

## energy in the metalithicum era

*XI International festival for new media culture  
October 8 – 10, 2009 in Riga, Latvia*

by  
Ludger Hovestadt  
Vera Bühlmann  
*ETH Zürich, Switzerland*

imagine

the year 15'000 bc

*welcome on planet earth ...*



*hunting and collecting*

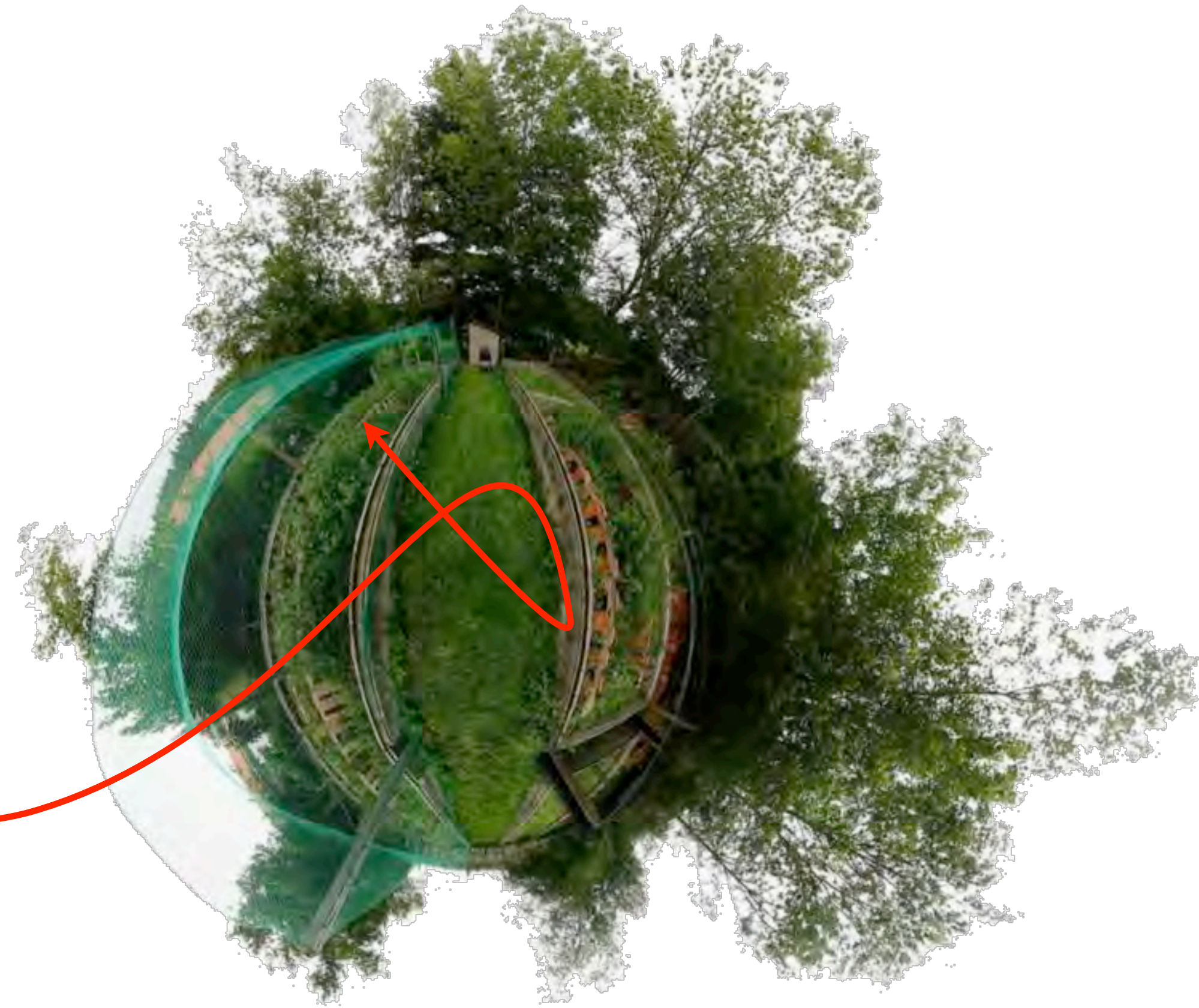
*some 17'000 years ago we discovered the clearances as a possible habitat ...*

*starting to domesticate the lithosphere in the neolithicum*



*... today 10'000 times as many human beings  
are living on the planet*

*domesticating the lithosphere in the neolithicum*



*today we seem to have reached the limits of the  
'global clearance' as our nourishing habitat*

*... imagine a factor of 10'000 times more energy than what we need today*

*by learning to orient our inhabiting of the lithosphere to the atmosphere*

welcome to the

metalithicum



Vera Bühlmann

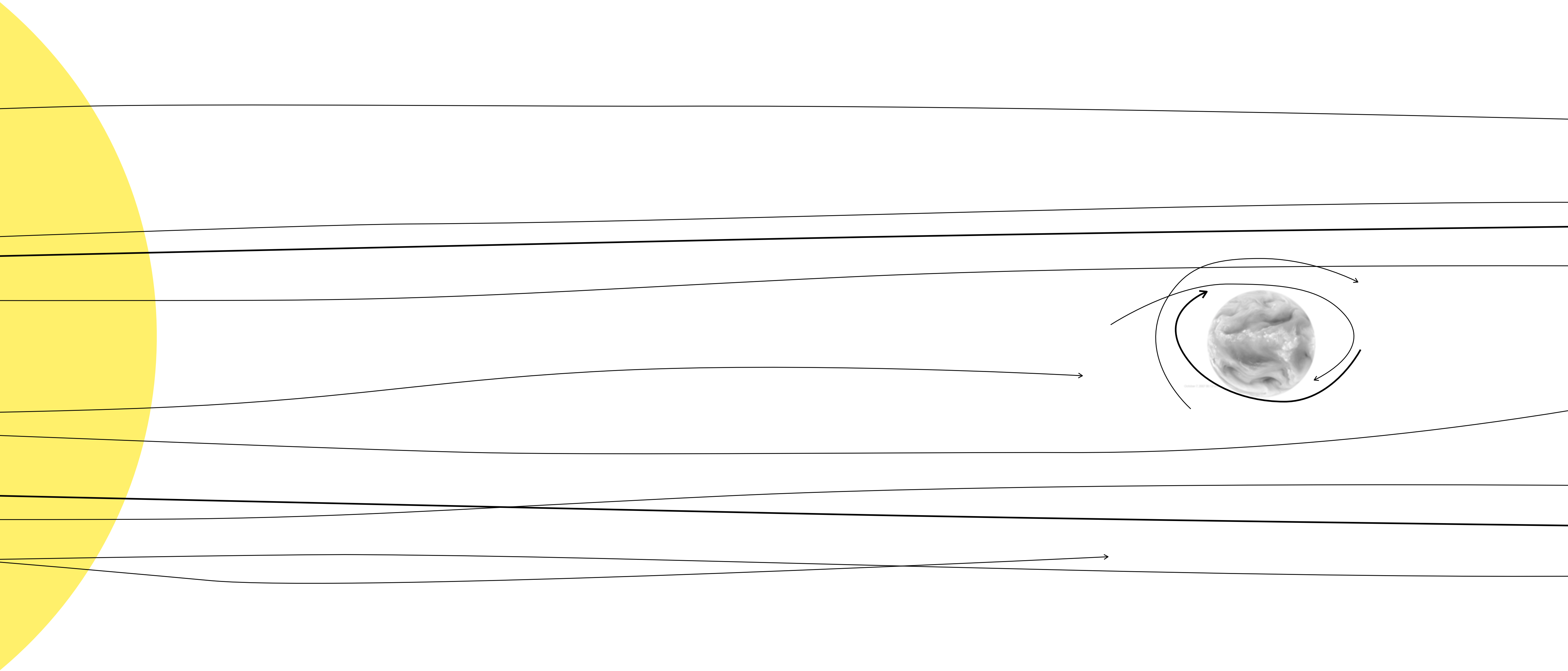
*Mediatheory - Philosophy*

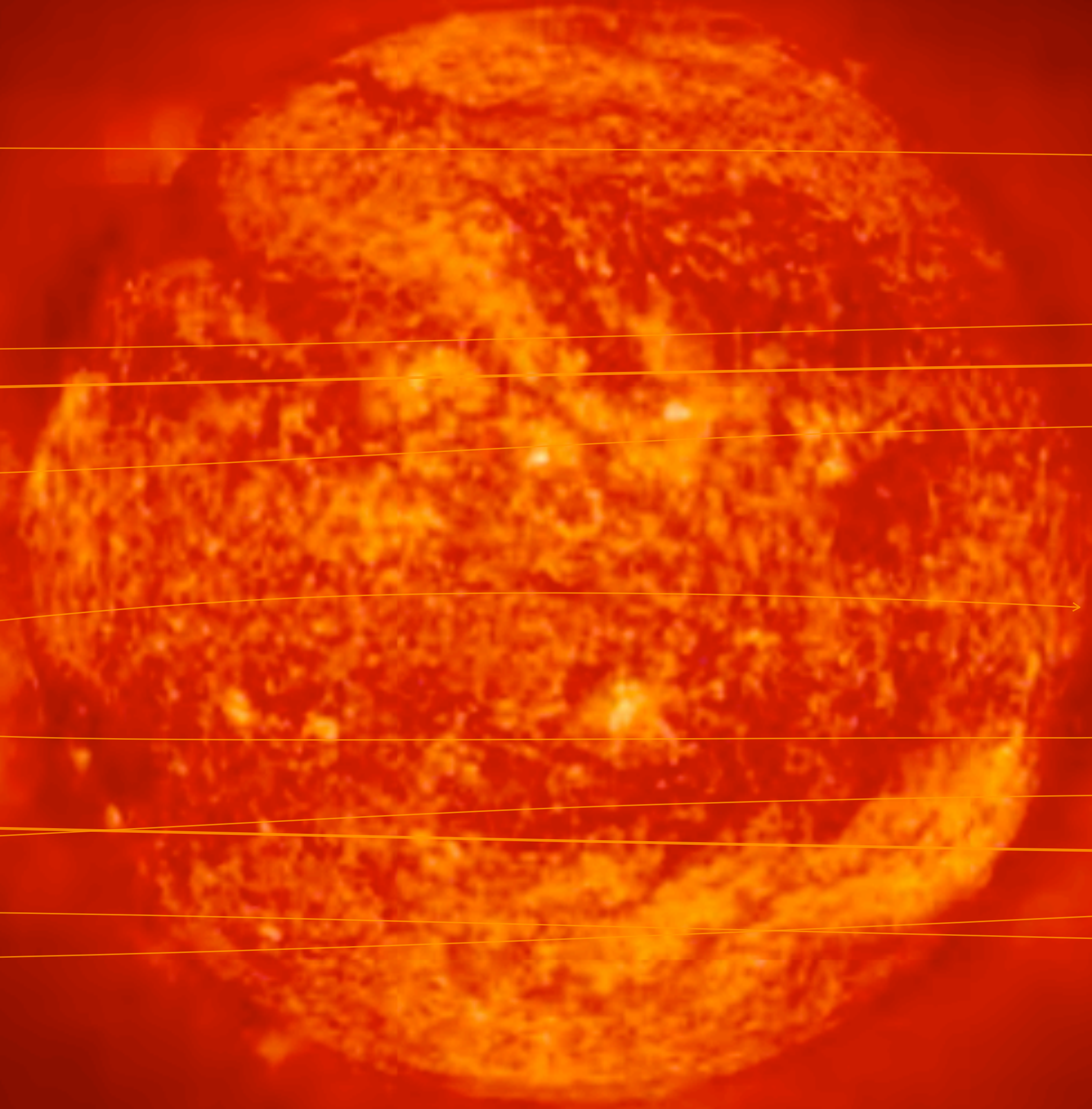
Applying Virtuality

Ludger Hovestadt

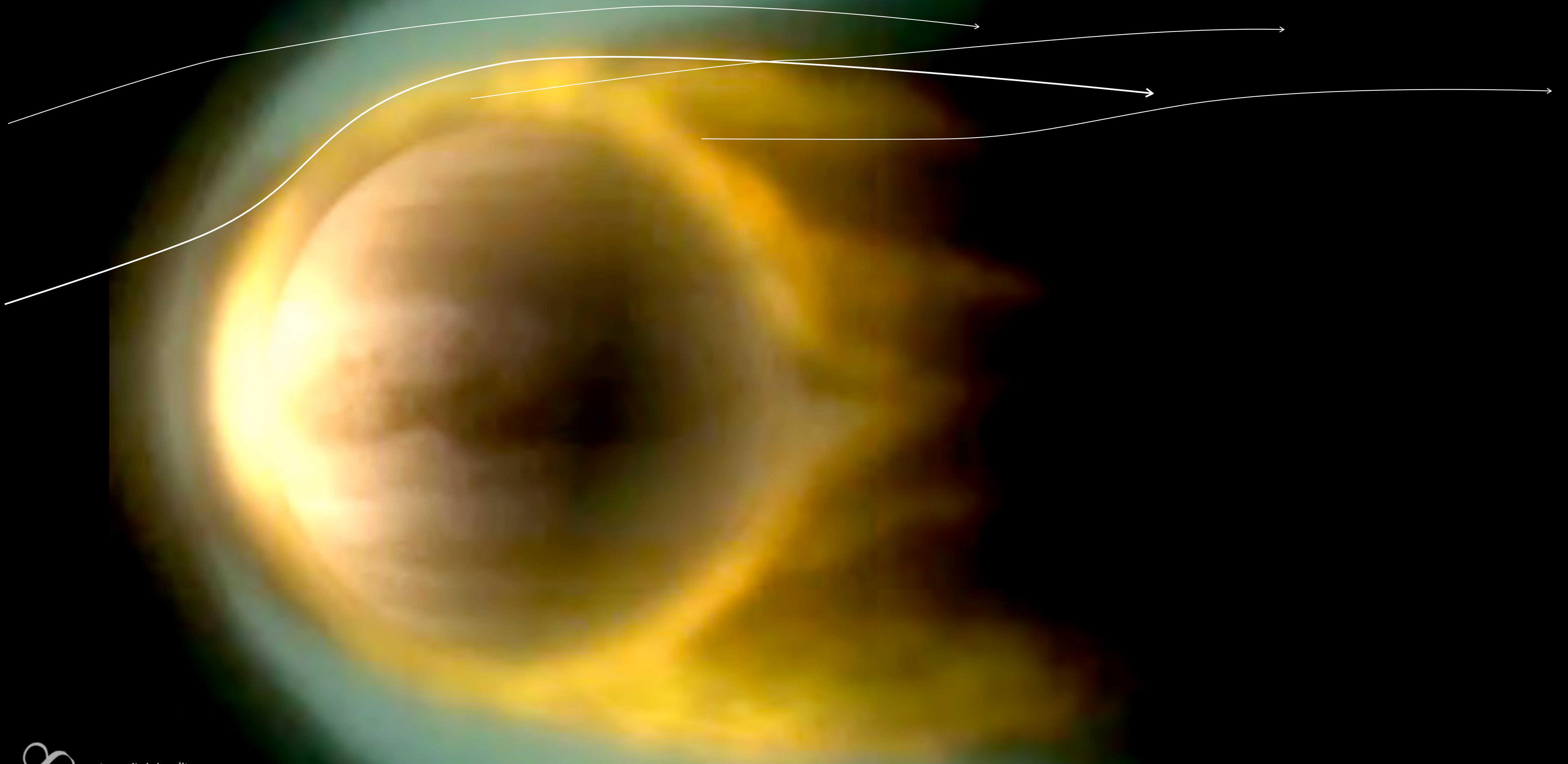
*Architect - Computer Scientist*

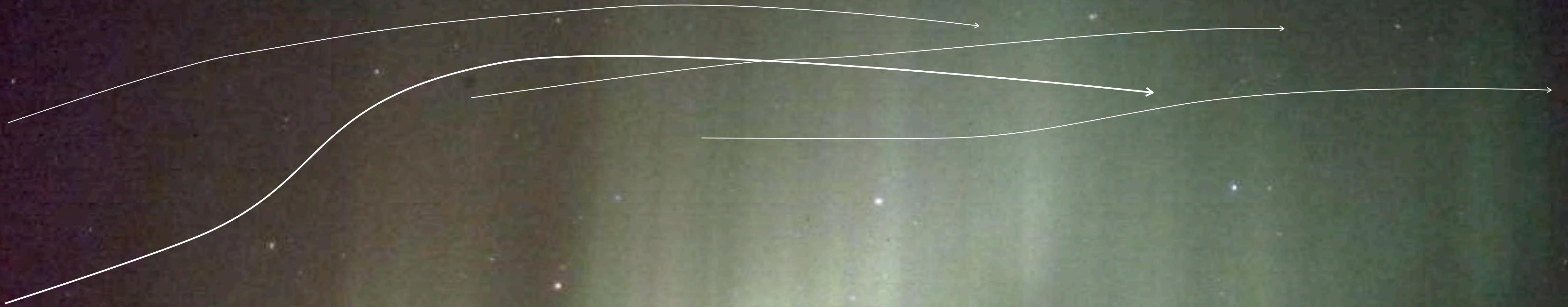
Interfacing Technology to an Everyday Context

