Mandelbrotov skup

Šime Šuljić

***Gimnazija i strukovna škola Jurja Dobrile* Pazin**

ISTRAKON 2017.

Mandelbrot - 2,7 milijuna stranica

tvu? Kako da se ljudi postave prema različitim stavovima znanstvenika?

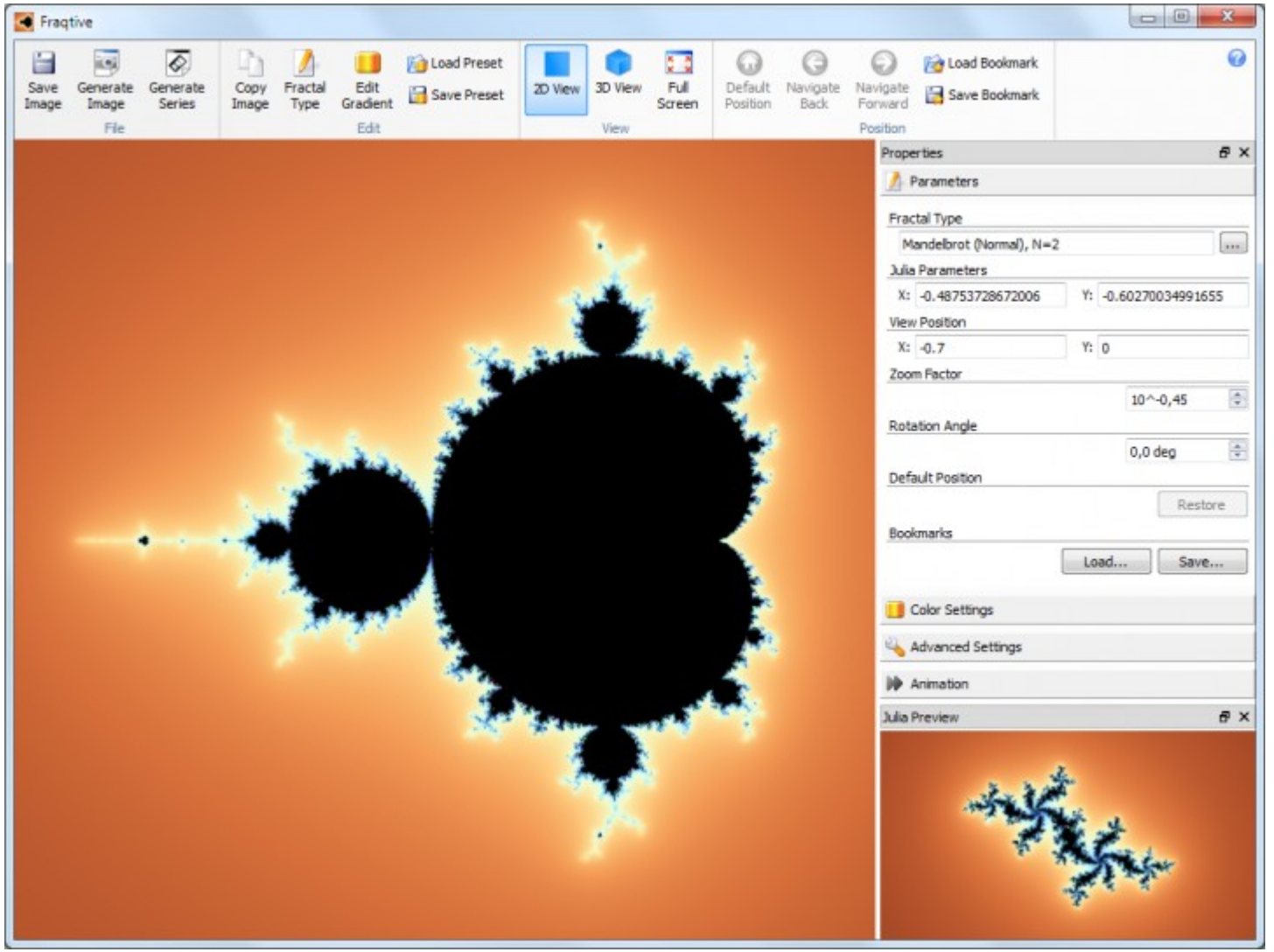
– To je vrlo težak problem. Da biste uopće dosegli točku za razumijevanje znanstvenih tema, morate mnogo toga znati, uključujući i prilično tešku matematiku. Zato se u javnosti vrlo često plasiraju površni odgovori. Govori se u analogijama: ova je teorija poput ovoga ili onoga... A time se zapravo ništa ne objašnjava o samoj stva-

