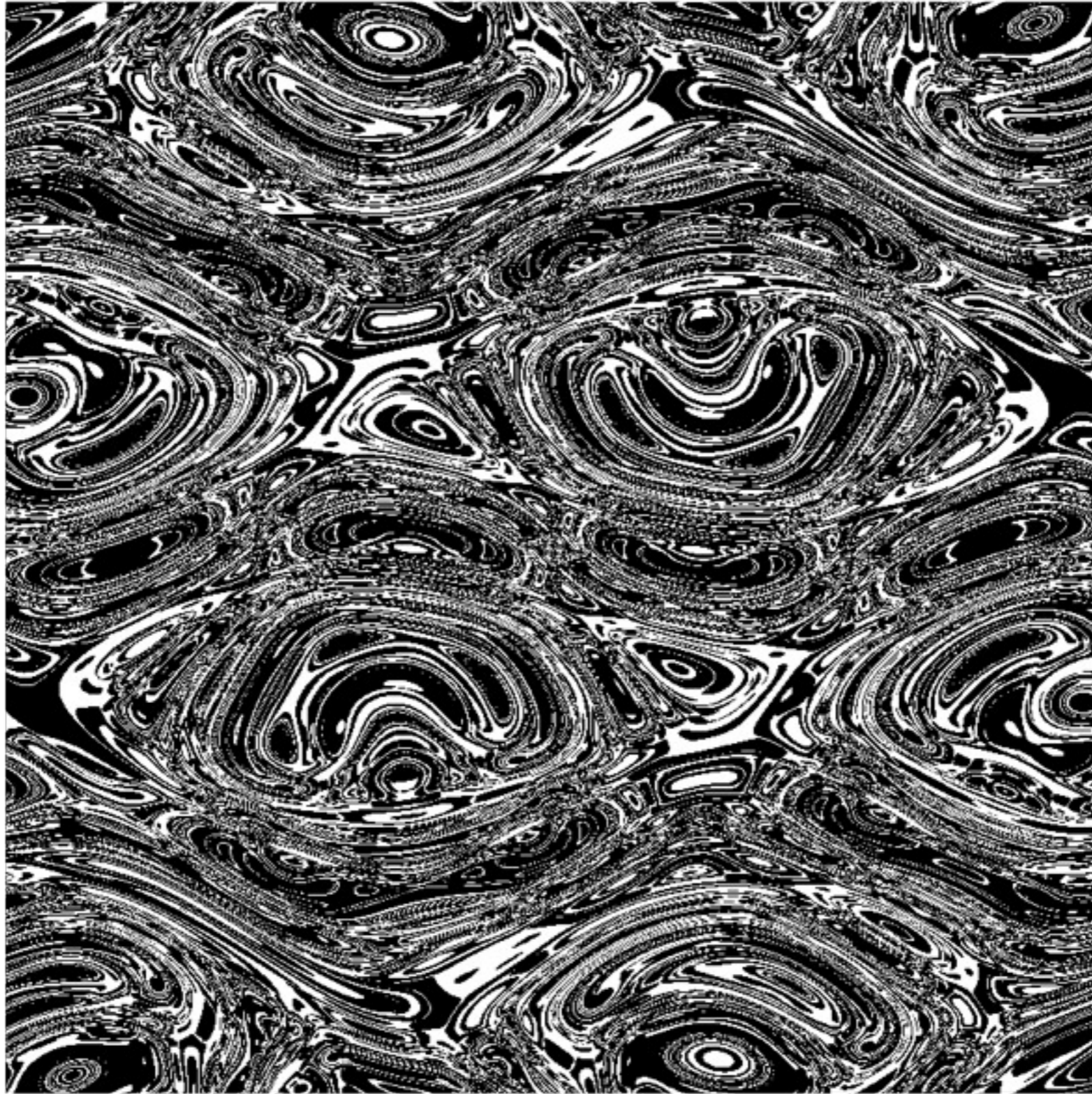
FILLING SPACE & QUESTIONING RELATIONSHIPS



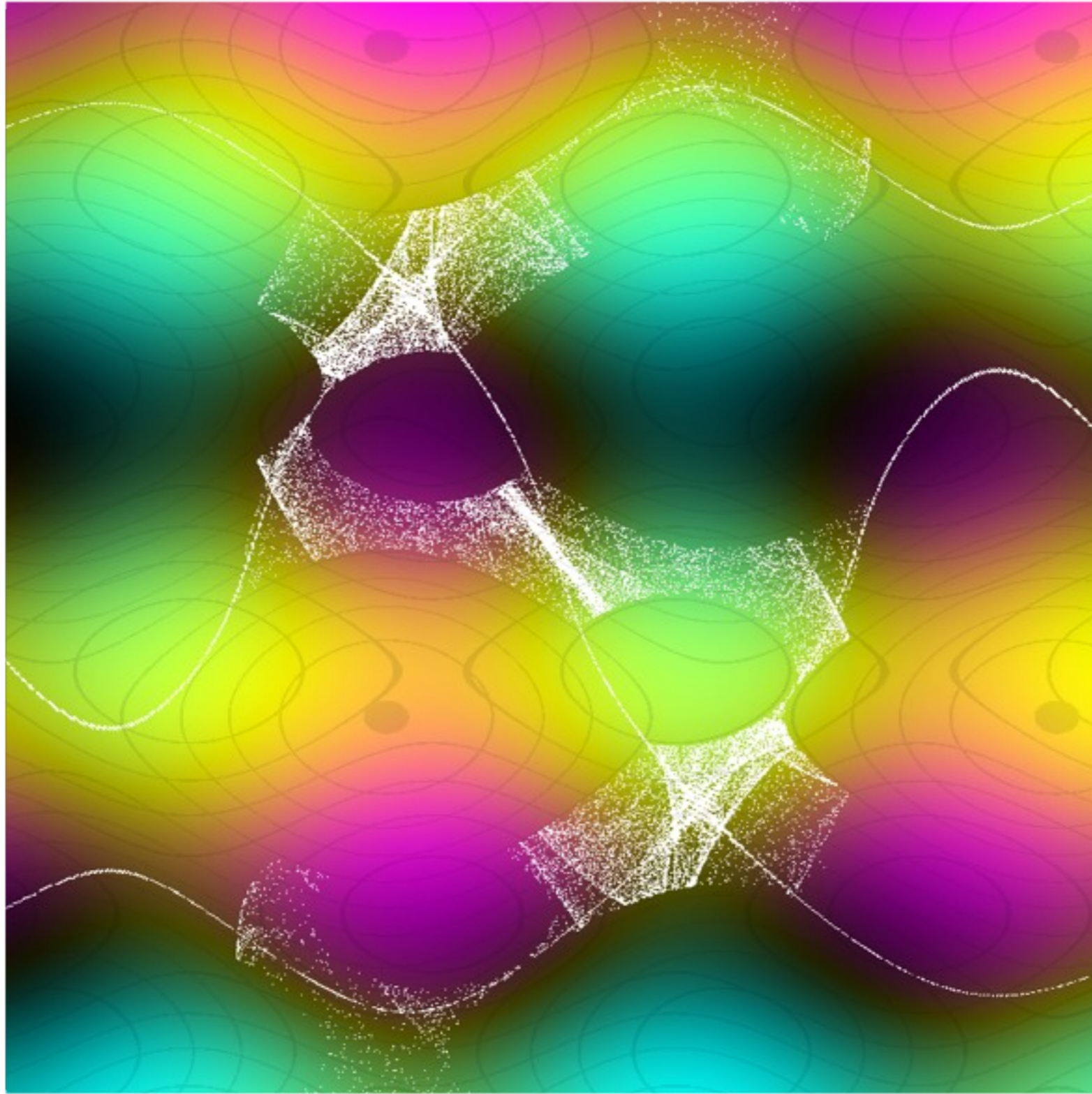