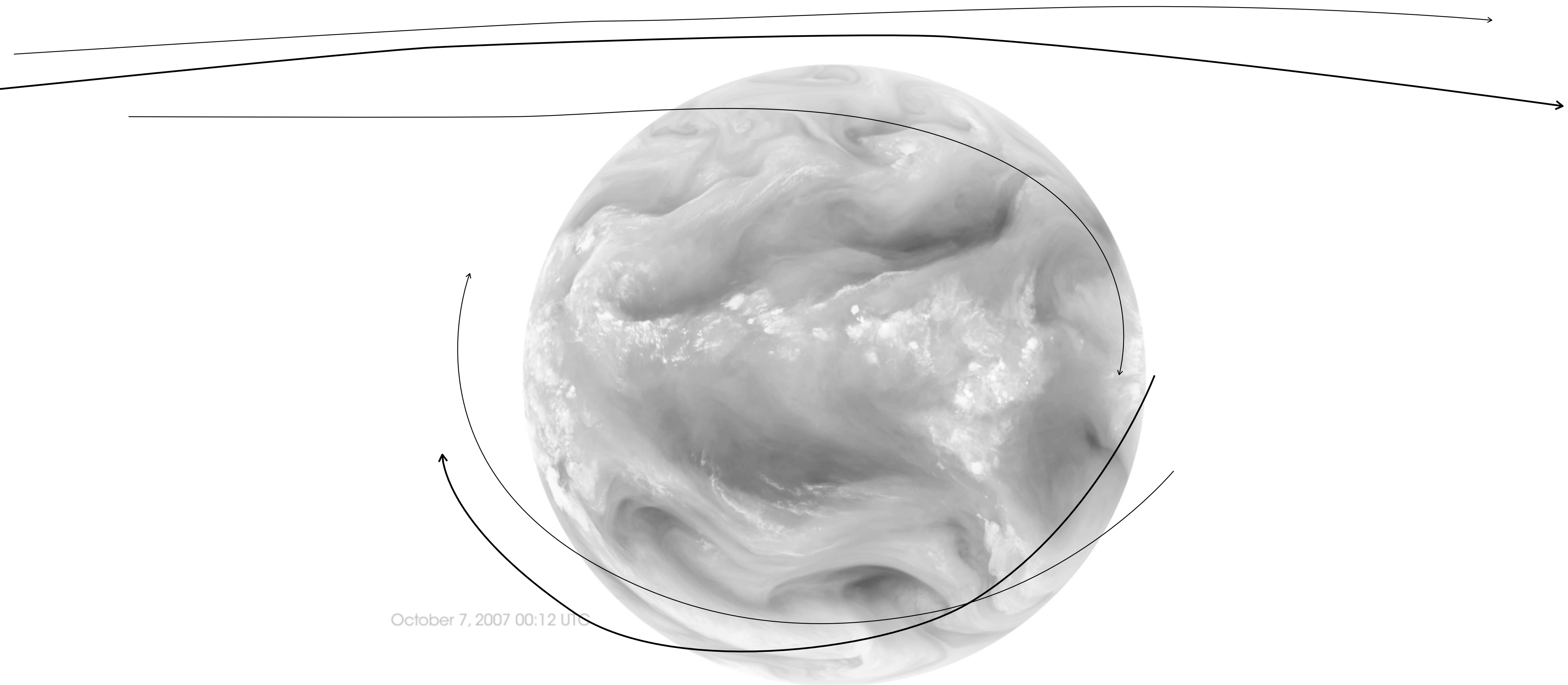




1999/09/27 15:46







October 7, 2007 00:12 UTC

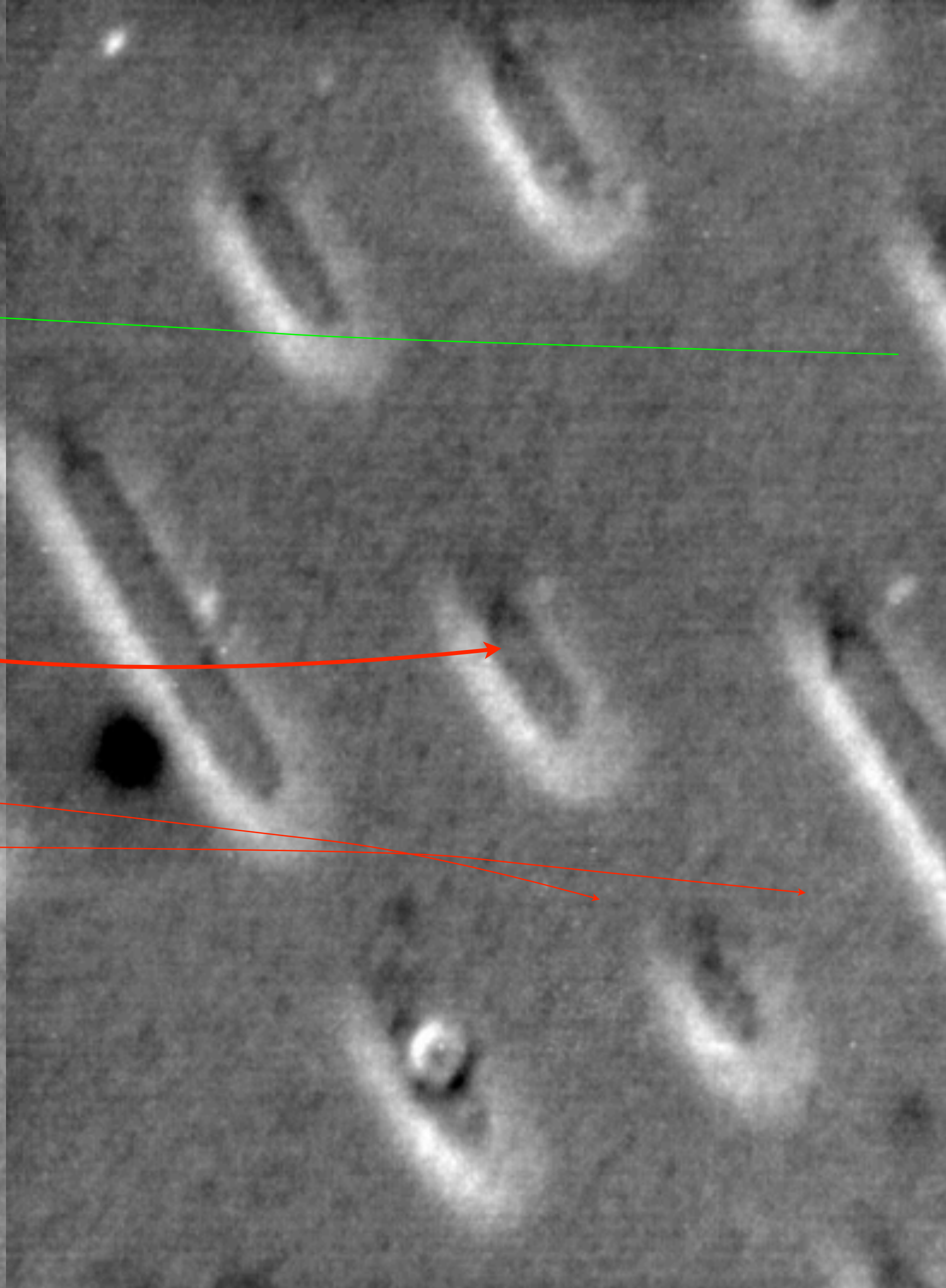
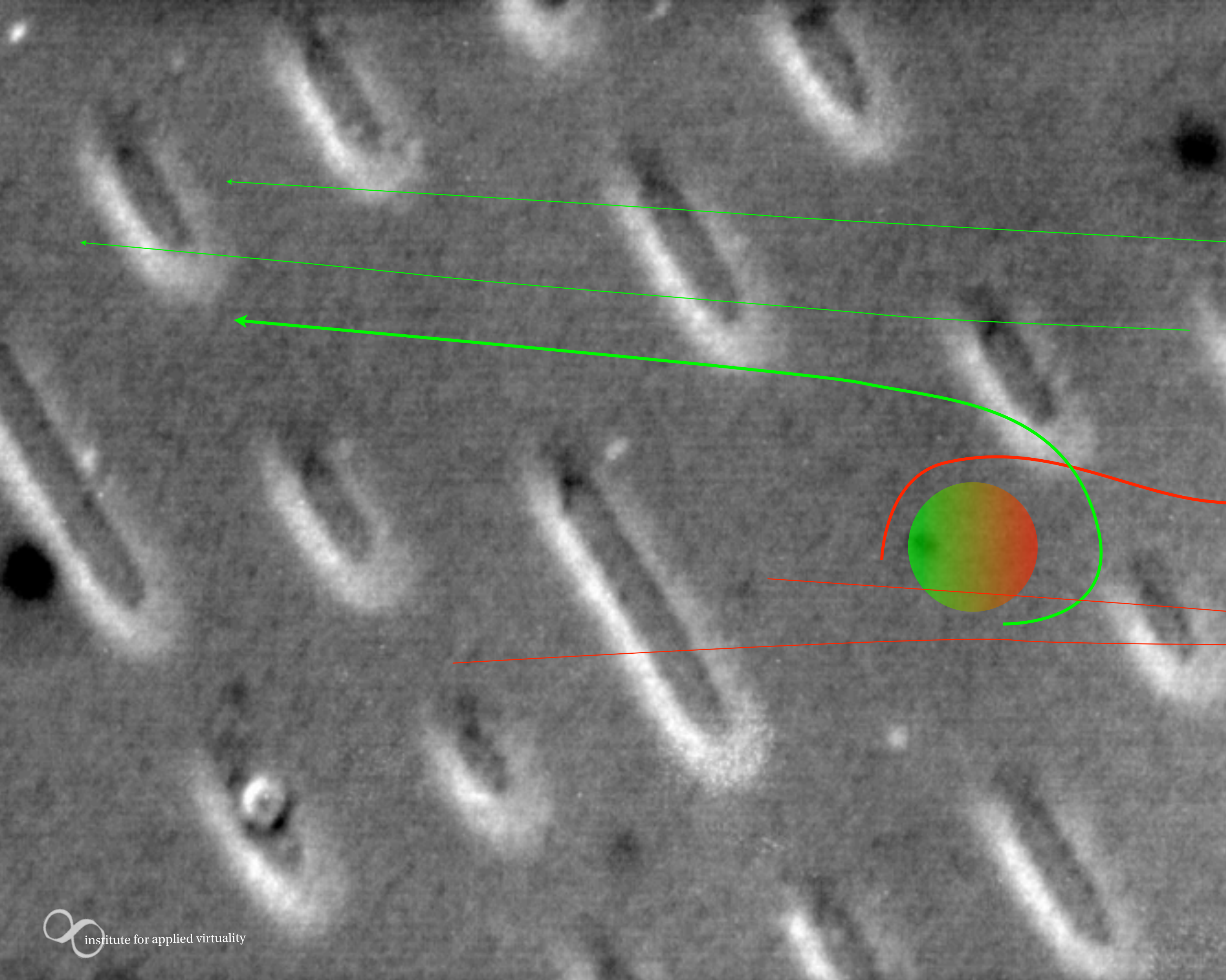