ROGER PENROSE

Carev novi um

Razmišljanja o računalima, razumu i zakonima fizike

Fraqtive


Fraqtive
Save Image
Generate Image
Generate Series
File
Copy Image
Fractal Type
Edit Gradient
Load Preset
Save Preset
Edit
2D View
3D View
Full Screen
View
Default Position
Navigate Back
Navigate Forward
Load Bookmark
Save Bookmark
Position
Properties
Parameters
Fractal Type
Mandelbrot (Normal), N=2
Julia Parameters
X: -0.48753728672006
Y: -0.60270034991655
View Position
X: -0.7
Y: 0
Zoom Factor
10^-0,45
Rotation Angle
0,0 deg
Default Position
Restore
Bookmarks
Load...
Save...
Color Settings
Advanced Settings
Animation
Julia Preview

Iteracija (lat. ponavljanje)

$$z \rightarrow z^2 + c$$

Mandelbrot

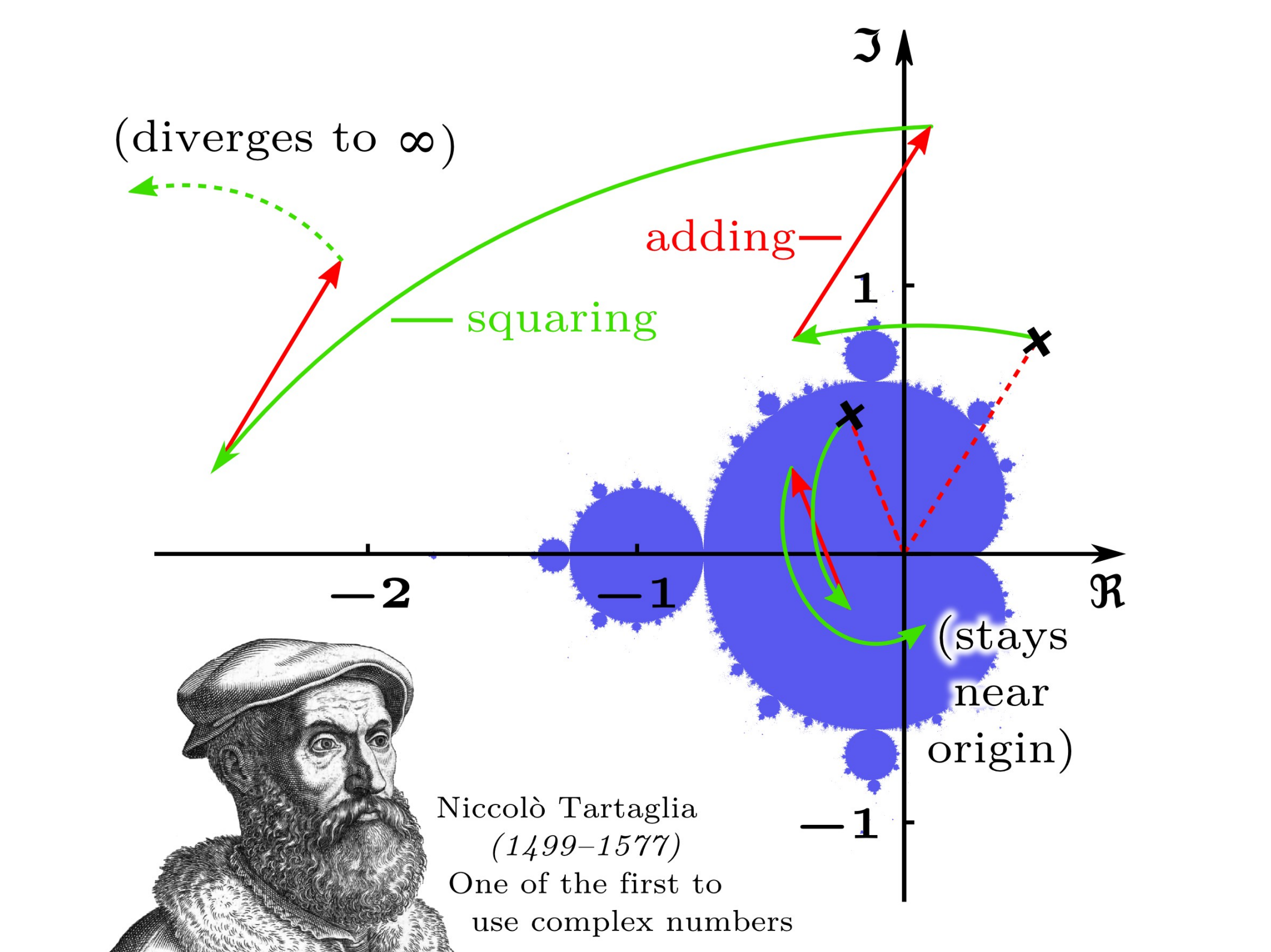
$$z_1 = 0^2 + c$$

$$z_2 = {z_1}^2 + c$$

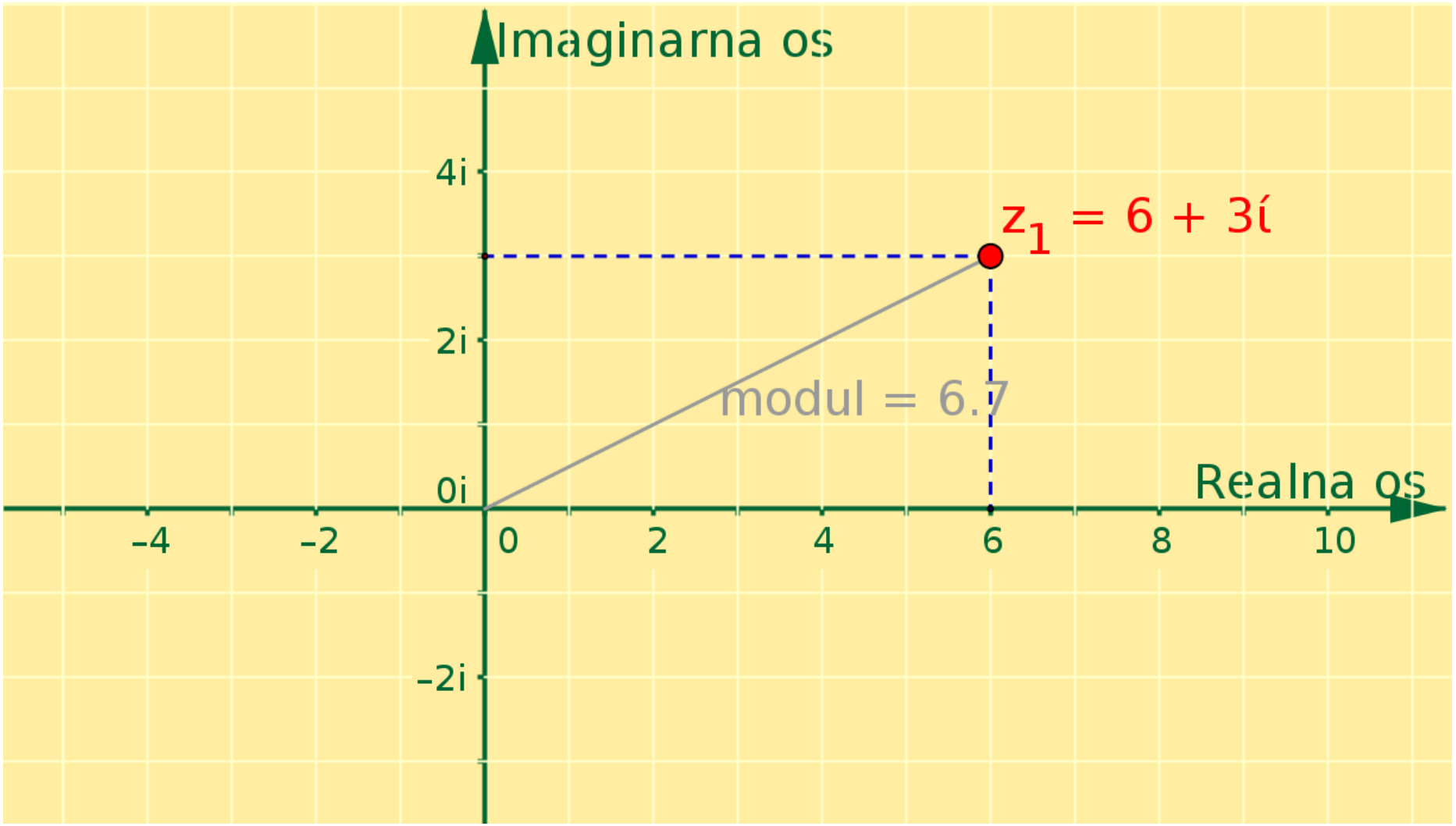
$$z_3 = {z_2}^2 + c$$

$$\ldots$$

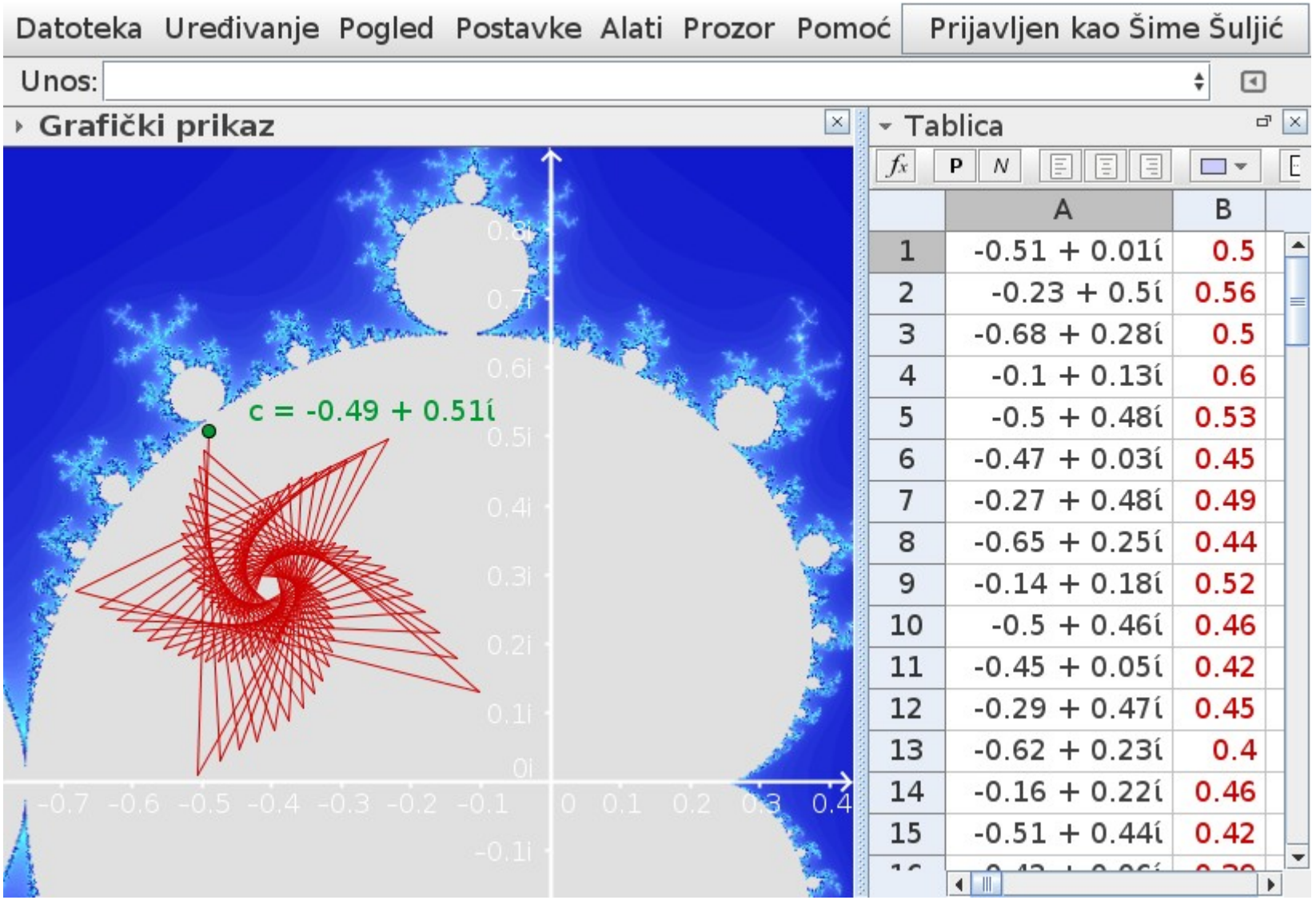
$$z_n = {z_{n-1}}^2 + c$$


(diverges to ∞)
adding
squaring
ℑ
1
−1
−2
−1
ℜ
(stays near origin)
Niccolò Tartaglia
(1499–1577)
One of the first to use complex numbers