FILLING SPACE & QUESTIONING RELATIONSHIPS



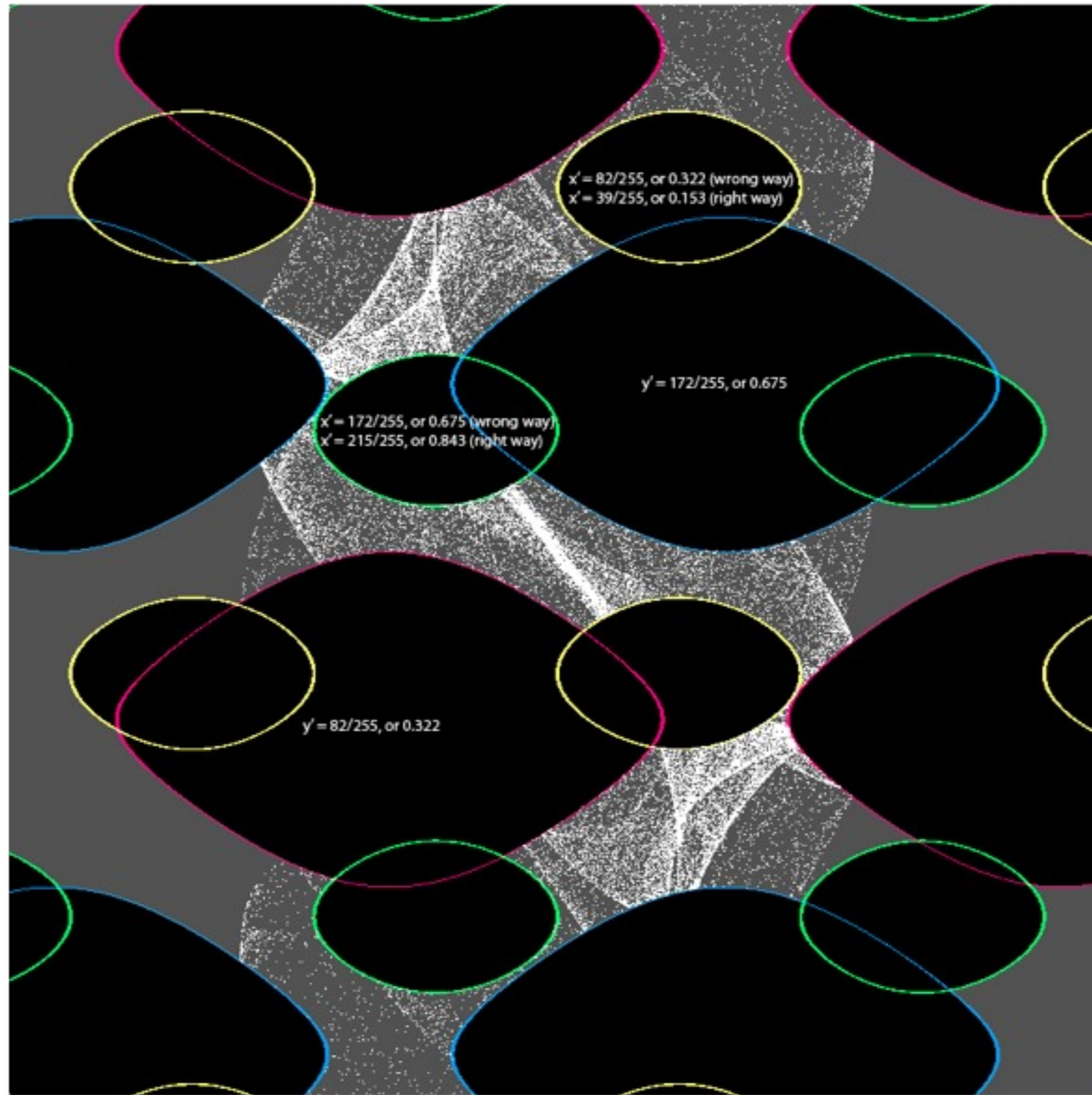
FILLING SPACE & QUESTIONING RELATIONSHIPS