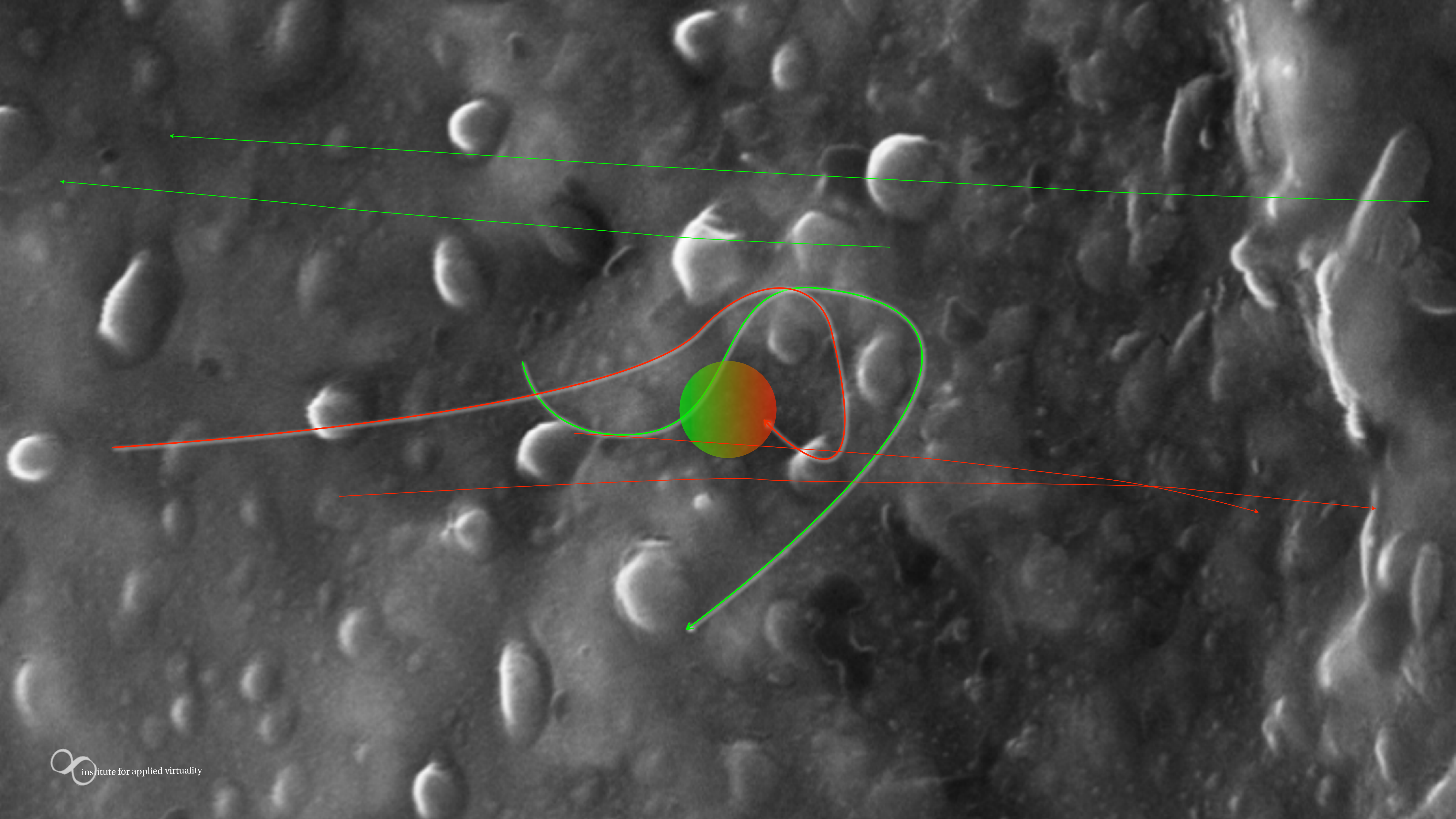


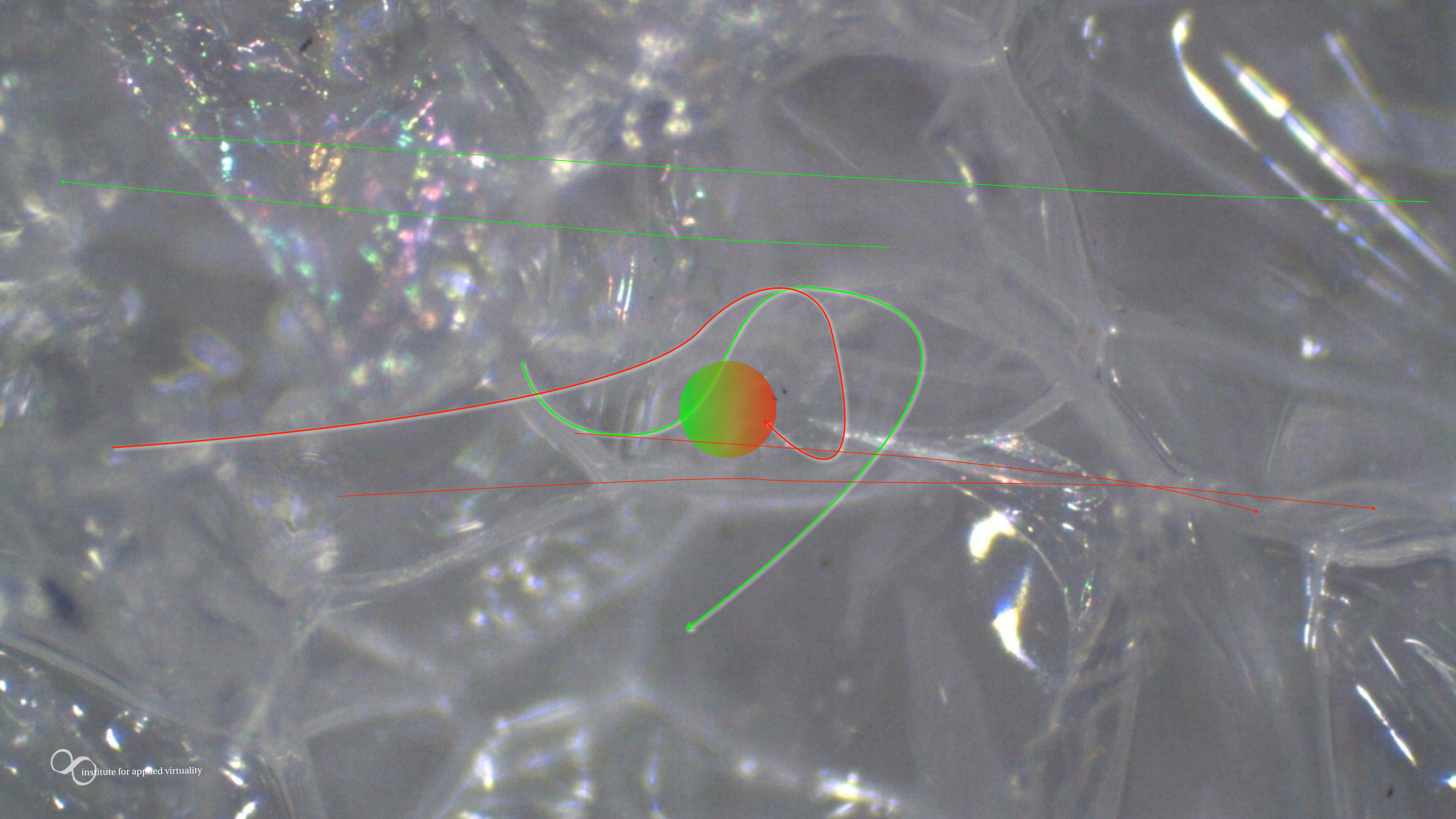


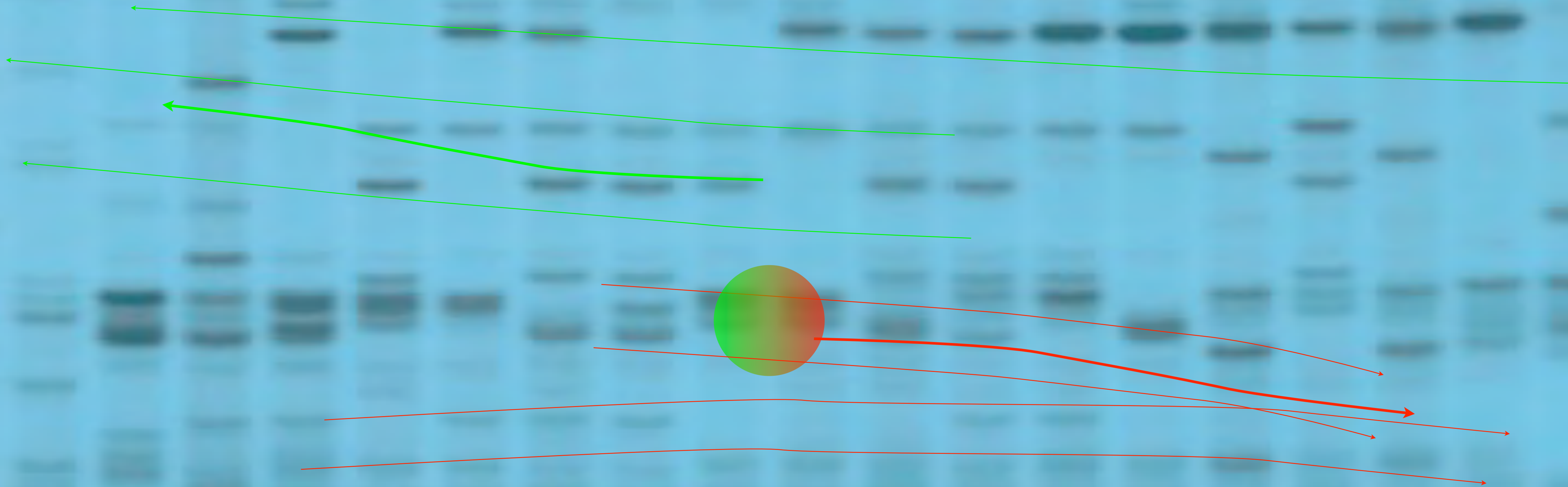
















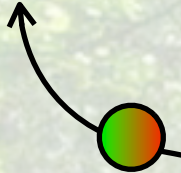












*follow the white rabbit*







*find the blue berry*



*factor*

1

*by hunting and  
collecting*

*go for factor*

10'0000



*by domesticating  
the ground*



*the birth of the rational*



*the birth of the rational*











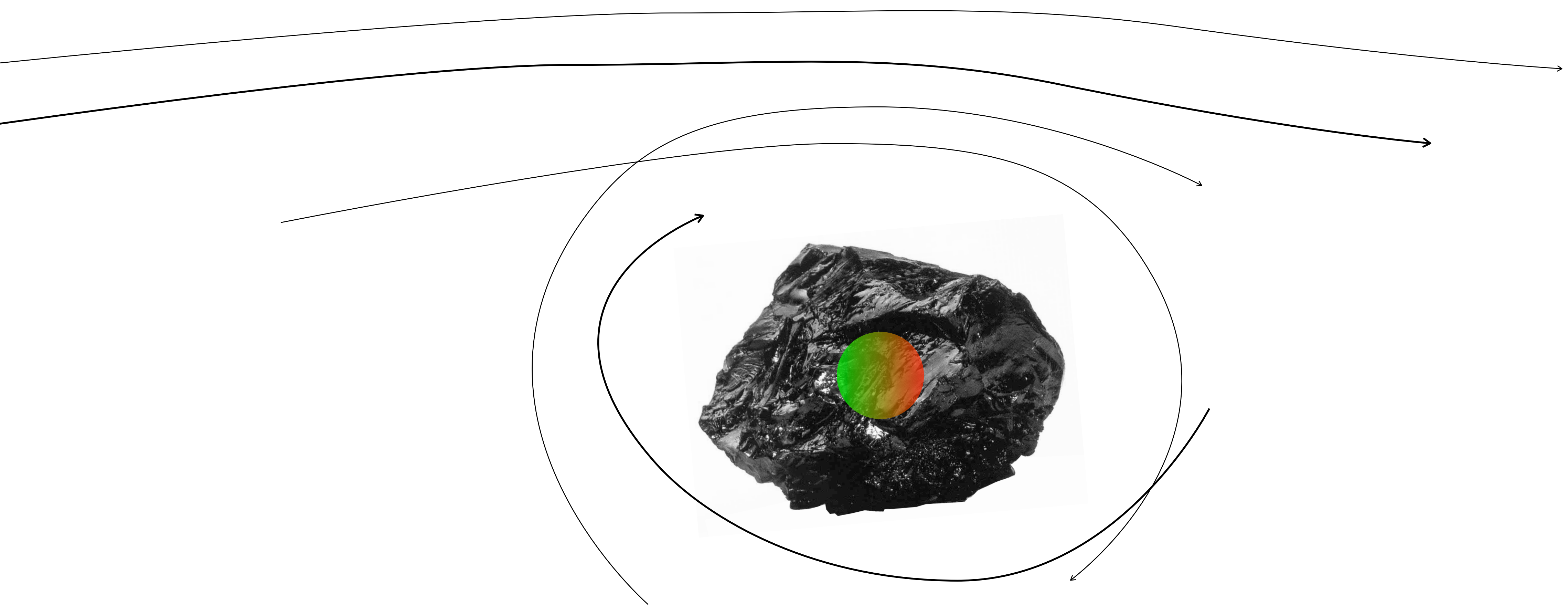






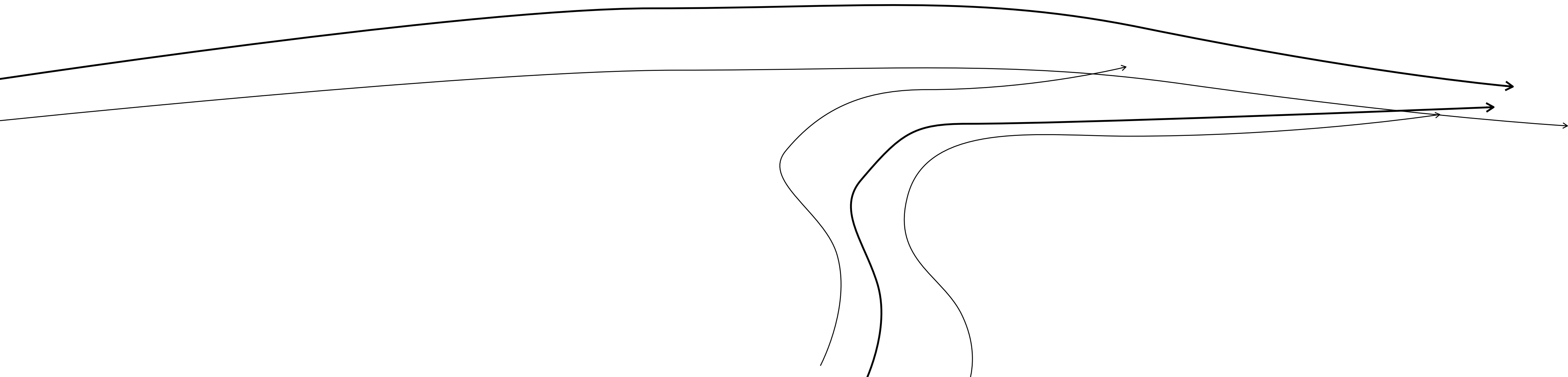




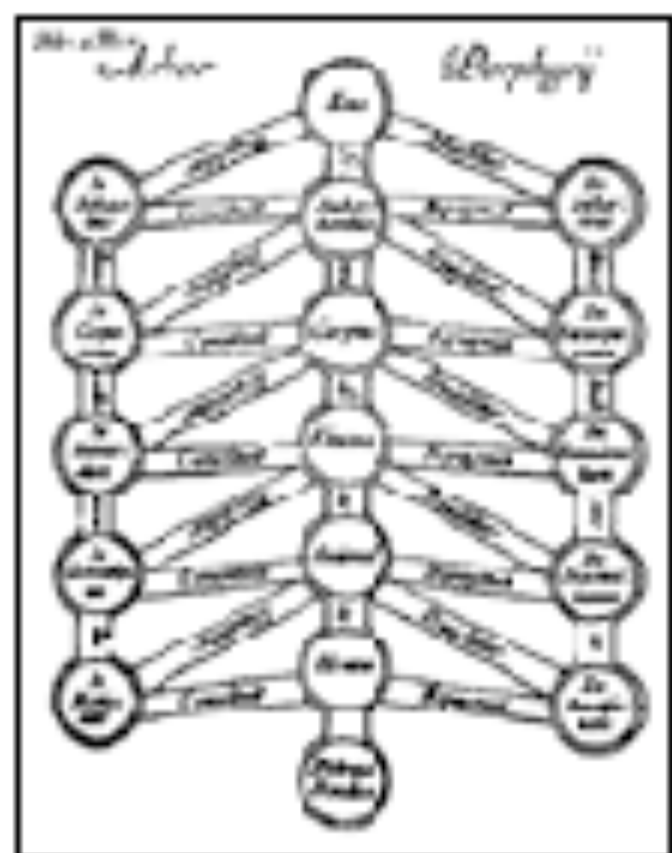


it's all about the stones ...





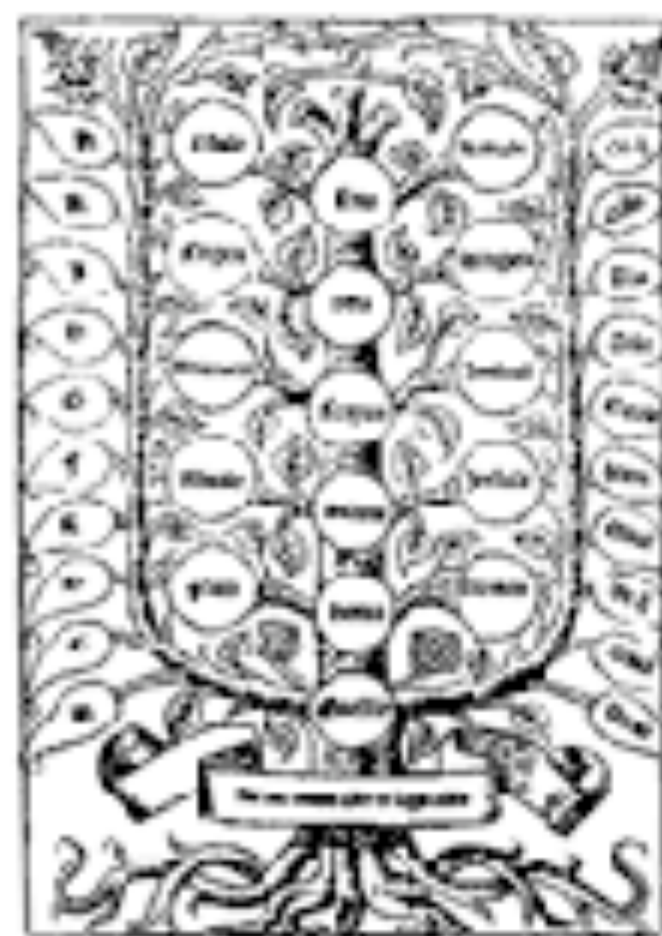
... and the fires



a



b



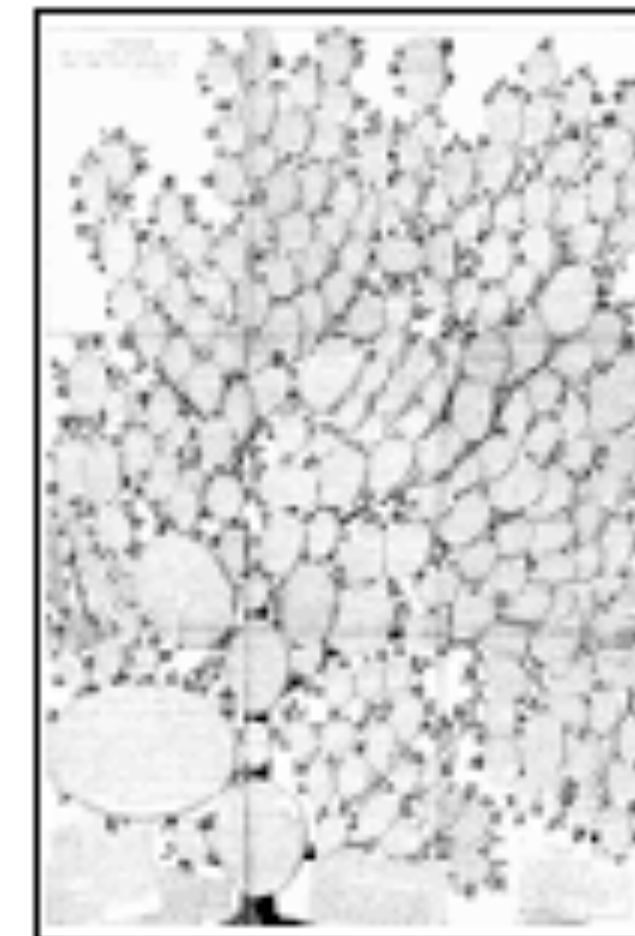
c



d

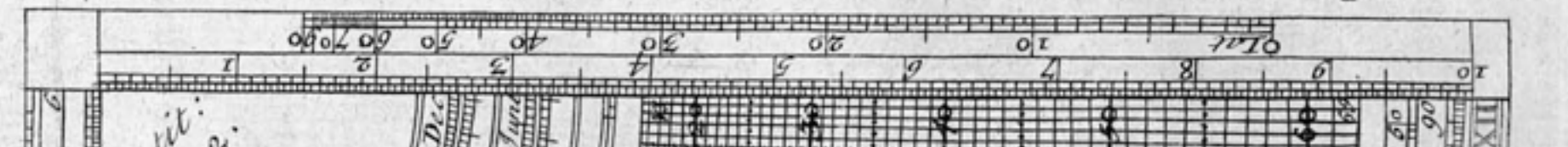
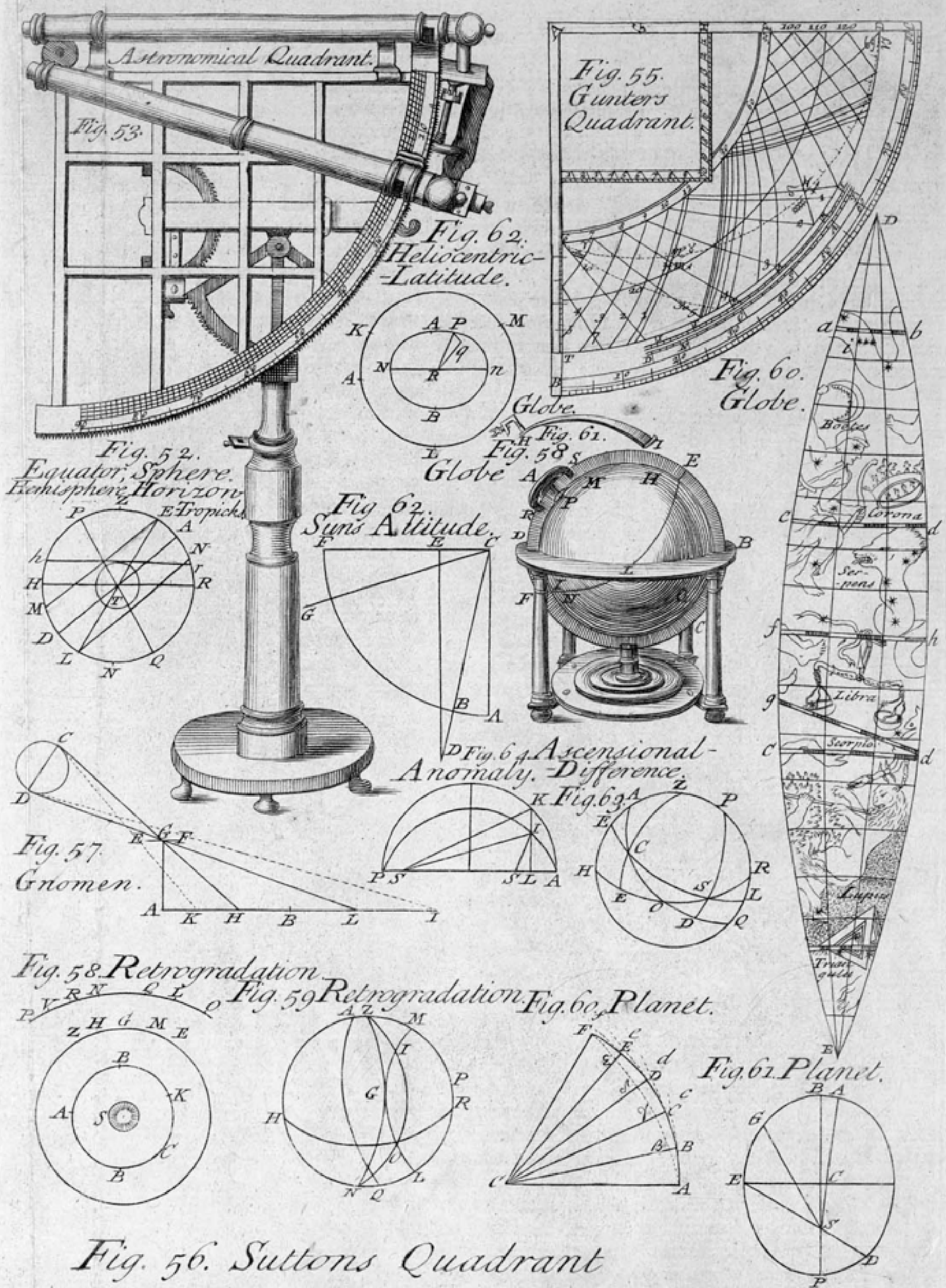
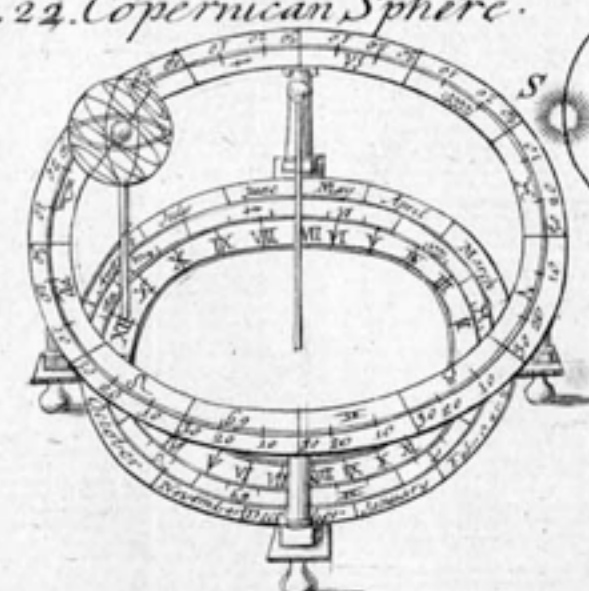
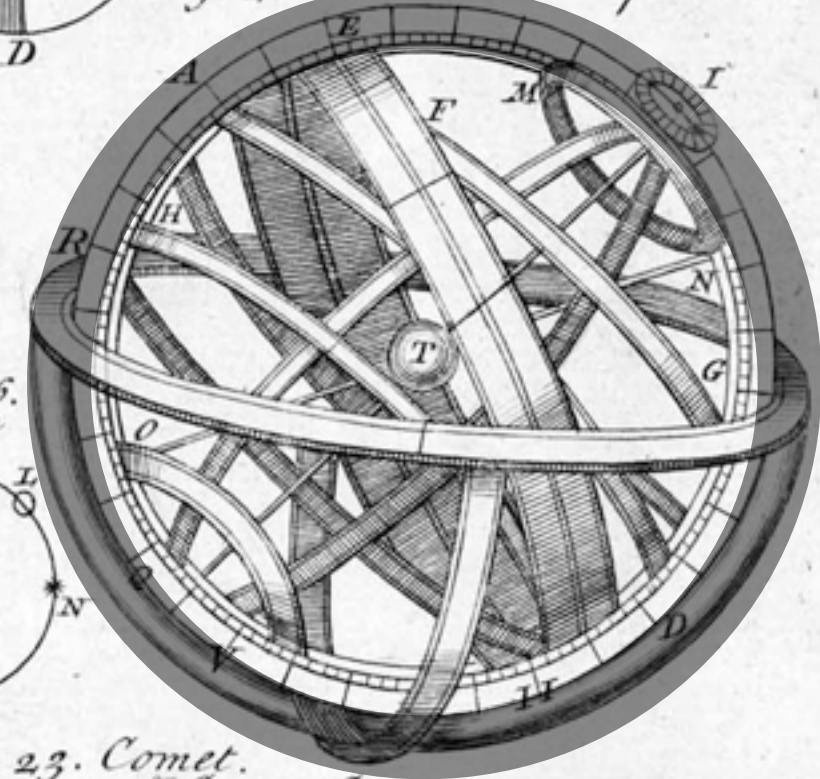
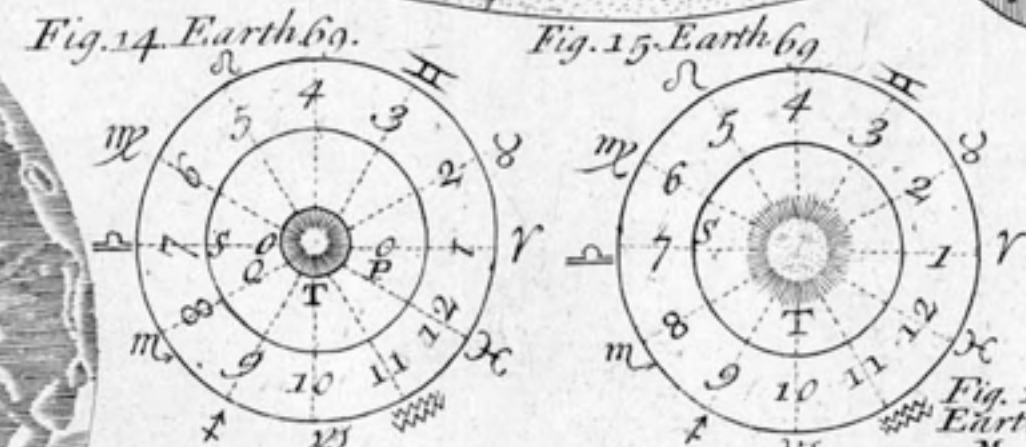
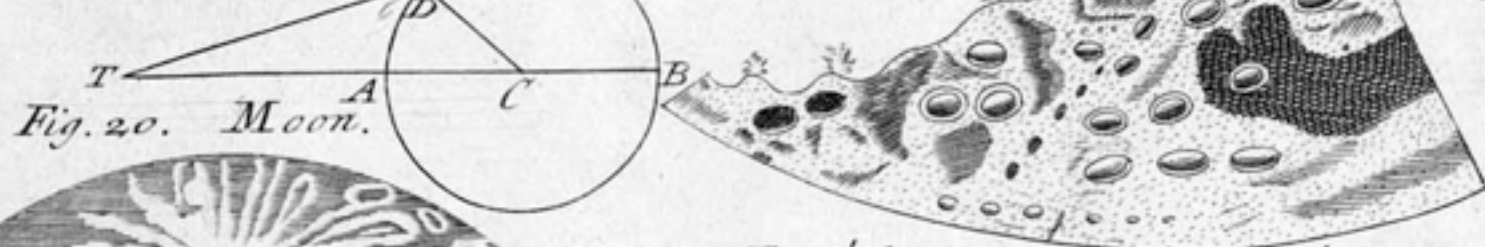
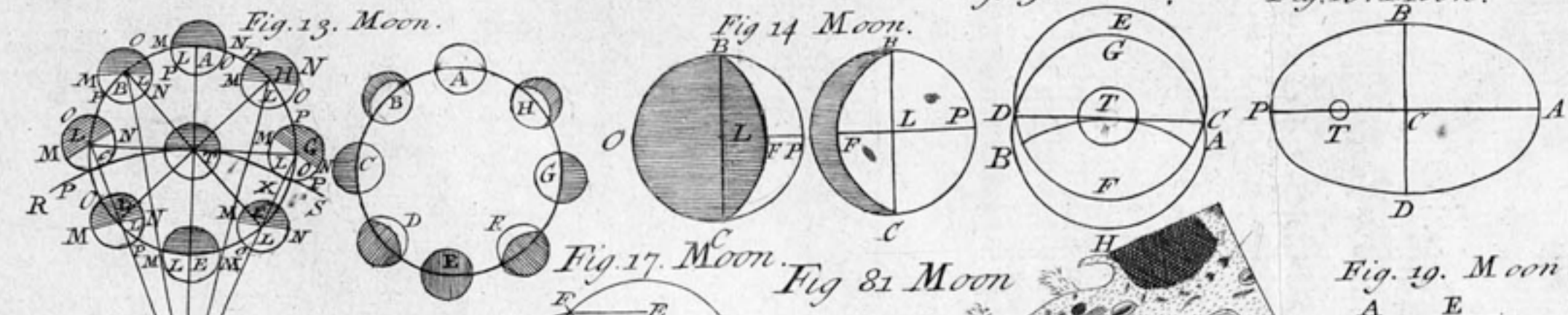
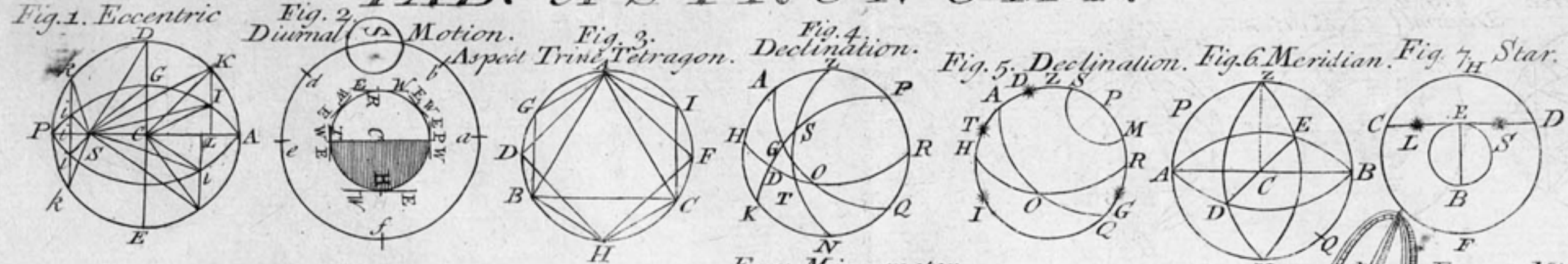