Kompleksna ravnina

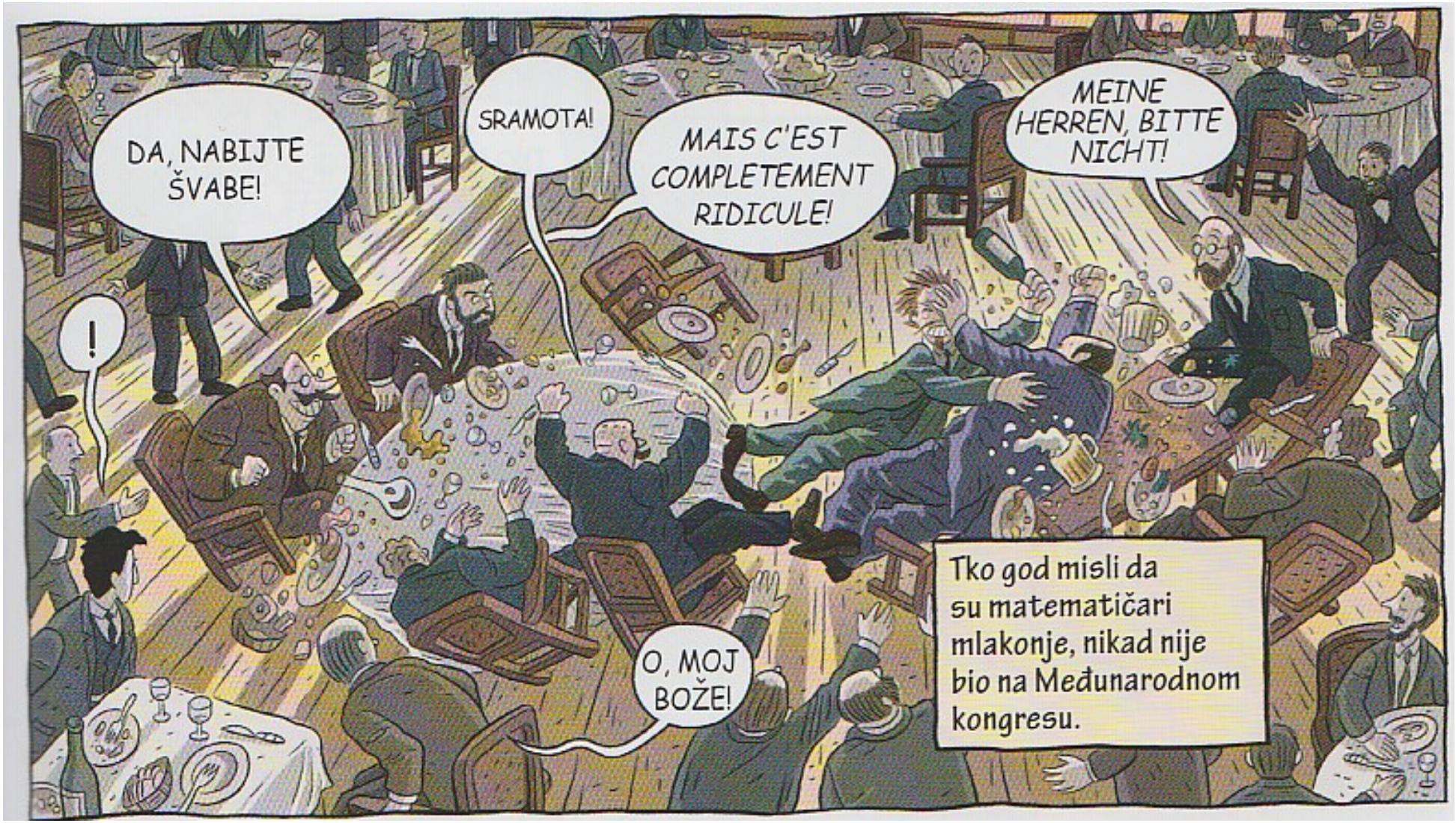


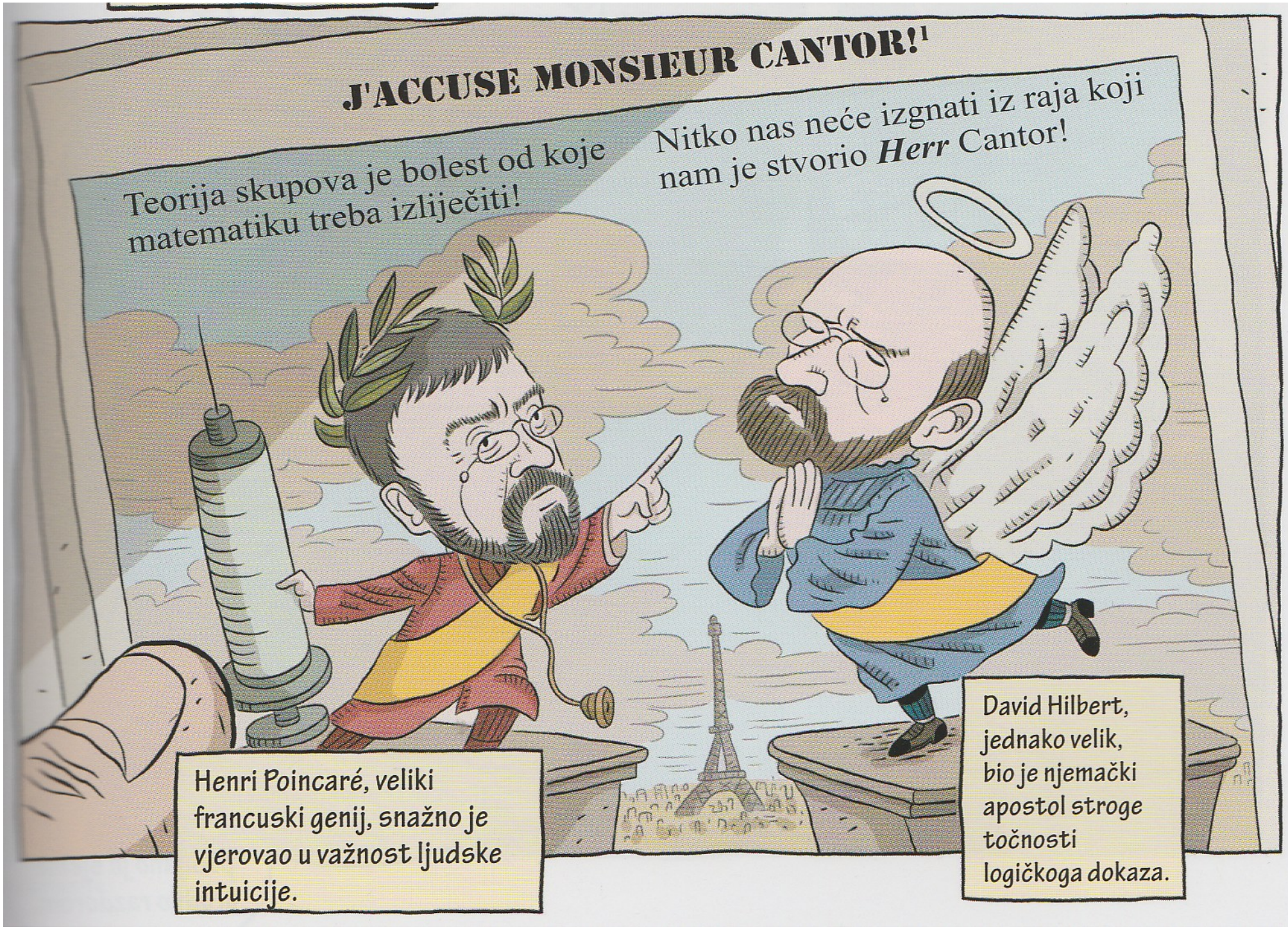
Iteracije


Datoteka Uređivanje Pogled Postavke Alati Prozor Pomoć
Prijavljen kao Šime Šuljić
Unos:
Grafički prikaz
c = -0.49 + 0.51ί
Tablica
A
B
1 -0.51 + 0.01ί 0.5
2 -0.23 + 0.5ί 0.56
3 -0.68 + 0.28ί 0.5
4 -0.1 + 0.13ί 0.6
5 -0.5 + 0.48ί 0.53
6 -0.47 + 0.03ί 0.45
7 -0.27 + 0.48ί 0.49
8 -0.65 + 0.25ί 0.44
9 -0.14 + 0.18ί 0.52
10 -0.5 + 0.46ί 0.46
11 -0.45 + 0.05ί 0.42
12 -0.29 + 0.47ί 0.45
13 -0.62 + 0.23ί 0.4
14 -0.16 + 0.22ί 0.46
15 -0.51 + 0.44ί 0.42

Benoit Mandelbrot (1924. - **14.10.2010.**)