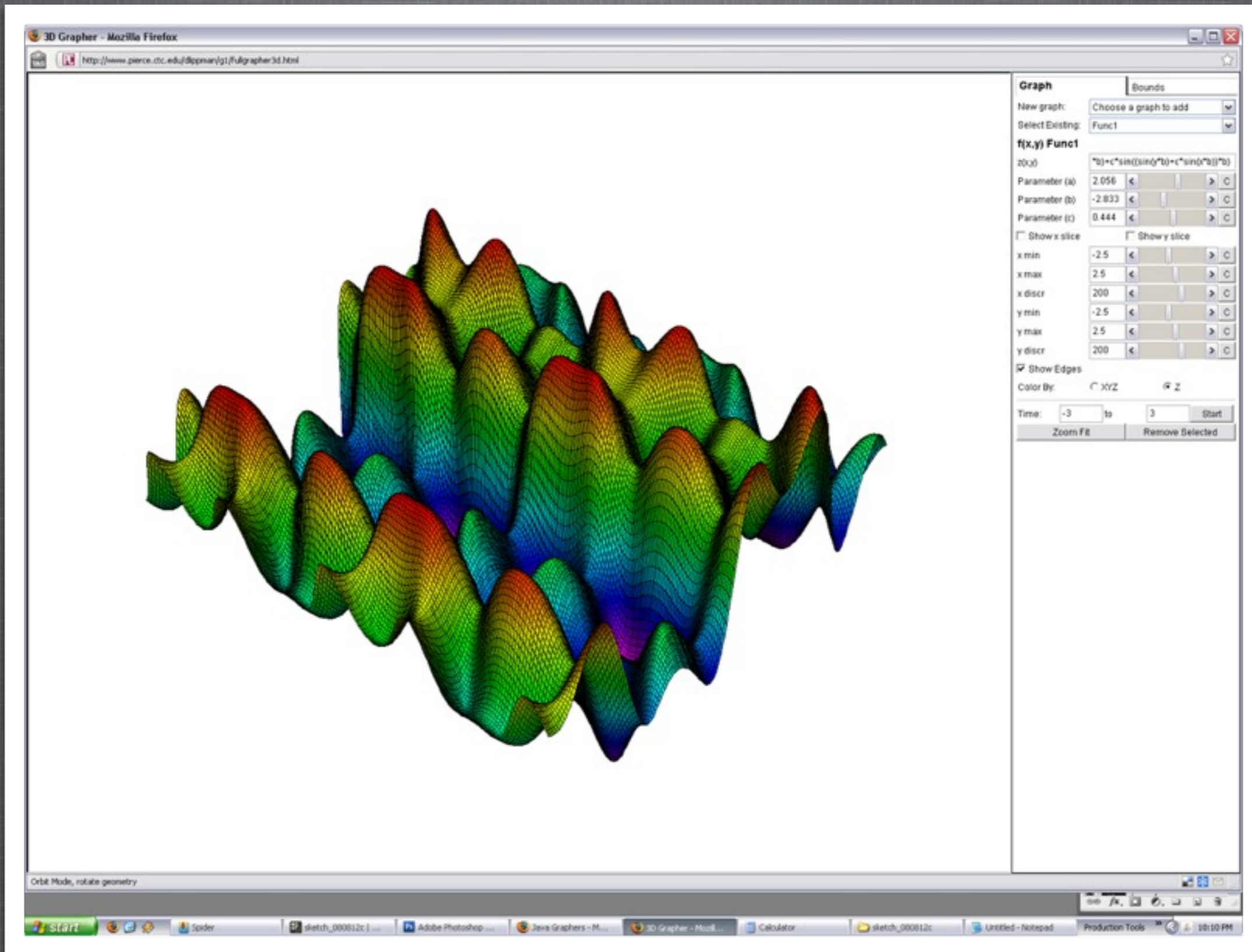
FILLING SPACE & QUESTIONING RELATIONSHIPS



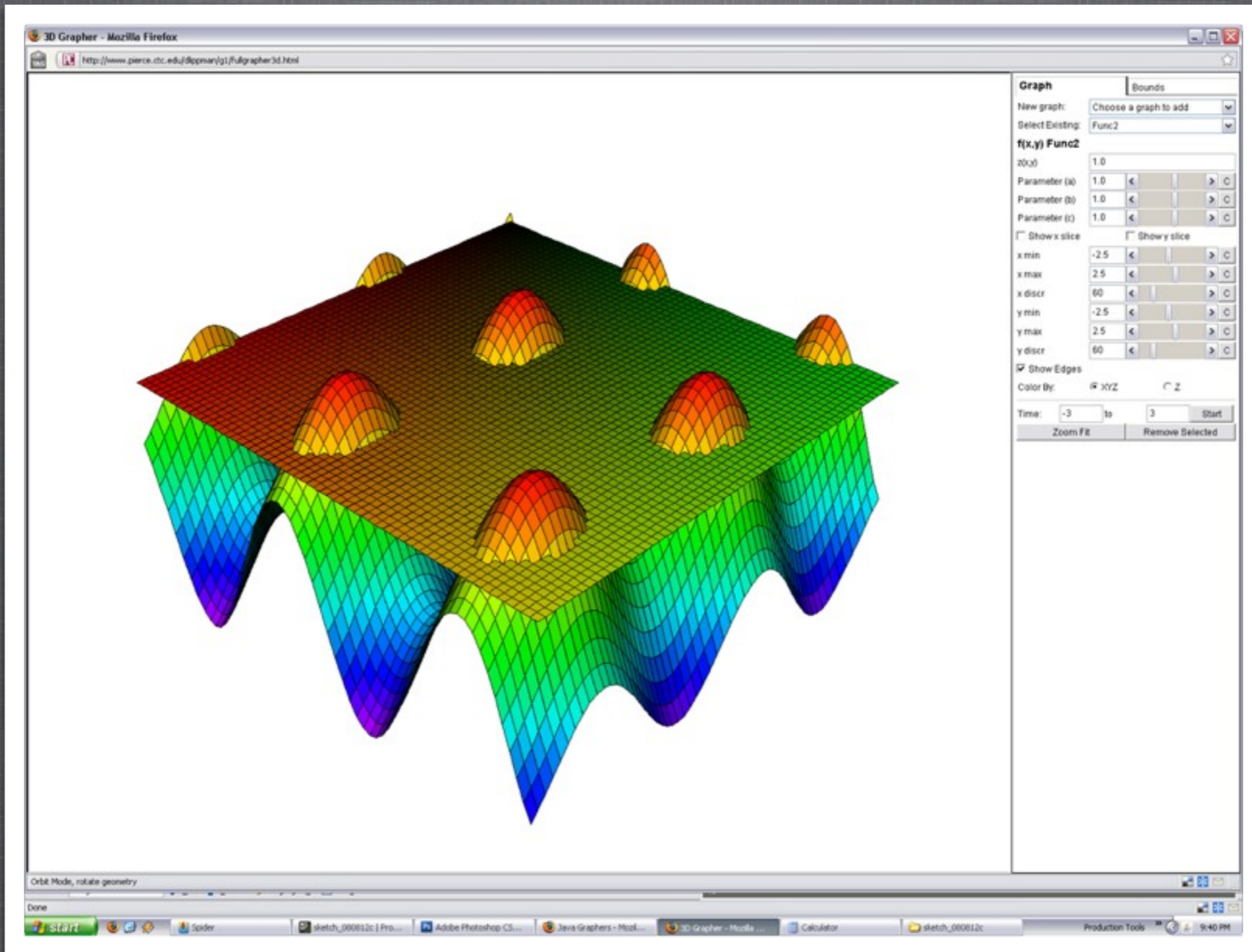