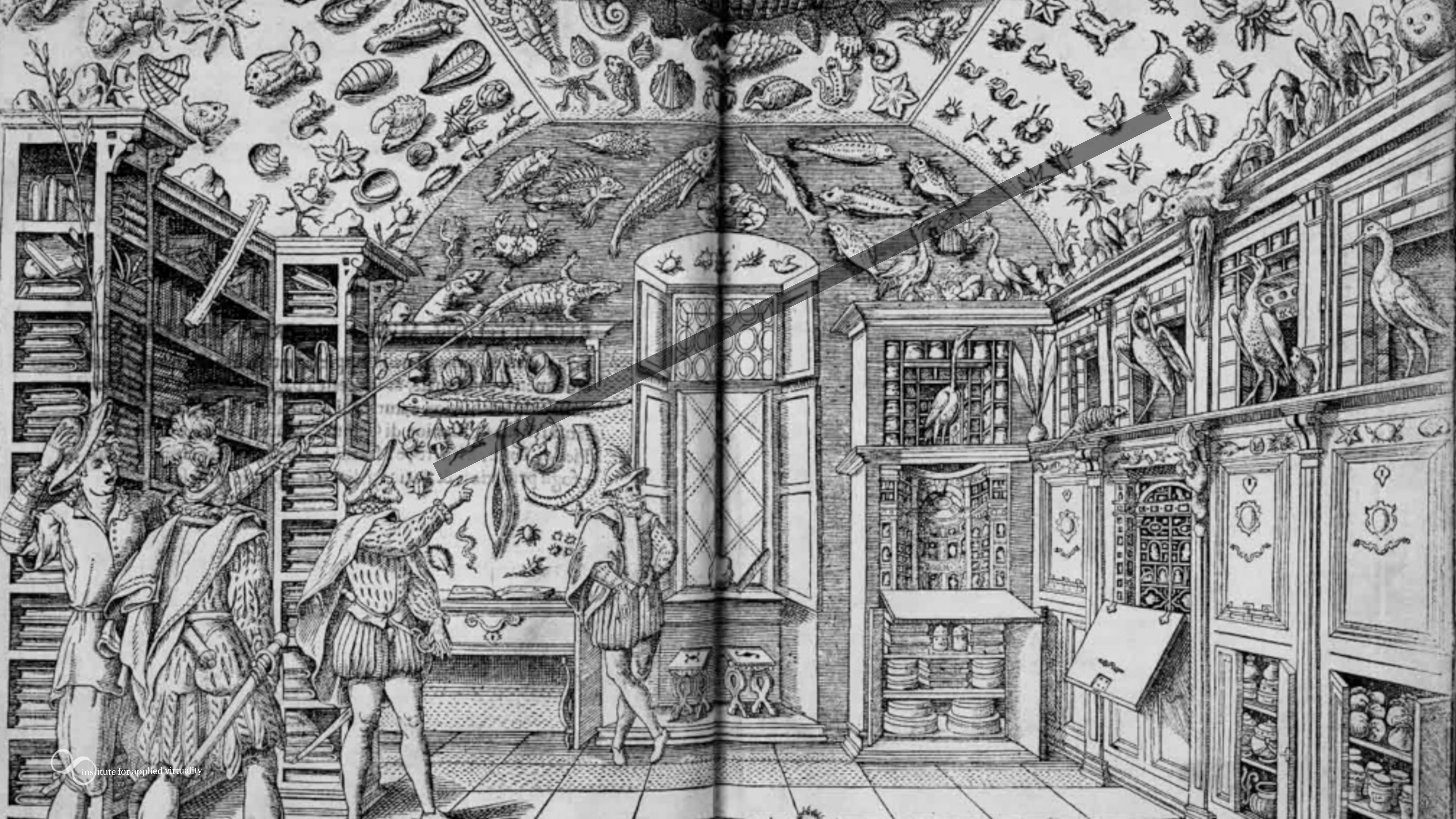
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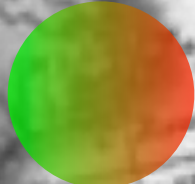


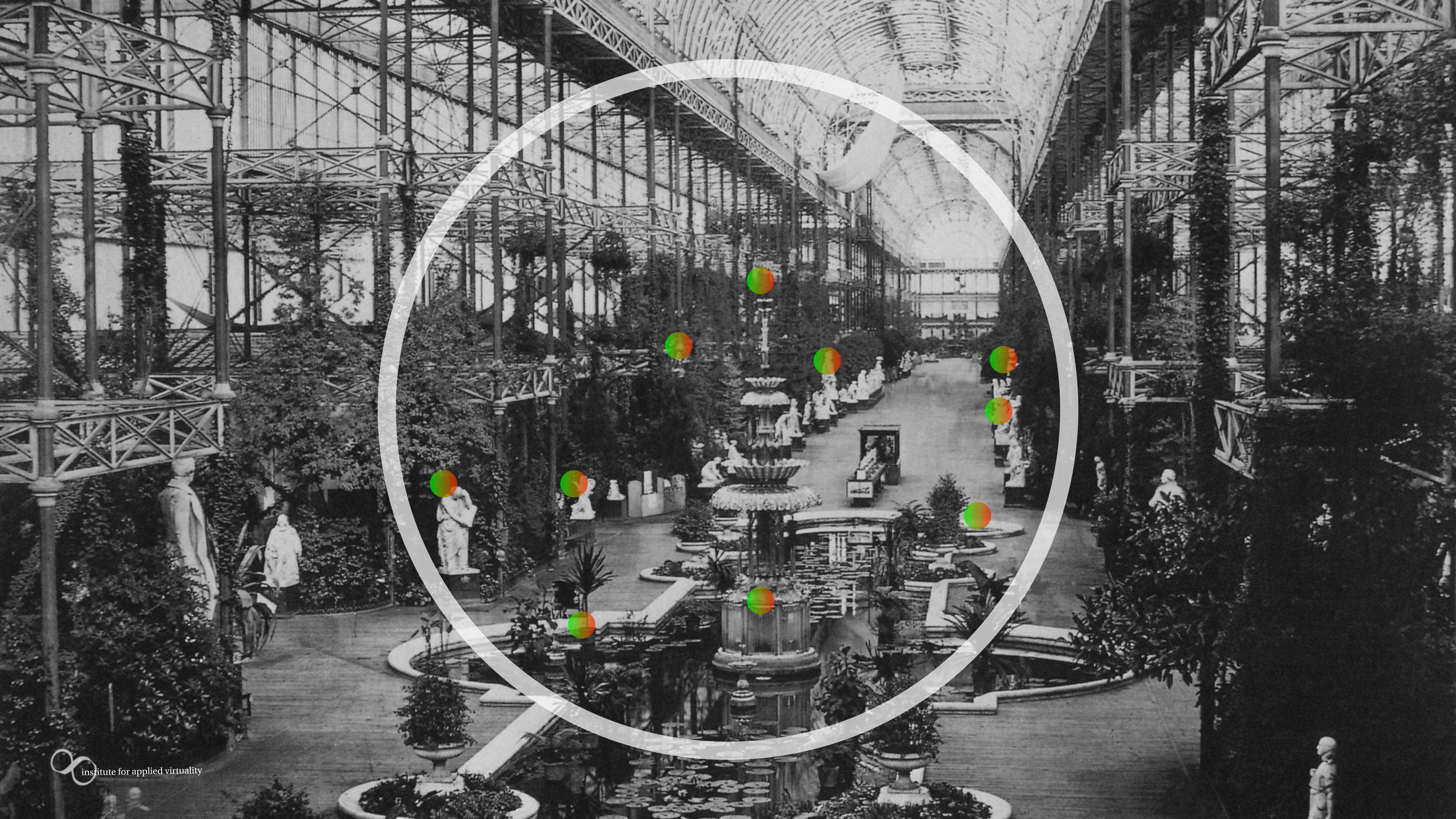
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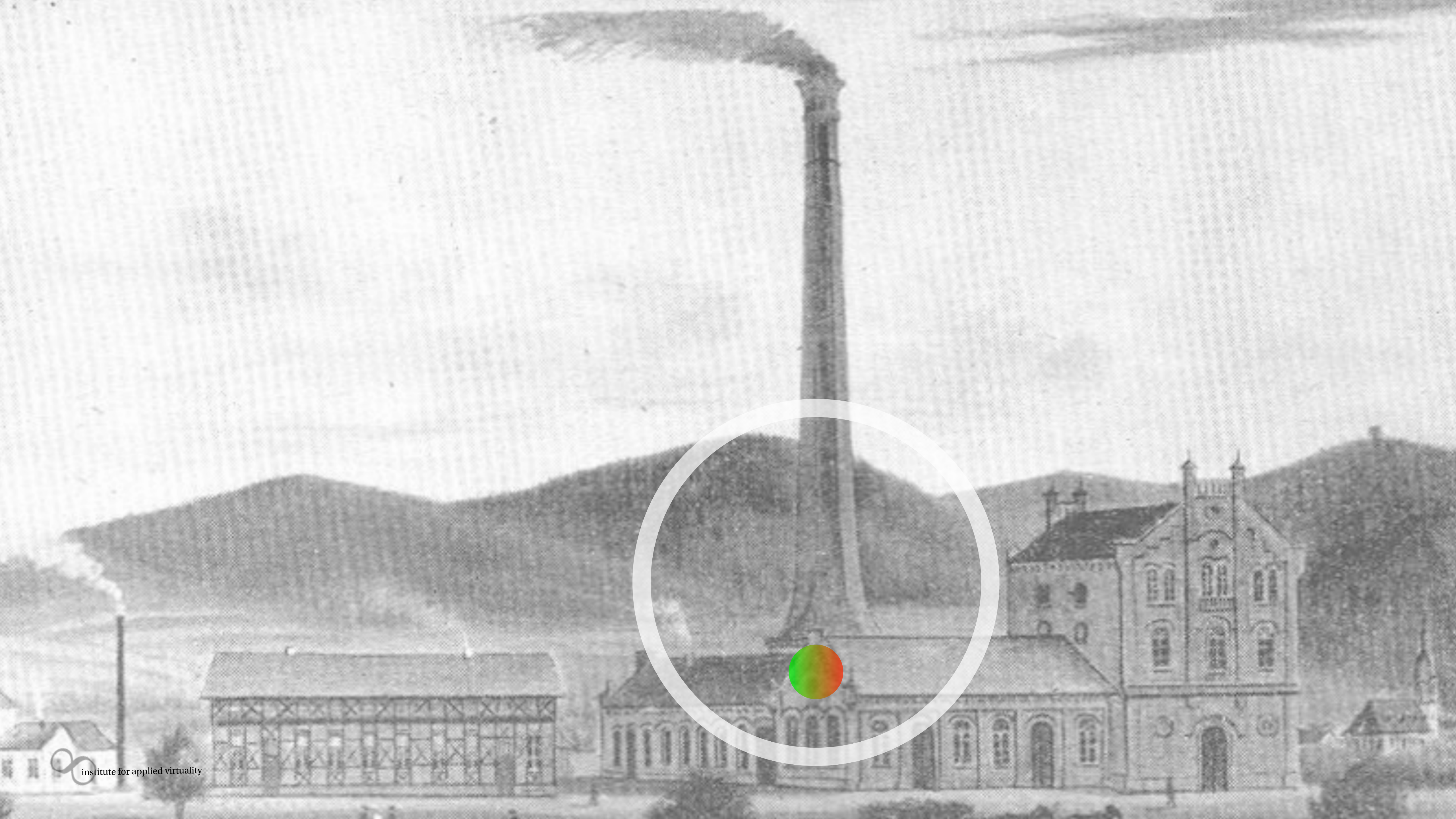
# TAB. ASTRONOMY.











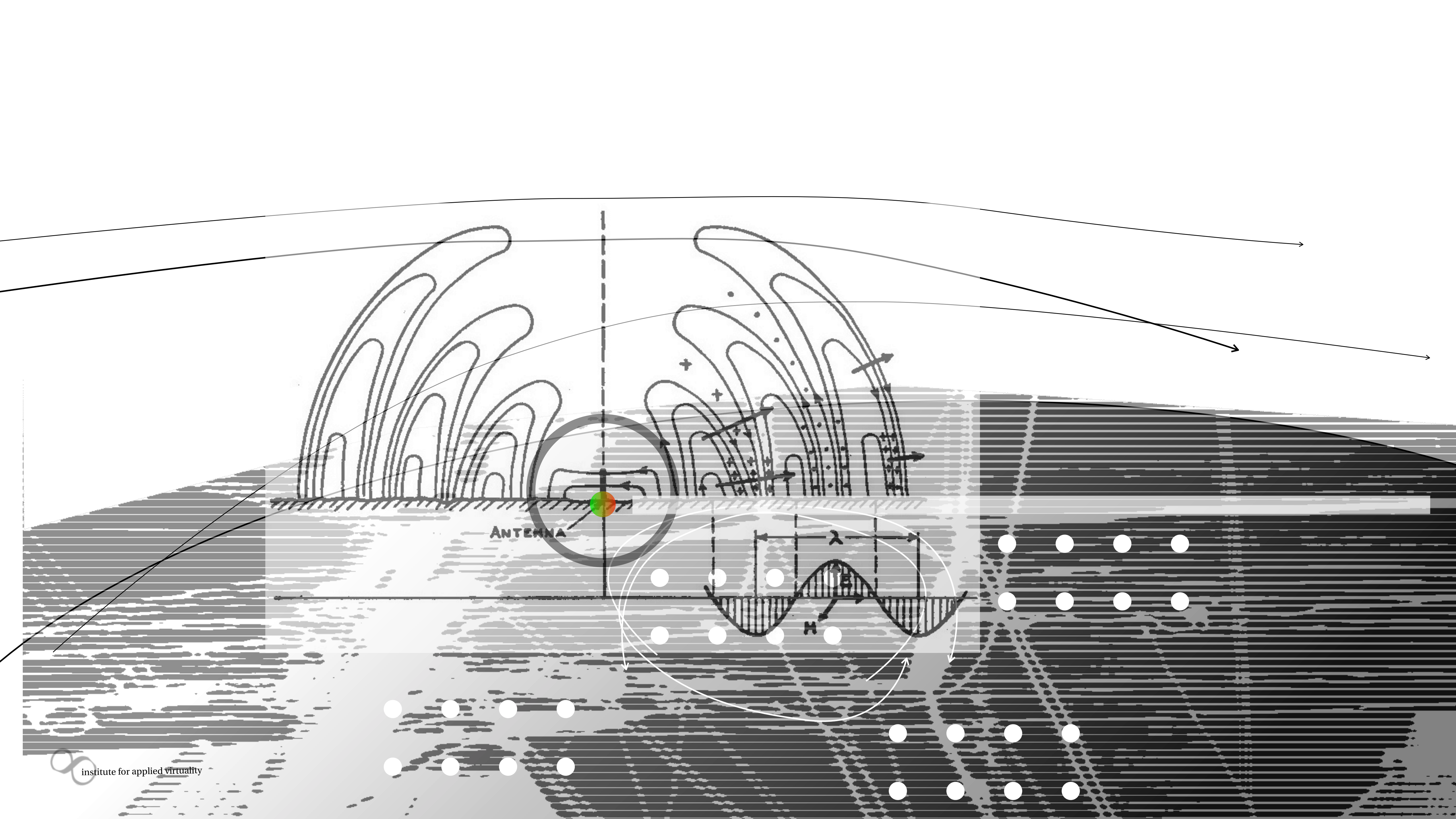






Gustav Moreau (1836-1898)