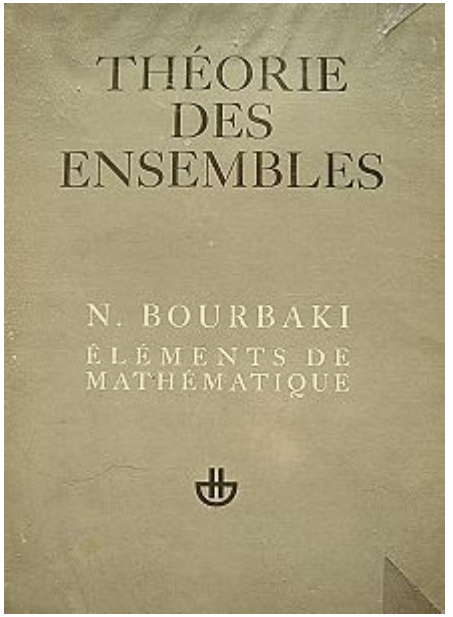
1900. godine u Parizu

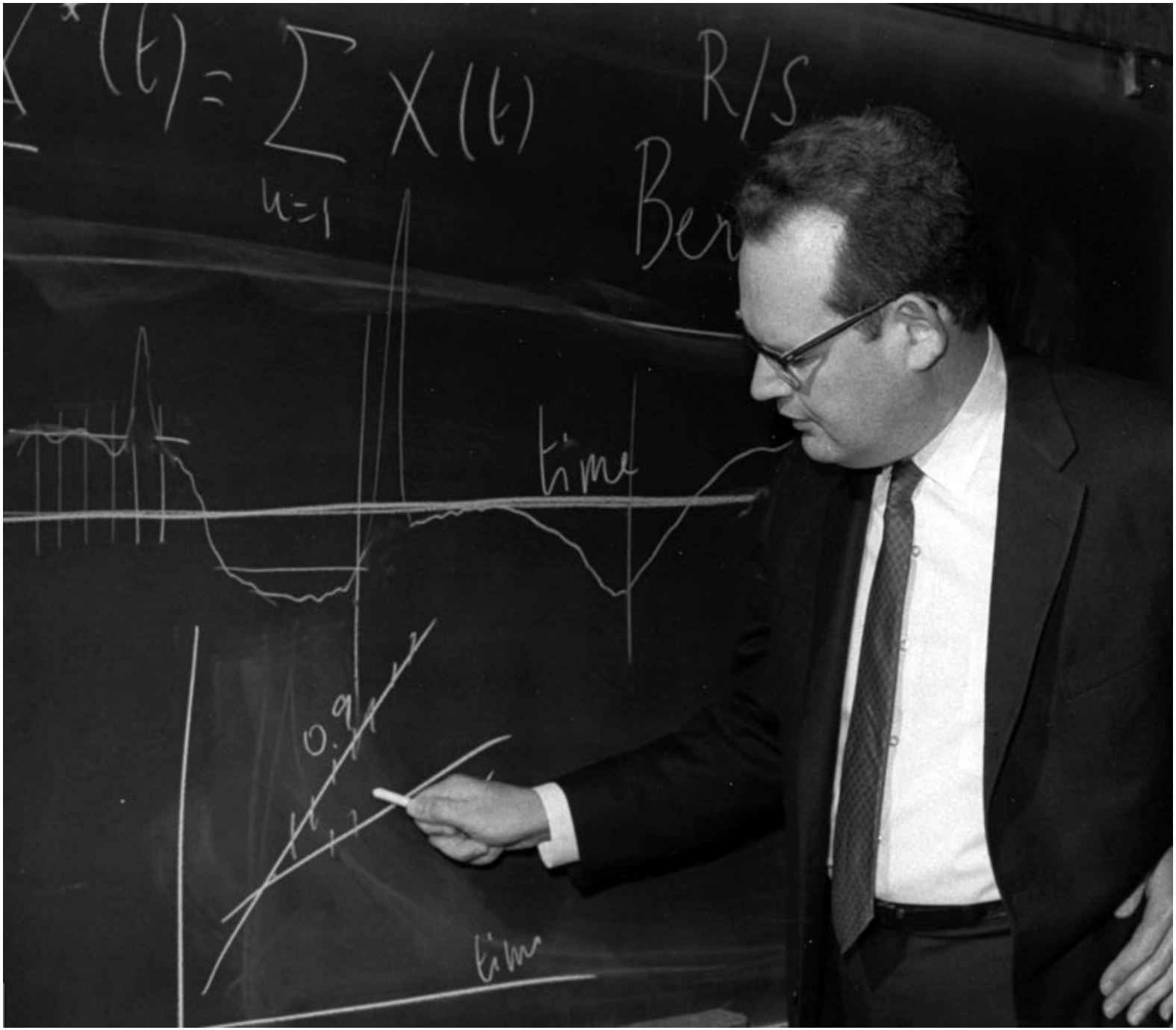


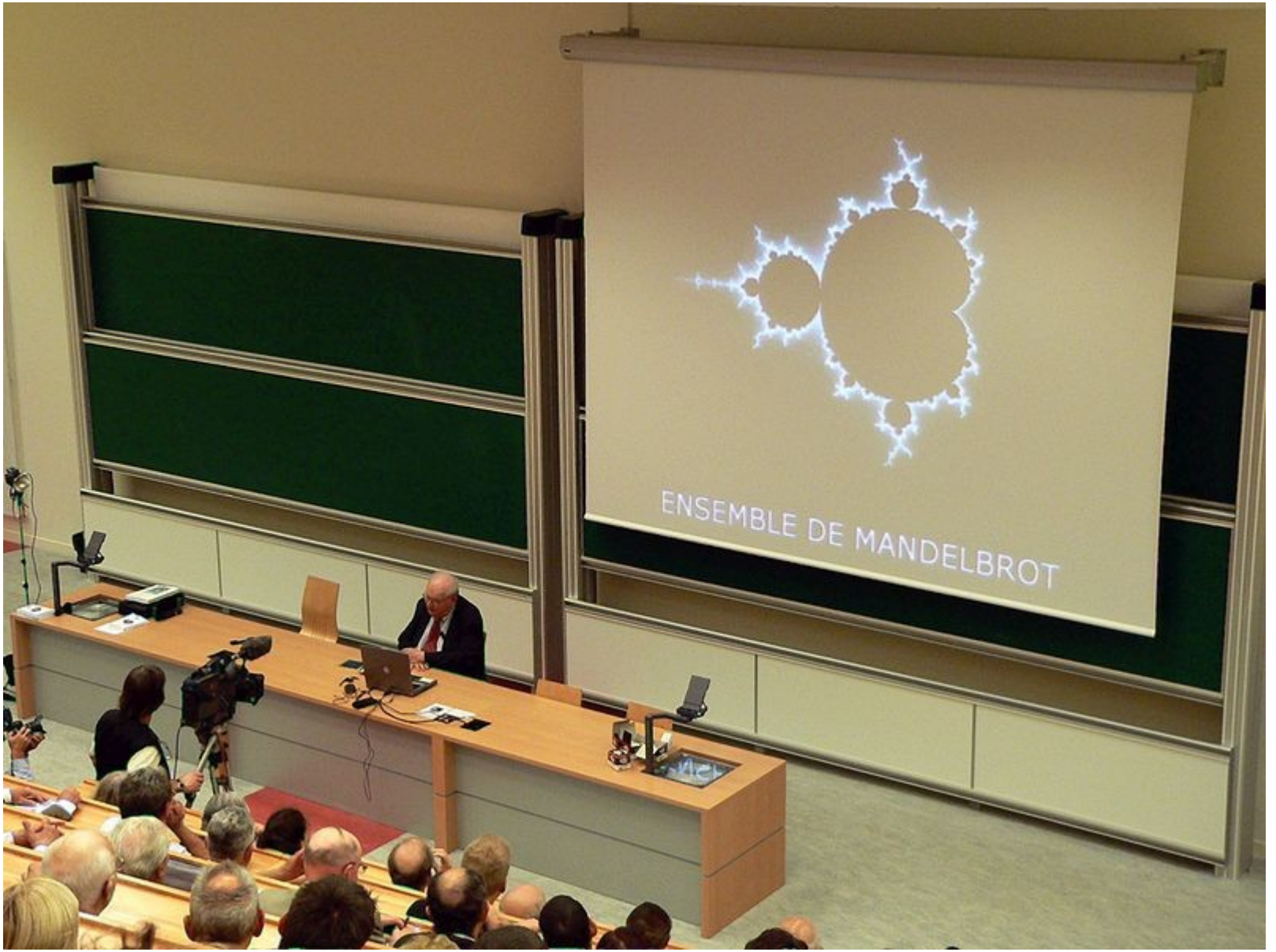

J'ACCUSE MONSIEUR CANTOR![1]
Teorija skupova je bolest od koje matematiku treba izliječiti!
Nitko nas neće izgnati iz raja koji nam je stvorio *Herr* Cantor!
Henri Poincaré, veliki francuski genij, snažno je vjerovao u važnost ljudske intuicije.
David Hilbert, jednako velik, bio je njemački apostol stroge točnosti logičkoga dokaza.