FILLING SPACE & QUESTIONING RELATIONSHIPS



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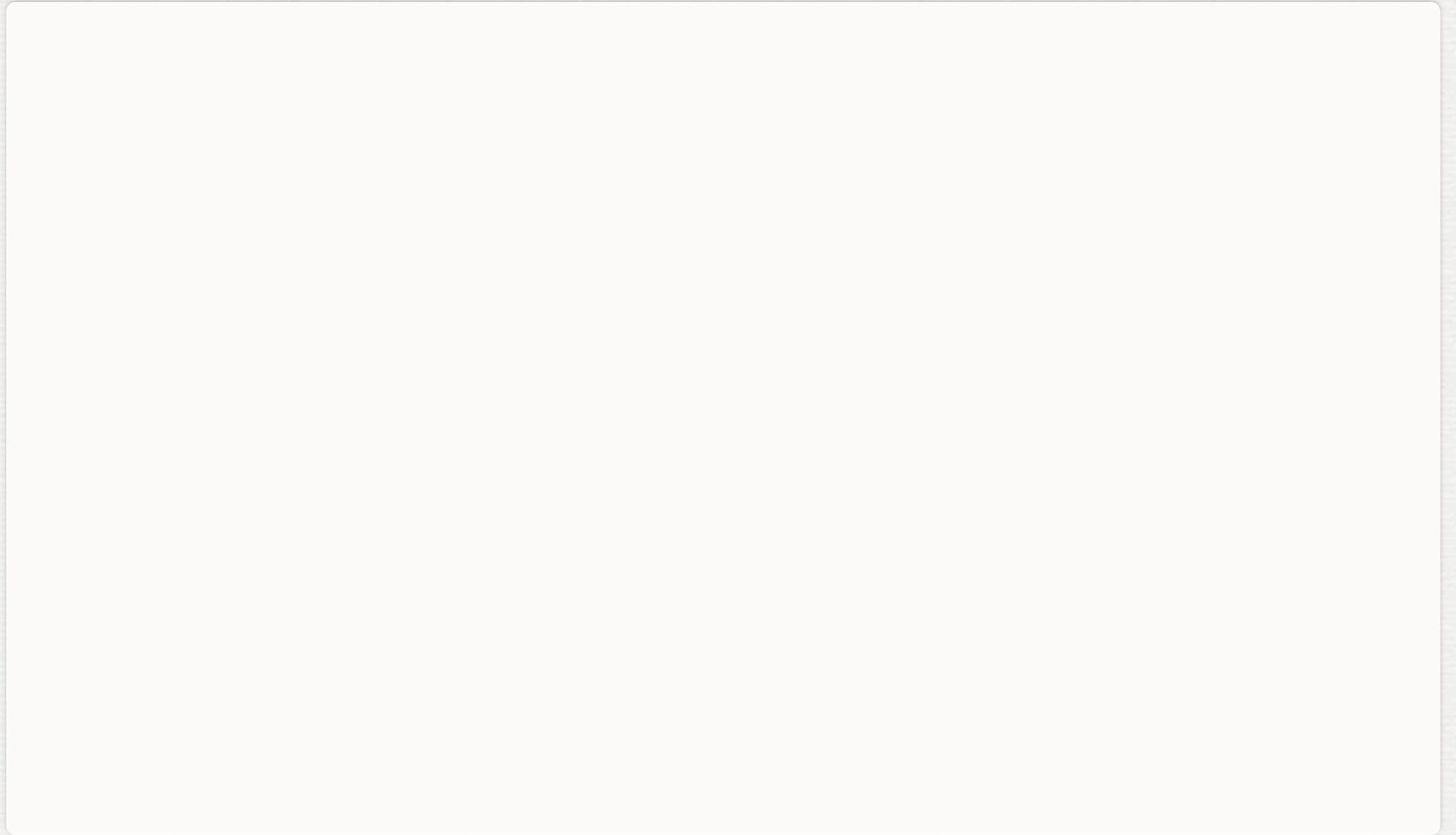


FILLING SPACE & QUESTIONING RELATIONSHIPS



FILLING SPACE & QUESTIONING RELATIONSHIPS

GOING BACKWARDS



GOING BACKWARDS

- Original Equations
 - $x' = (\sin(y*b)+c*\sin(x*b))$
 - $y' = (\sin(x*a)+d*\sin(y*a))$