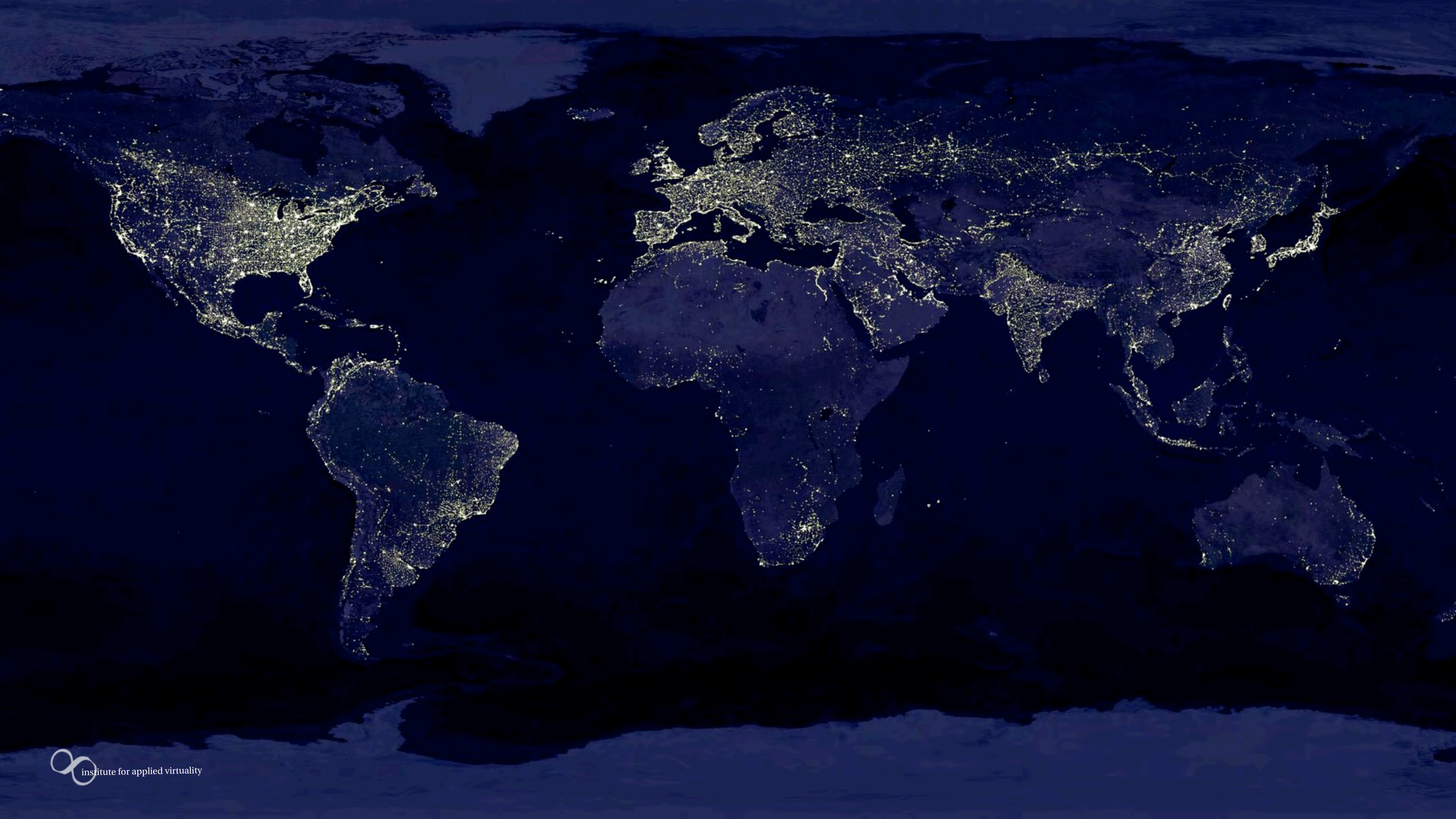


















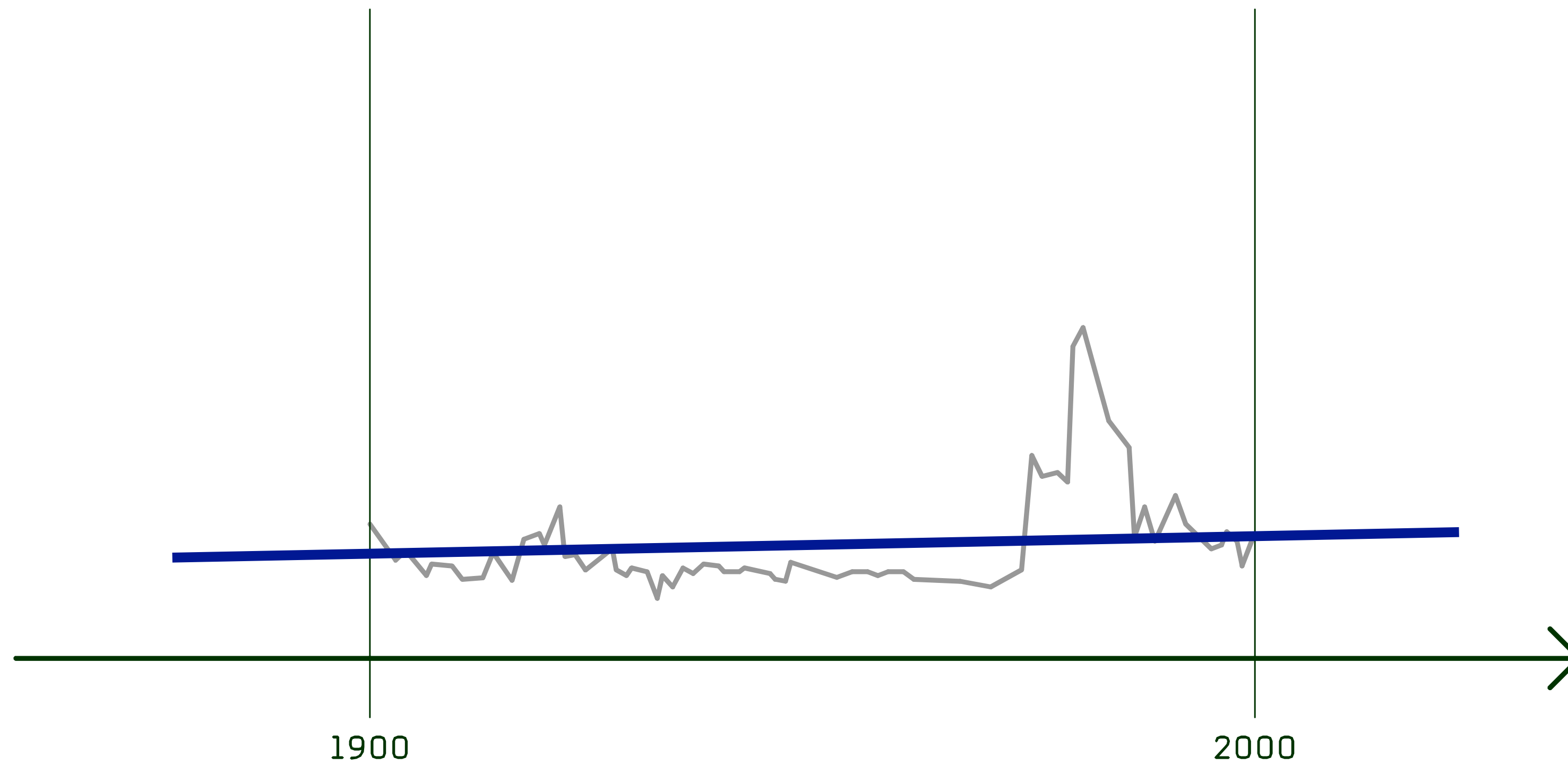








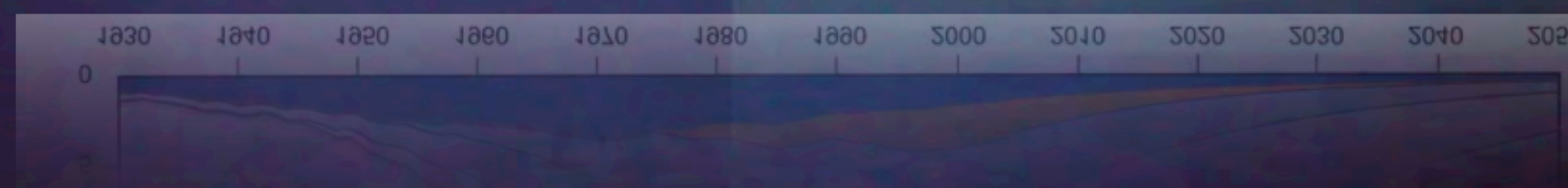
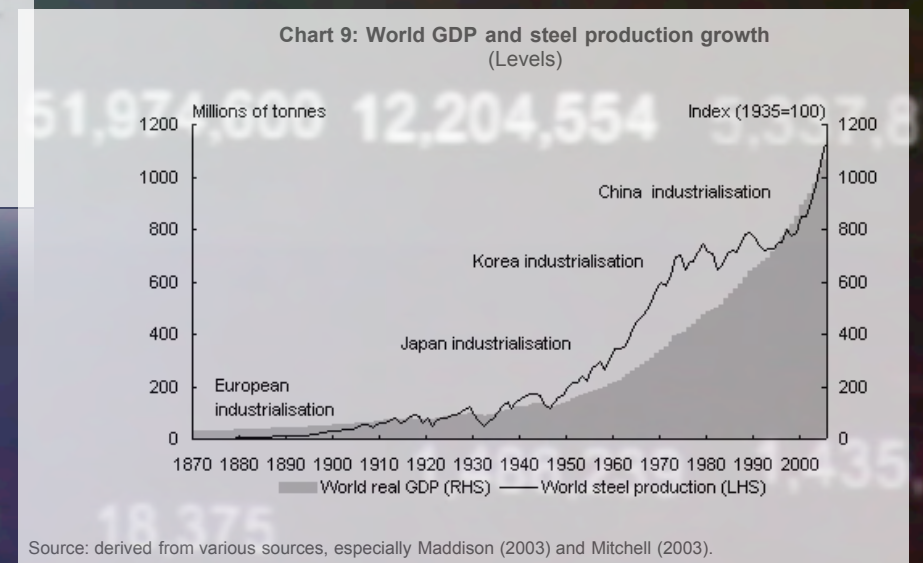
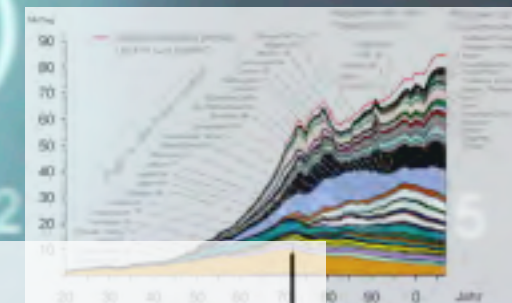
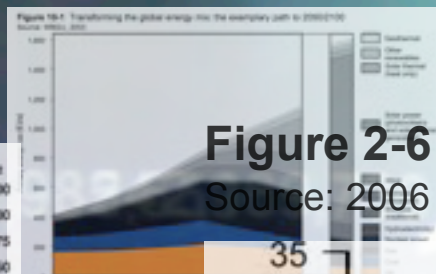
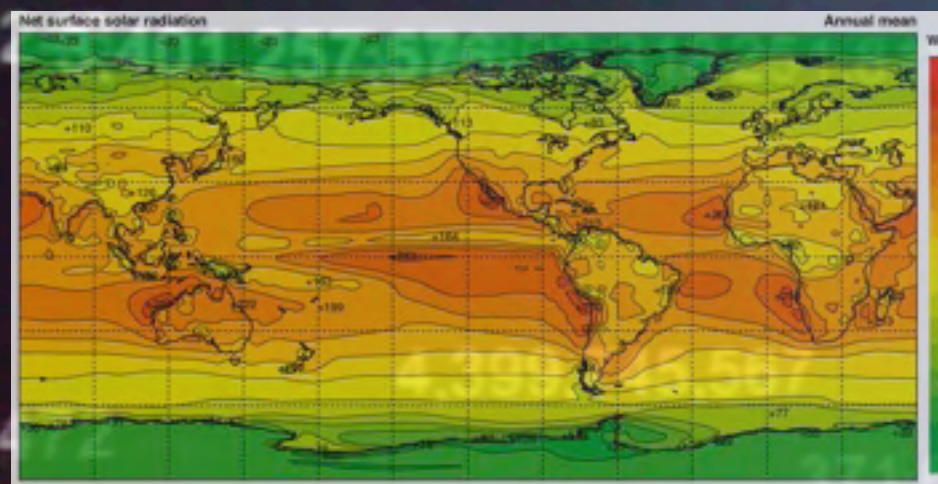
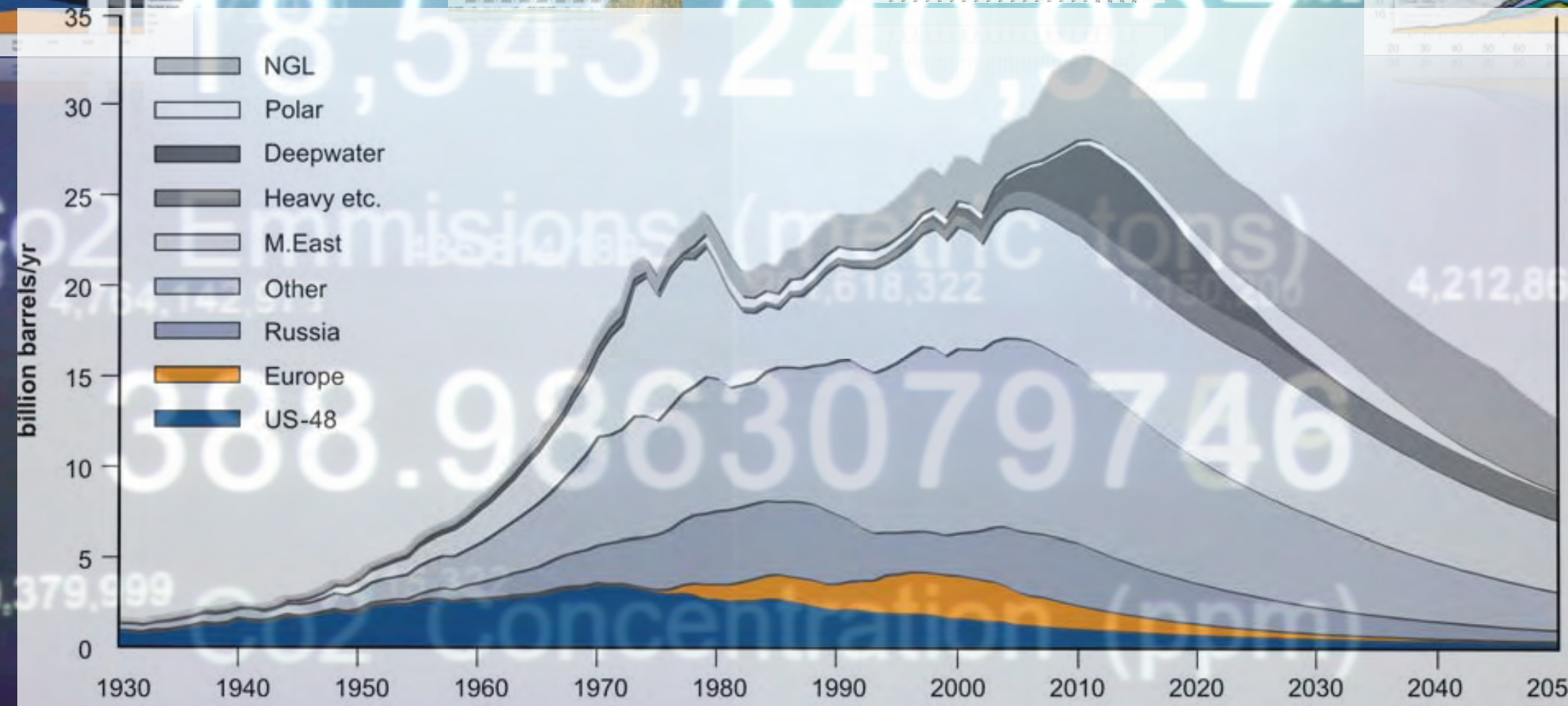




the price for coal is not rising

14.42681775365

Figure 2-6 Production profile of oil and gas liquids  
Source: 2006 Scenario, Association for the Study of Peak Oil & Gas, 2007