GOING BACKWARDS

- Original Equations

- $x' = (\sin(y*b)+c*\sin(x*b))$

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- One Recursion

- $x' = \sin((\sin(x*a)+d*\sin(y*a))*b)+c*\sin((\sin(y*b)+c*\sin(x*b))*b)$

- $y' = \sin((\sin(y*b)+c*\sin(x*b))*a)+d*\sin((\sin(x*a)+d*\sin(y*a))*a)$

GOING BACKWARDS

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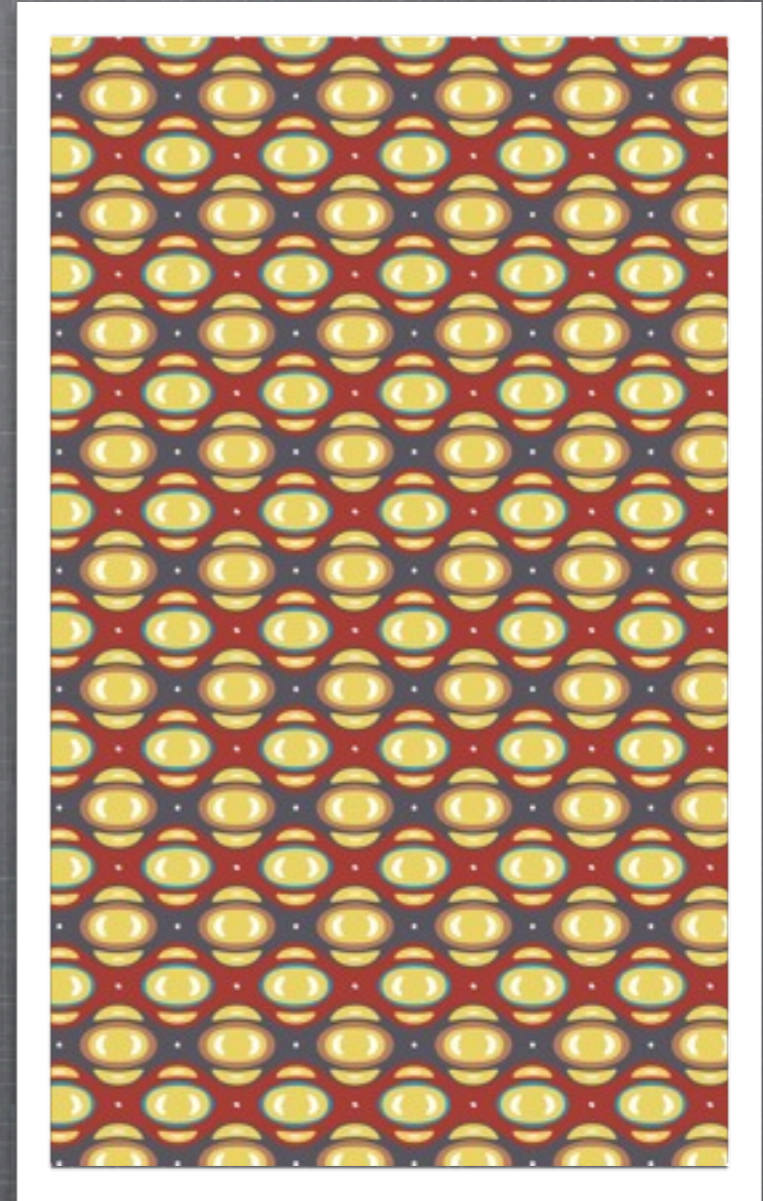
- $x' = \sin((\sin(x*a)+d*\sin(y*a))*b)+c*\sin((\sin(y*b)+c*\sin(x*b))*b)$

- $y' = \sin((\sin(y*b)+c*\sin(x*b))*a)+d*\sin((\sin(x*a)+d*\sin(y*a))*a)$

- Two Recursions

- $x' = \sin((\sin((\sin(y*b)+c*\sin(x*b))*a)+d*\sin((\sin(x*a)+d*\sin(y*a))*a))*b)+c*\sin((\sin((\sin(x*a)+d*\sin(y*a))*b)+c*\sin((\sin(y*b)+c*\sin(x*b))*b))*b)$

- $y' = \sin((\sin((\sin(x*a)+d*\sin(y*a))*b)+c*\sin((\sin(y*b)+c*\sin(x*b))*b))*a)+d*\sin((\sin((\sin(y*b)+c*\sin(x*b))*a)+d*\sin((\sin(x*a)+d*\sin(y*a))*a))*a)$



TEST PATTERN

SOURCES

- <http://www.nathanselikoff.com>
- <http://bugman123.com/Fractals/Fractals.html>
- <http://www.magnetnerd.com/Neodymium%20Magnets/art.htm>
- <http://bulbphotography.com/pendulum/gallery.php>
- <http://math-art.net/2007/12/02/lorenz-attractor-a-3d-render/>
- <http://www.reinhardkargl.com/iBlog/iBlog2008.html>
- <http://talklikeaphysicist.com/2008/lorenz-attractor/>