the limits of the statistics

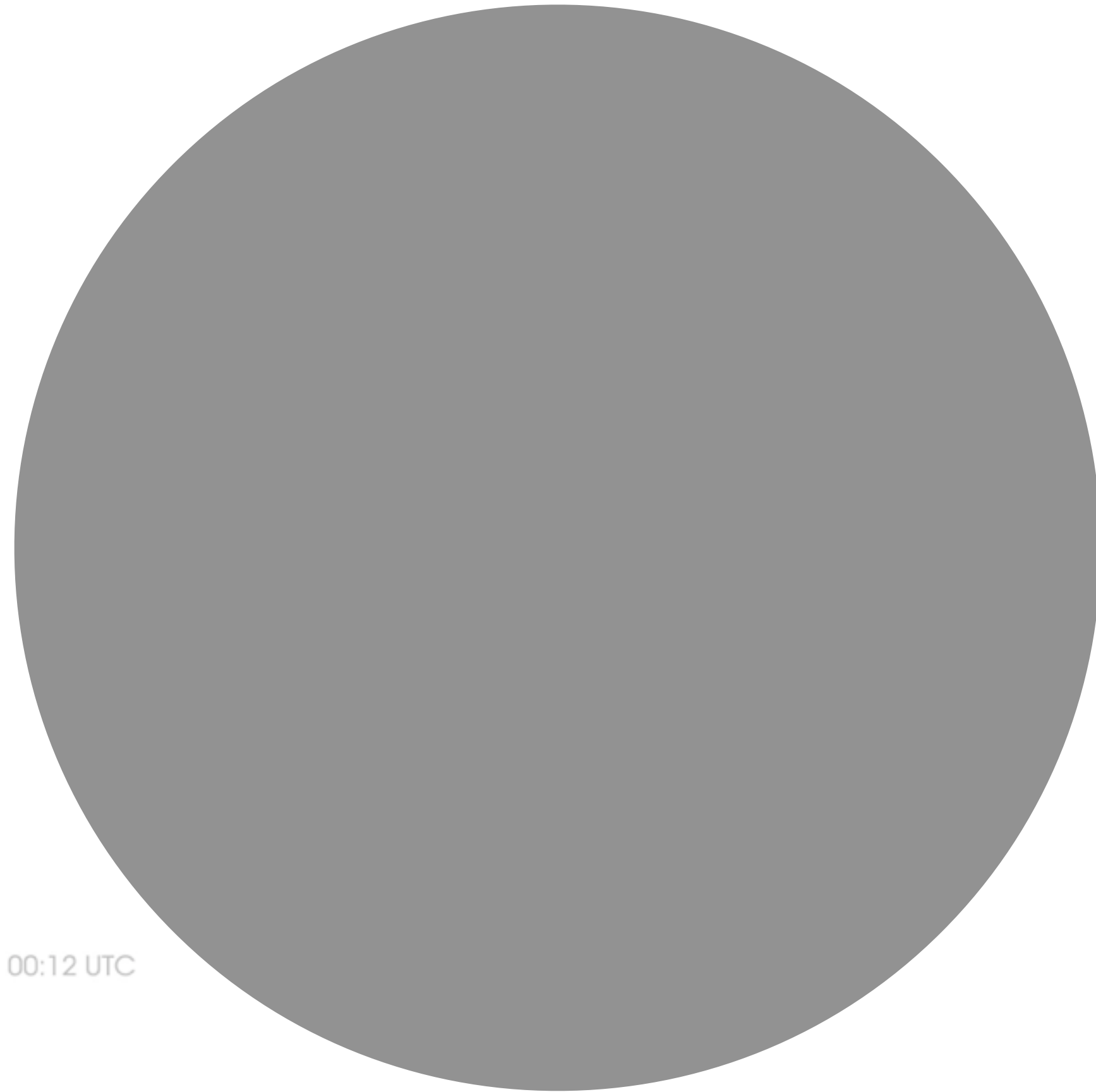
Current e



entropy - consequences of rationalisation

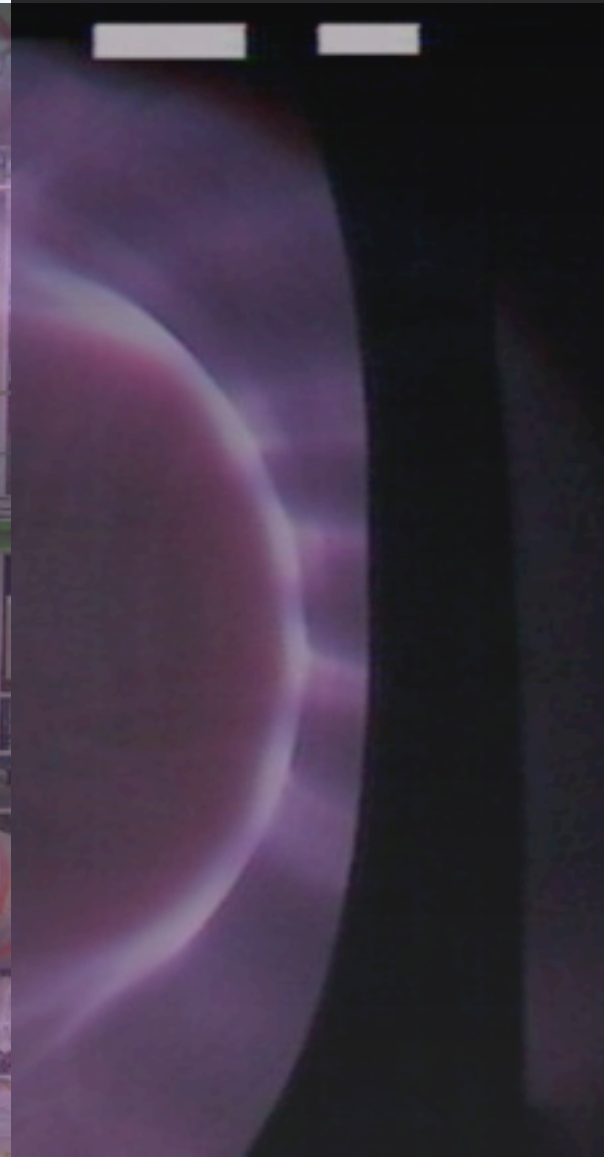
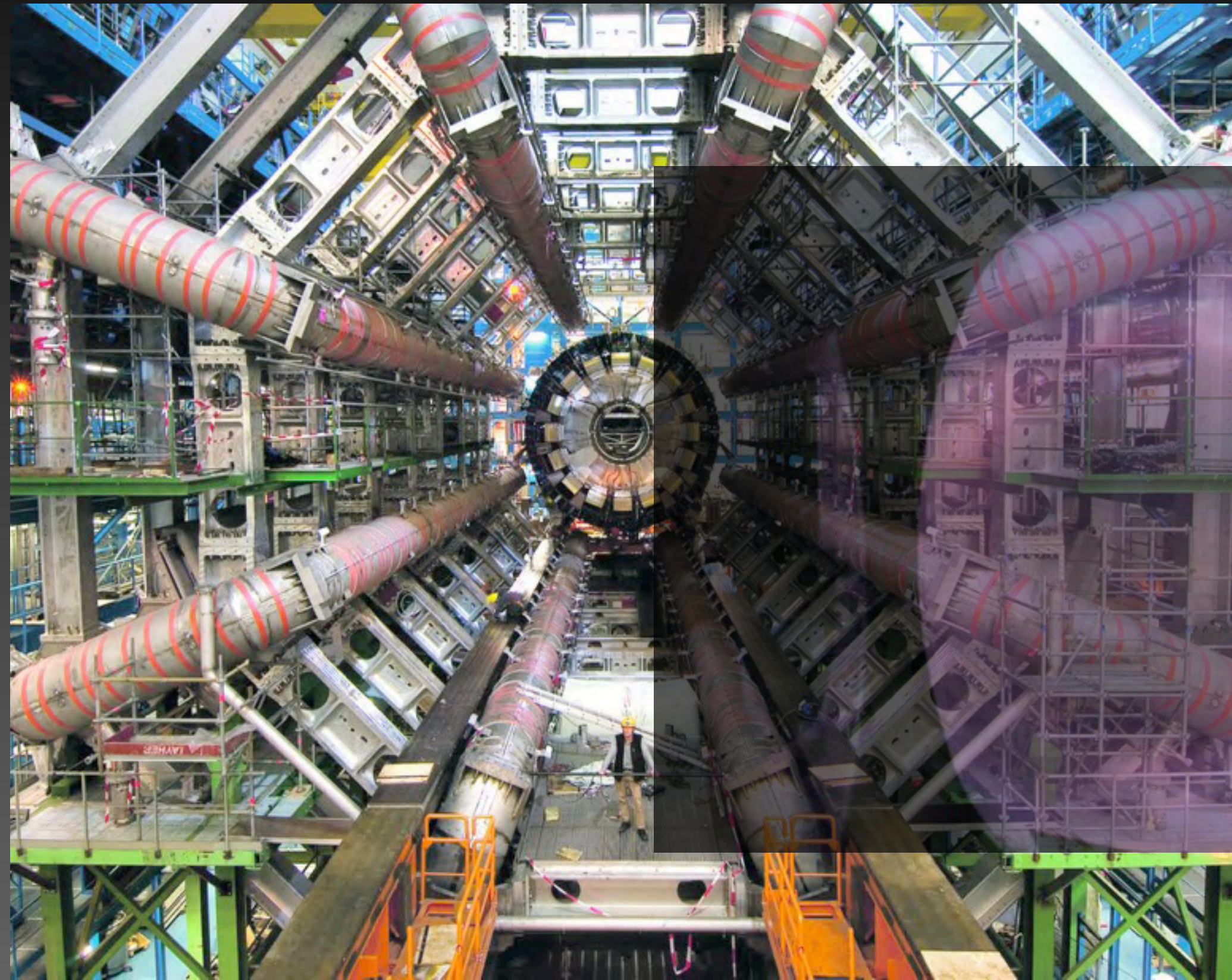
Entropy, R. Clausius, 1865





October 7, 2007 00:12 UTC

*the planet, if we continue to  
celebrate particularisation*



control the center

heating to death



...  
*politics*  
*economy*  
*ecology*  
*military*  
*technology*  
*research*  
...



control the periphery

cooling to death

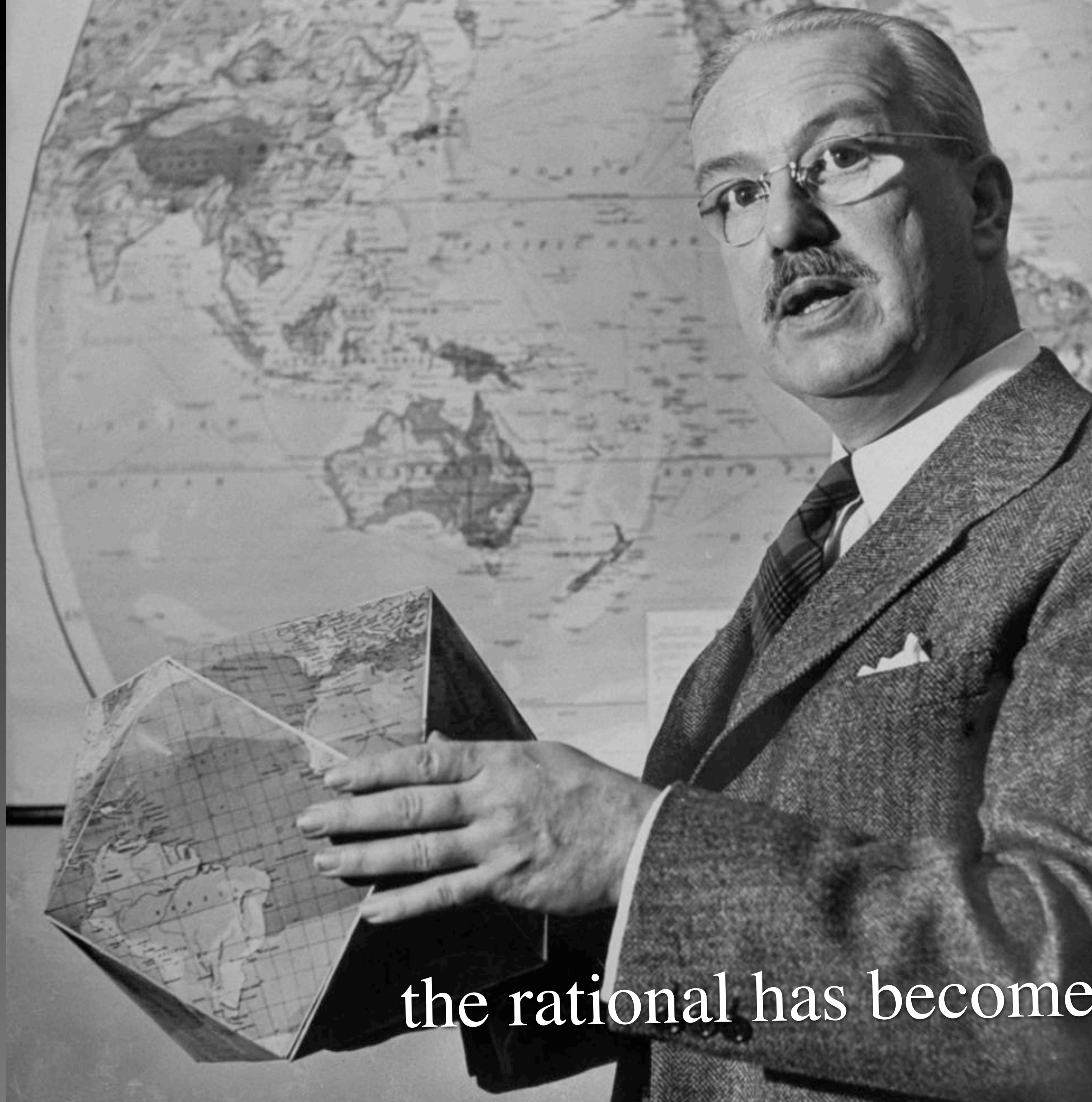


...  
*politics*  
*economy*  
*ecology*  
*military*  
*technology*  
*research*

...

**AT SUNDANCE IT RECEIVED THREE STANDING OVATIONS**





Buckminster Fuller, LIFE Magazine

the rational has become too narrow

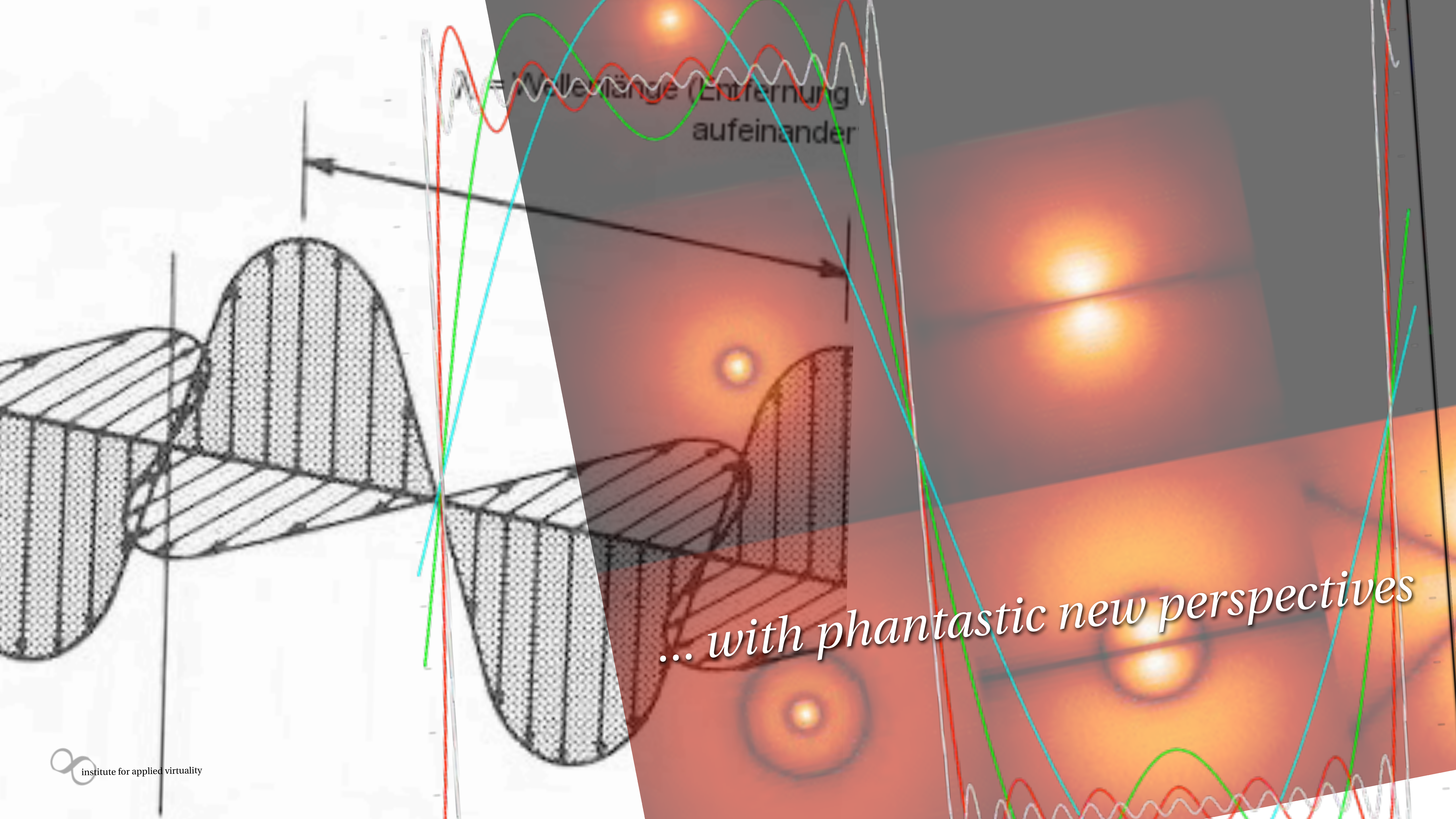


*they accepted the limits of the rational ...*

they opened the integral

The image features a dark, curved background with a gradient from black to grey. The text "they opened the integral" is written in a white, serif font, slanted upwards from left to right. Below the text, there are several white dots of varying sizes scattered across the lower half of the frame. Some of these dots are connected by thin, white, curved lines that form a network or path. Additionally, there are several long, thin, white curved lines that sweep across the upper portion of the image, some ending in arrowheads pointing towards the right. The overall aesthetic is that of a technical or scientific diagram or abstract visualization.



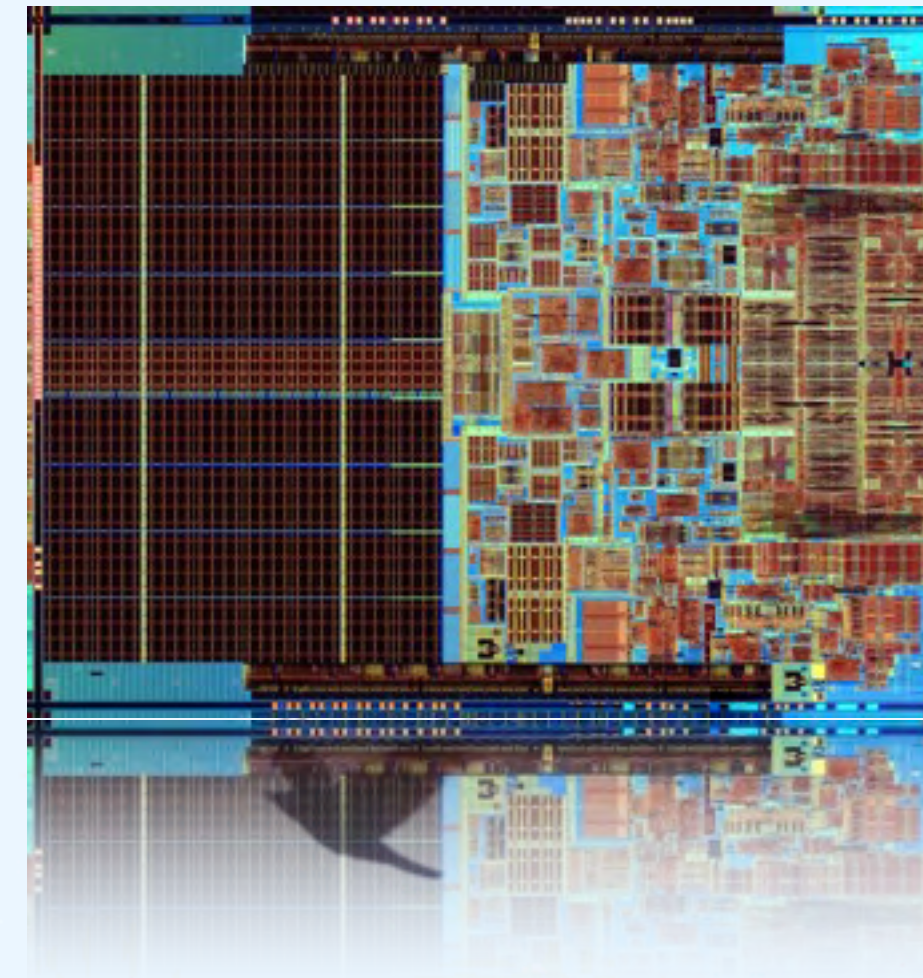


$\lambda$  = Wellenlänge (Entfernung aufeinander)

*... with phantastic new perspectives*

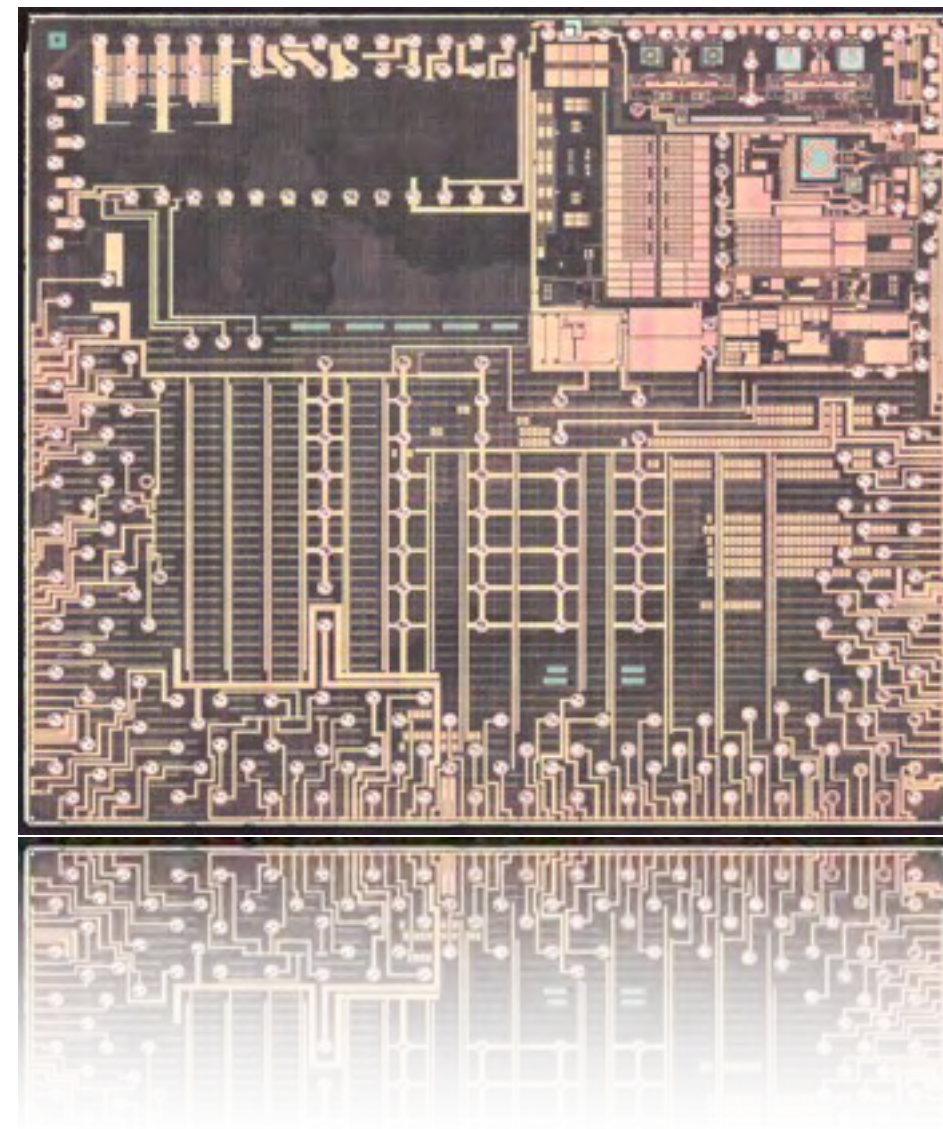


*one machine  
you can grasp*



*any machine  
you can't grasp*

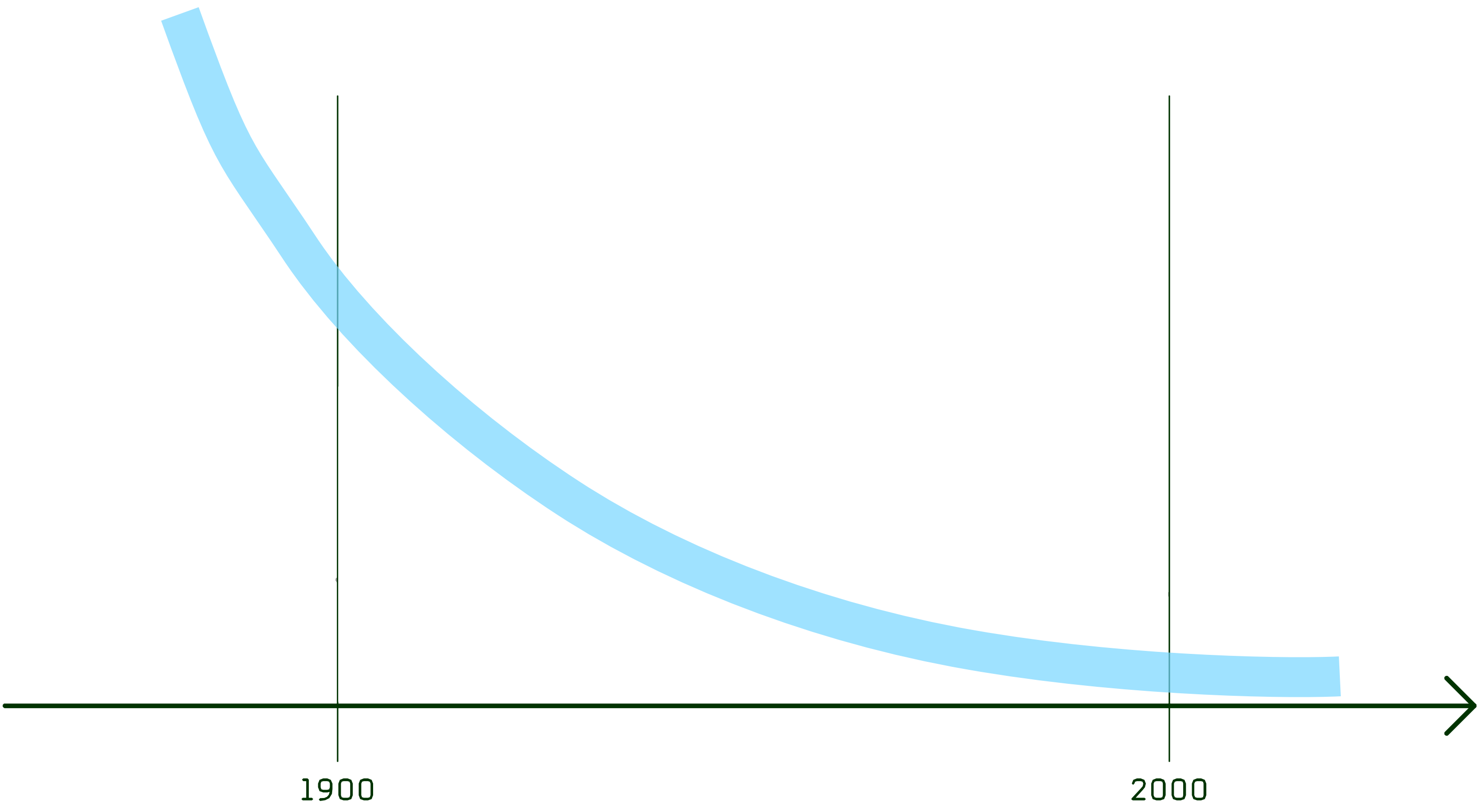
*virtualizing the rational ...*



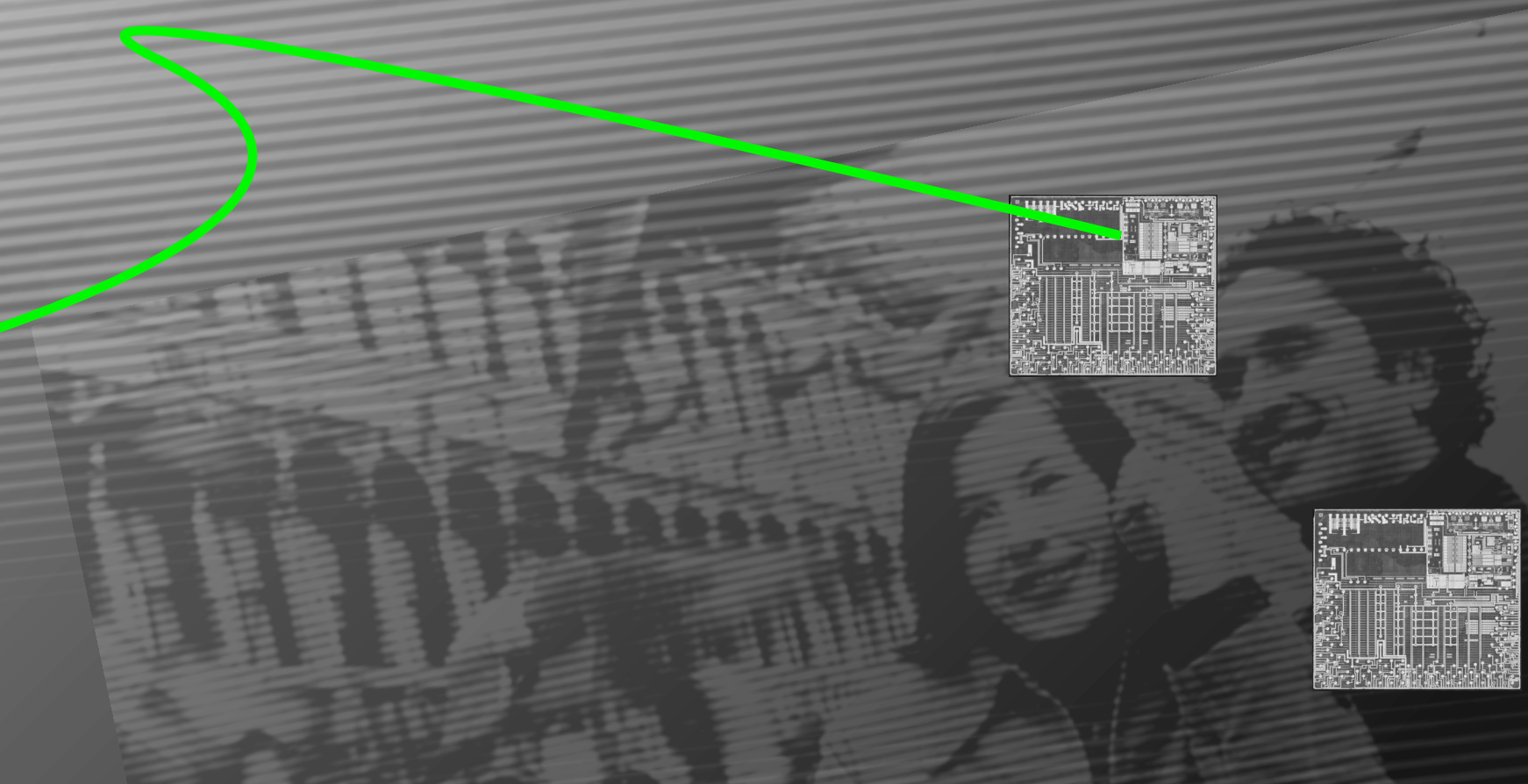
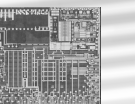
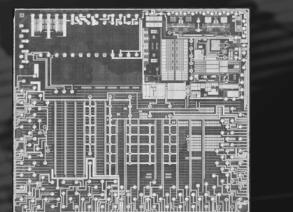
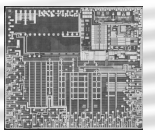
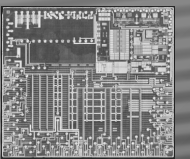
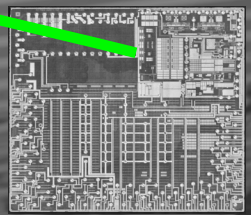
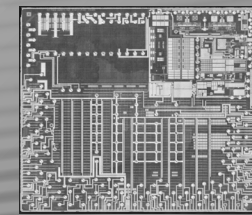
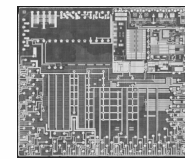
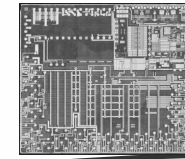
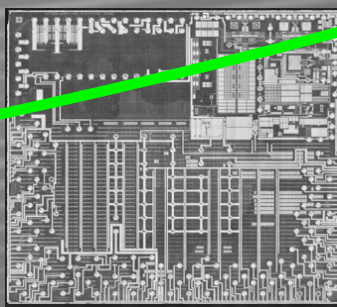
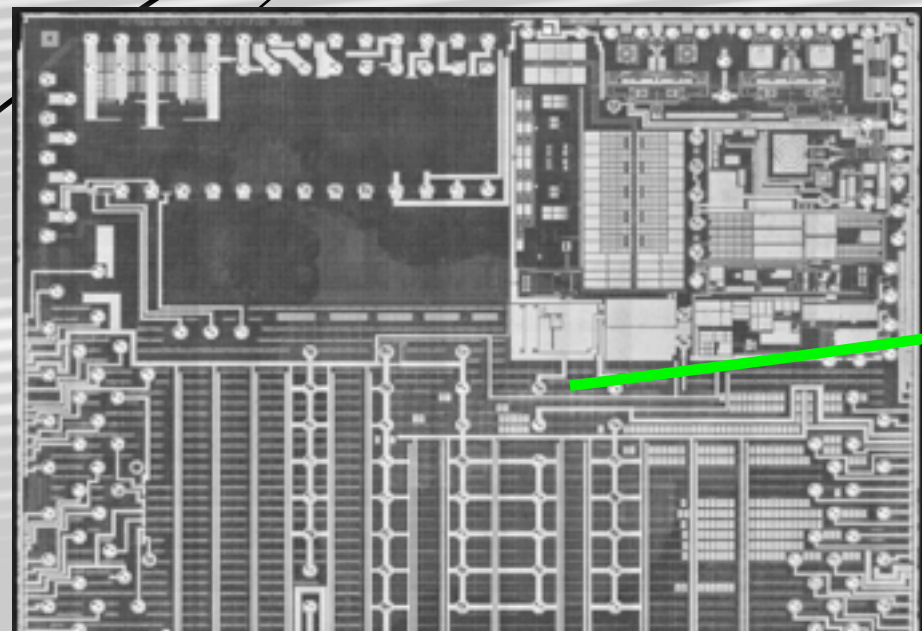
*mobile phone*



# moores' law



5'000'000'000 since 1991





**NOKIA**  
Connecting People



...

after less than one generation ...



**WIKIPEDIA**  
*Die freie Enzyklopädie*

wikipedia (since 2004)

new meanings on the new platform



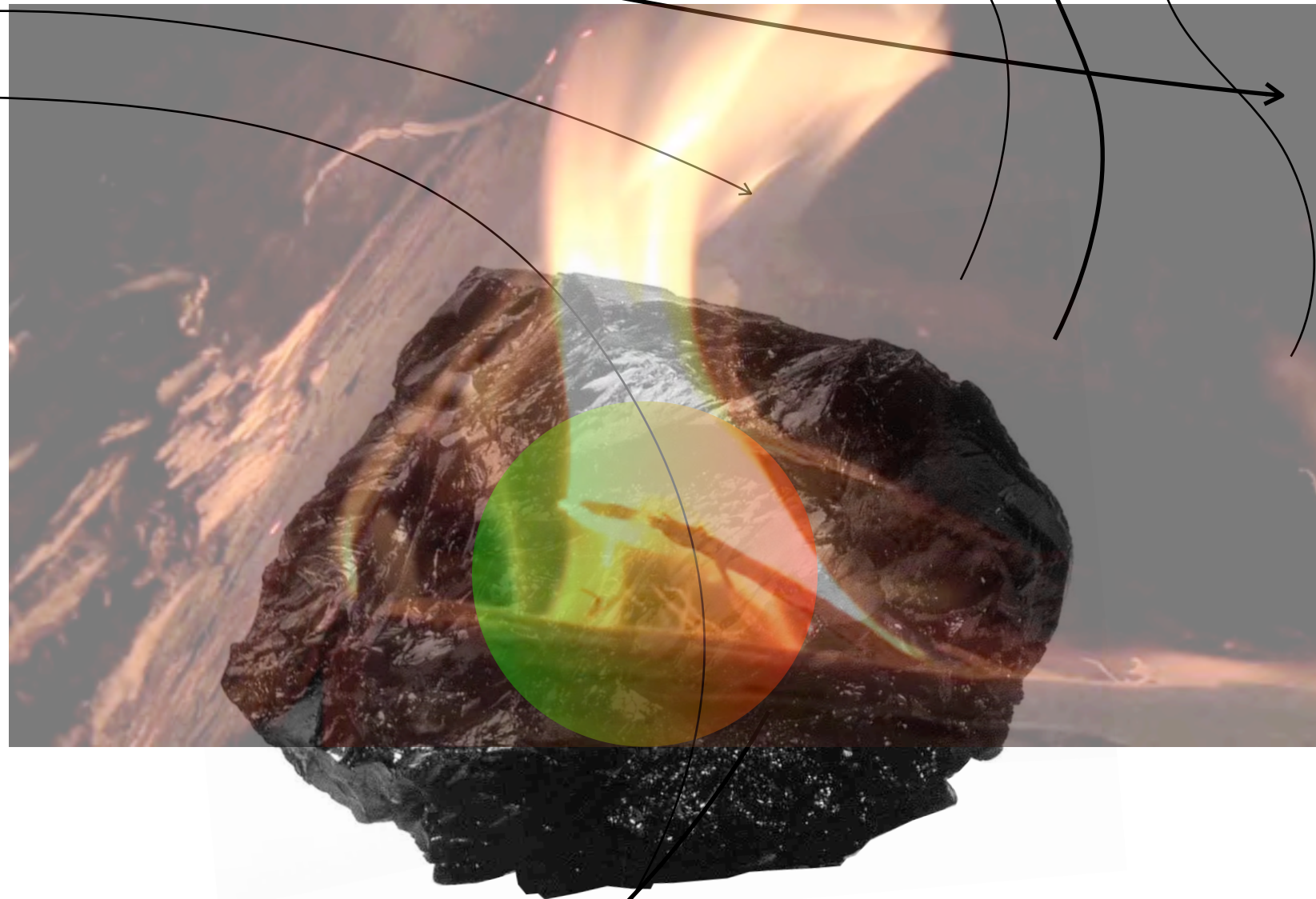
twitter

twitter (since 2006)

new habits on the new platform

now on energy :

1 : 1

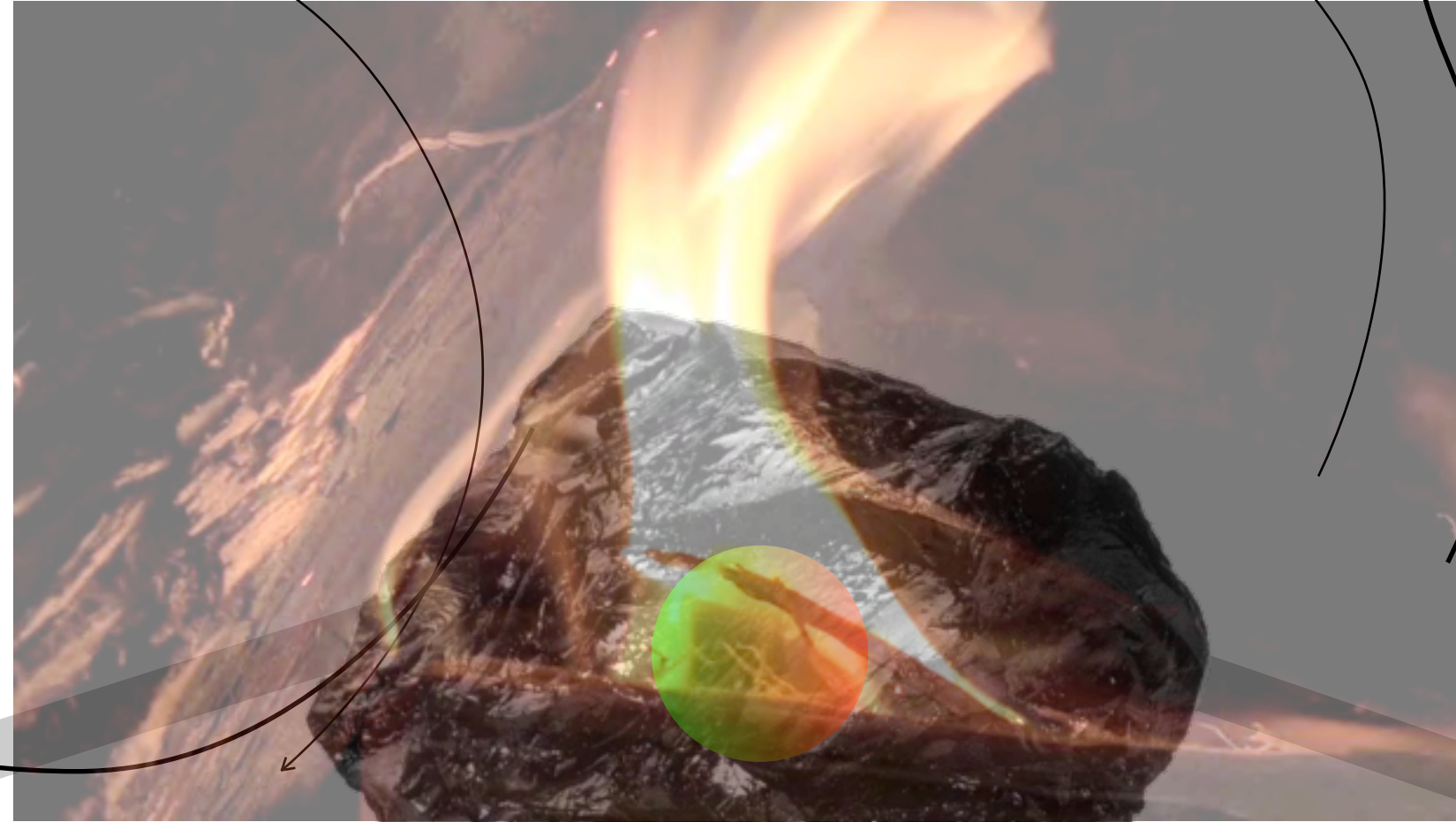


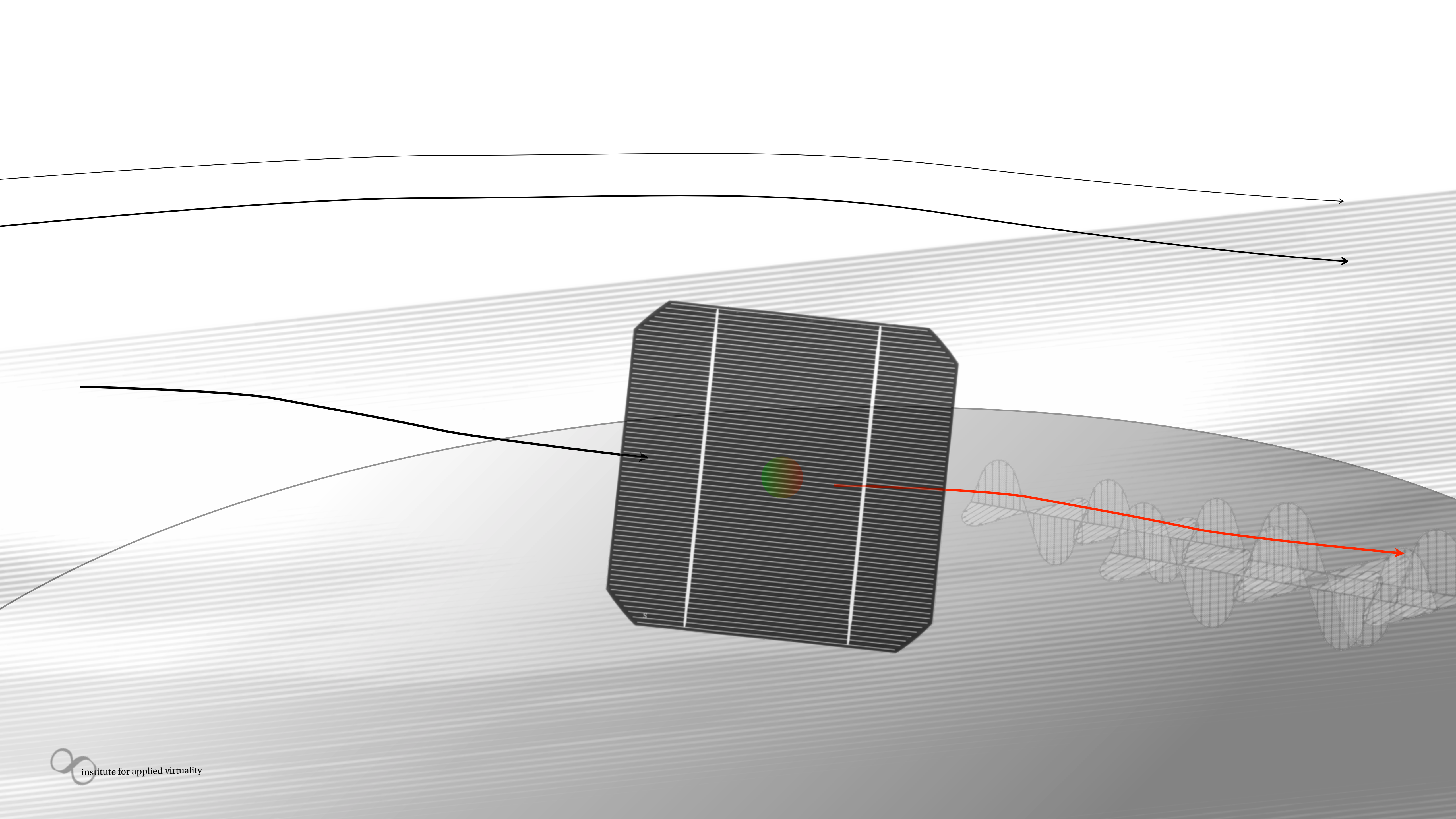
it's all about the stones ... and the fires

few

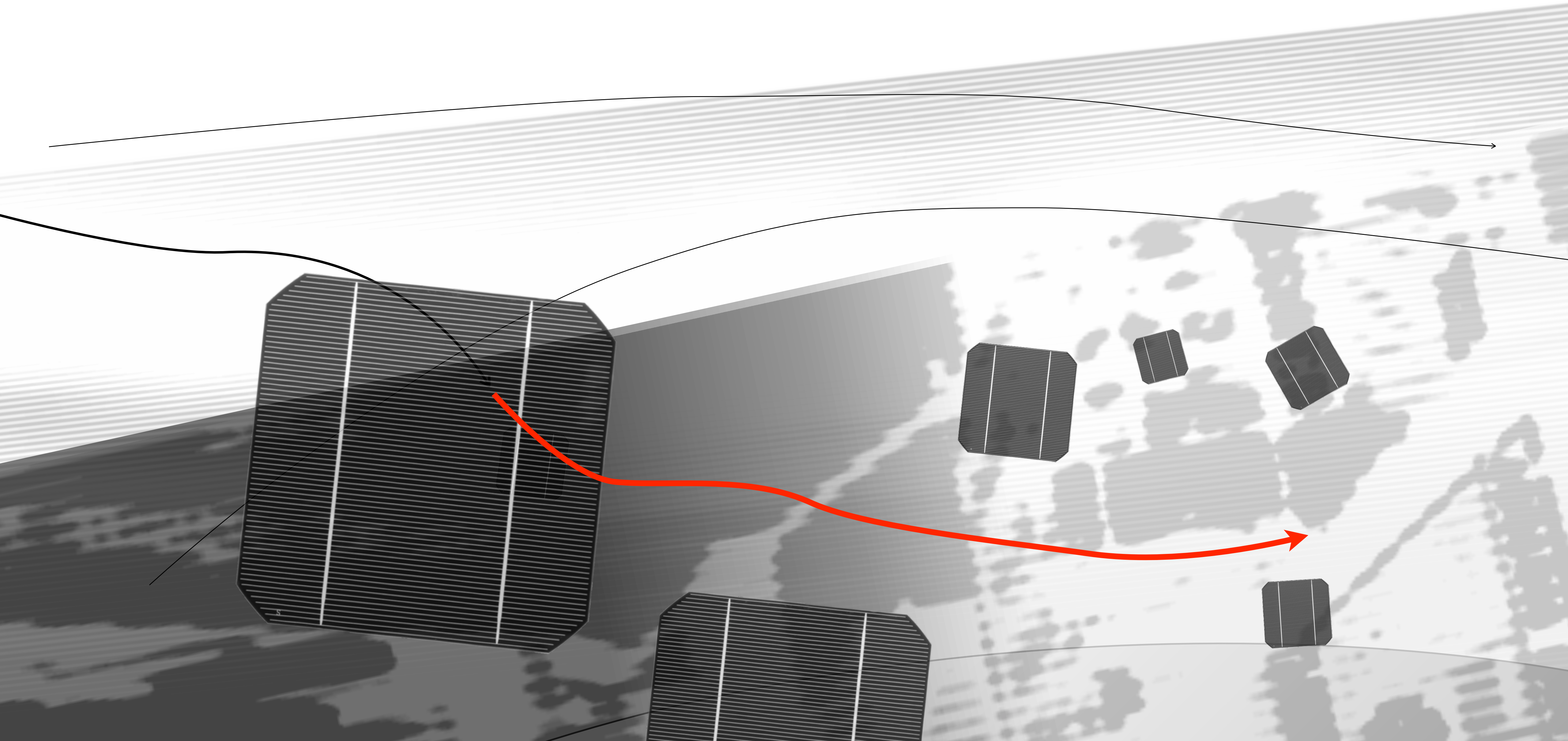
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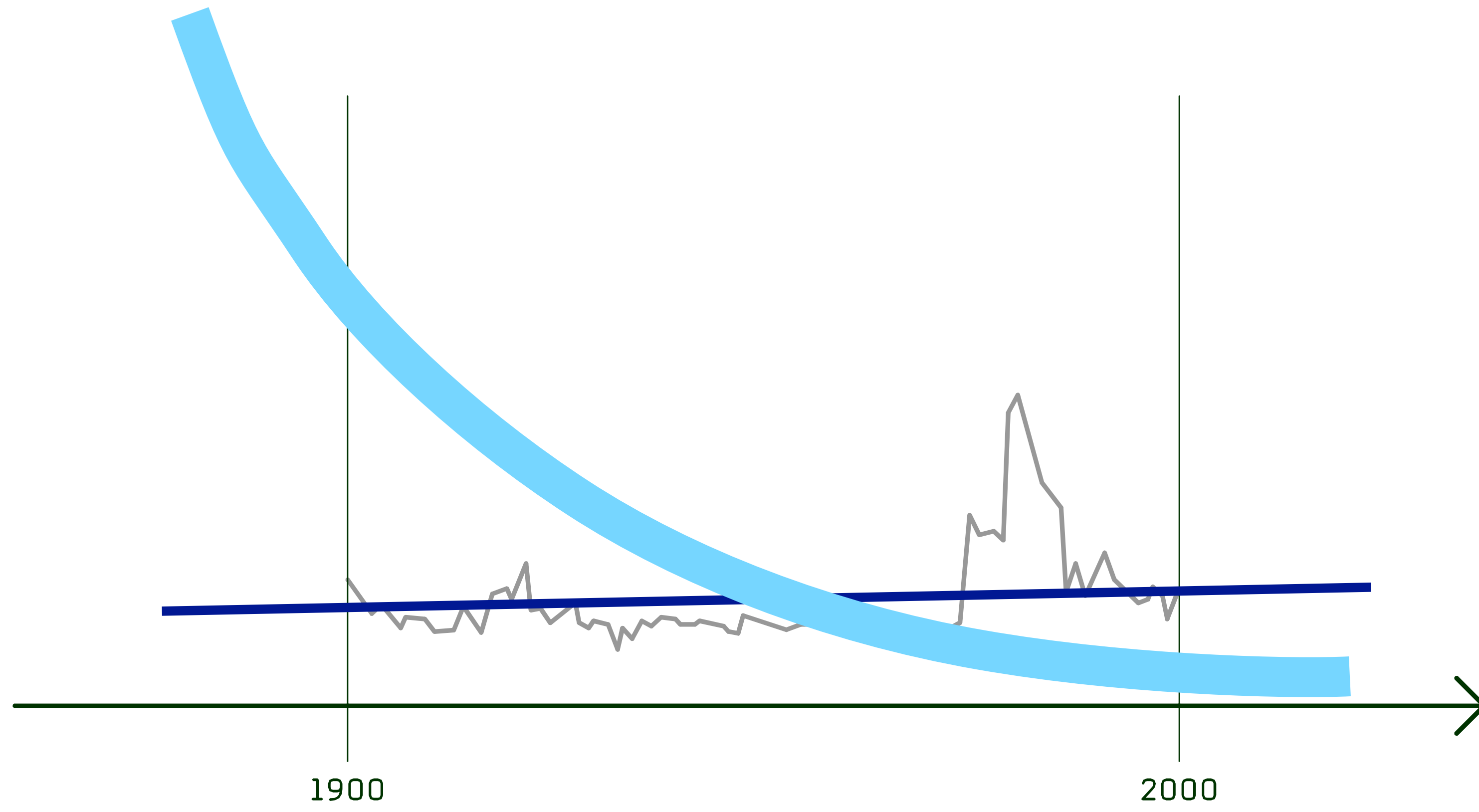
many





many : many

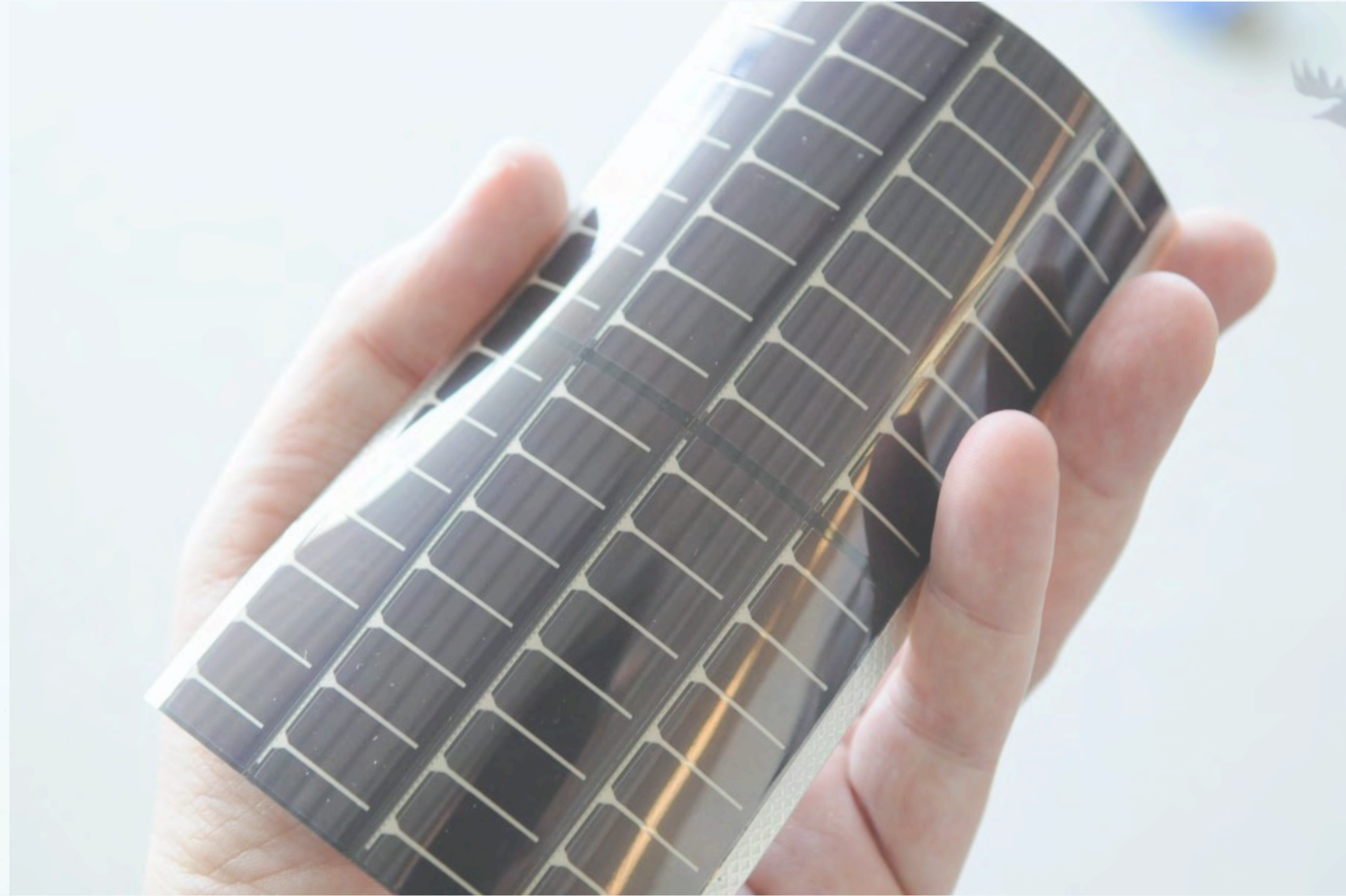






the integral of any weather *in flora* (0.2% eff.)



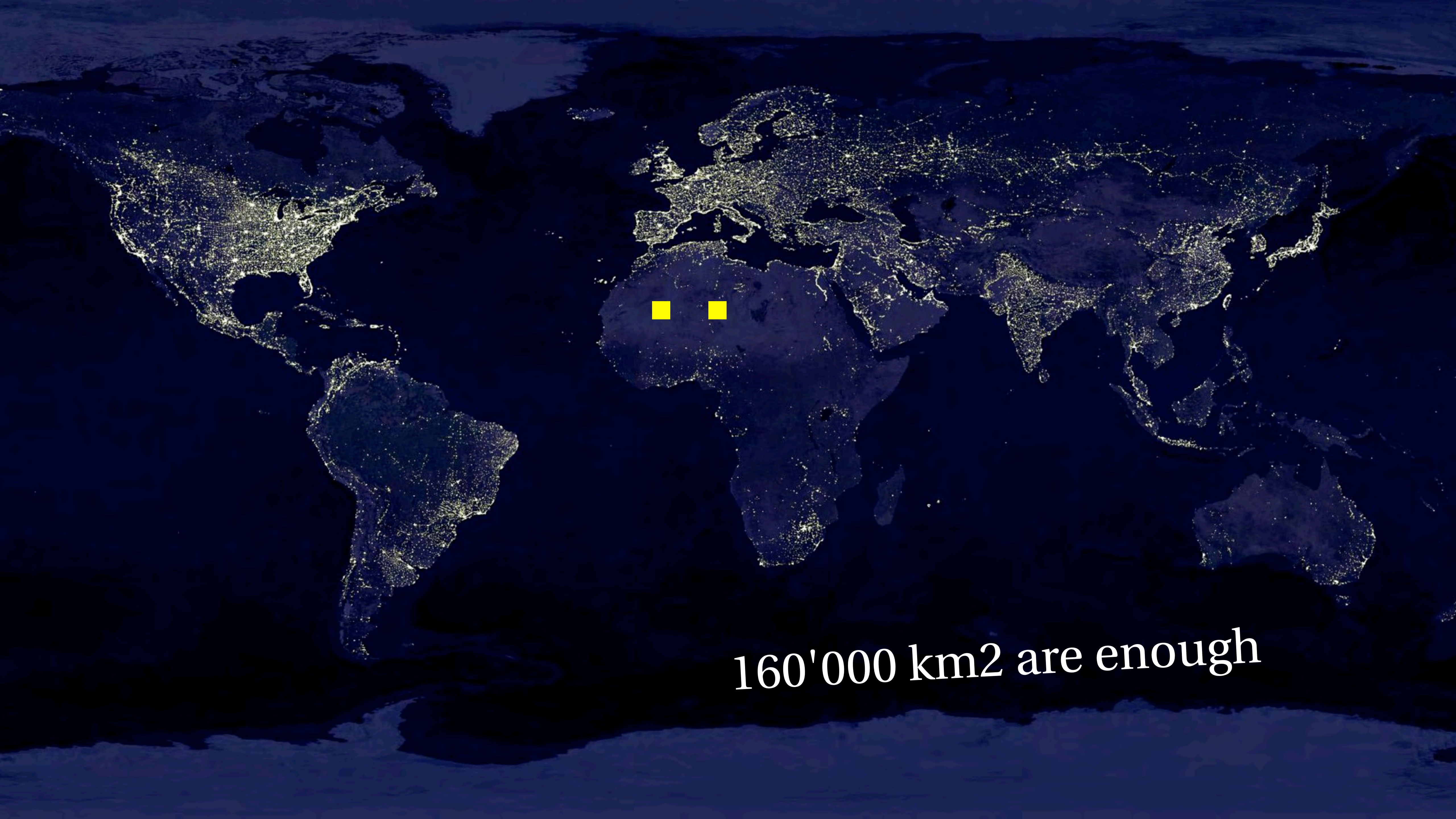


the integral of any weather *in silico* (12% eff.)

*in vitro*

*in silico*





160'000 km<sup>2</sup> are enough



16 m<sup>2</sup> solar for 1m<sup>3</sup>  
desalted water per day





welcome to the

metalithicum

A photograph of two young children with blonde hair, seen from behind, walking on a grey cobblestone path. They are wearing long-sleeved shirts with horizontal stripes in shades of yellow, orange, and red. The child on the left is slightly ahead of the child on the right.

thank you!

learning to live in a  
world of abundance

Ludger Hovestadt  
Vera Bühlmann  
*ETH Zürich, Switzerland*

*visit us at [thepowerpath.wordpress.com](http://thepowerpath.wordpress.com)*