Nicolas Bourbaki, XX. stoljeće kolektivni pseudonim

- Henri Cartan, Claude Chevalley, Jean Coulomb, Jean Delsarte, Jean Dieudonné, Charles Ehresmann, René de Possel, **Szolem Mandelbrojt,** André Weil...
- Hyman Bass, Laurent Schwartz, Jean-Pierre Serre, **Alexander Grothendieck**, Jean-Louis Koszul, Samuel Eilenberg, Serge Lang and Roger Godement.

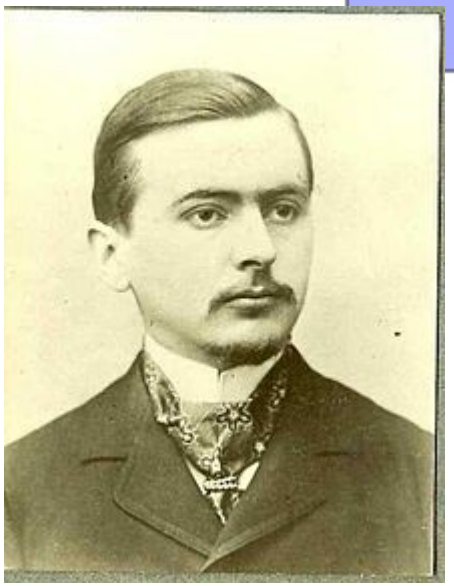


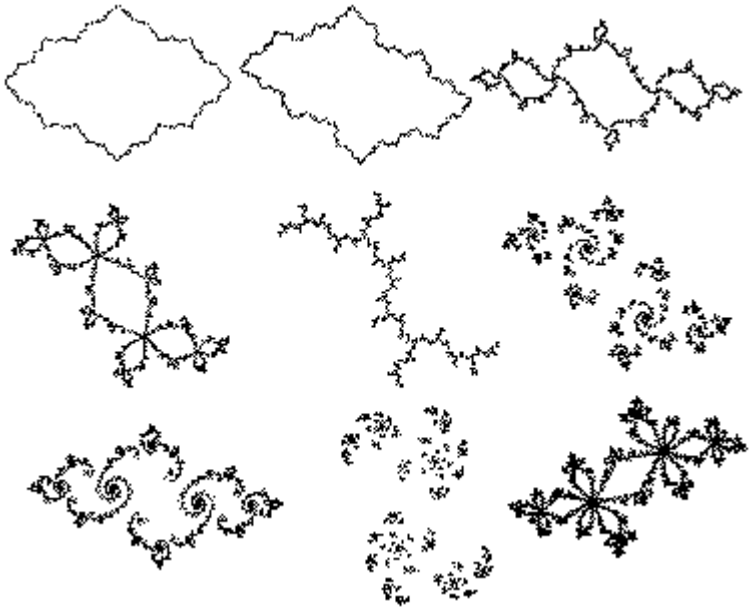

R/S
time
time


ENSEMBLE DE MANDELBROT

Pierre Fatou
1878 - 1929

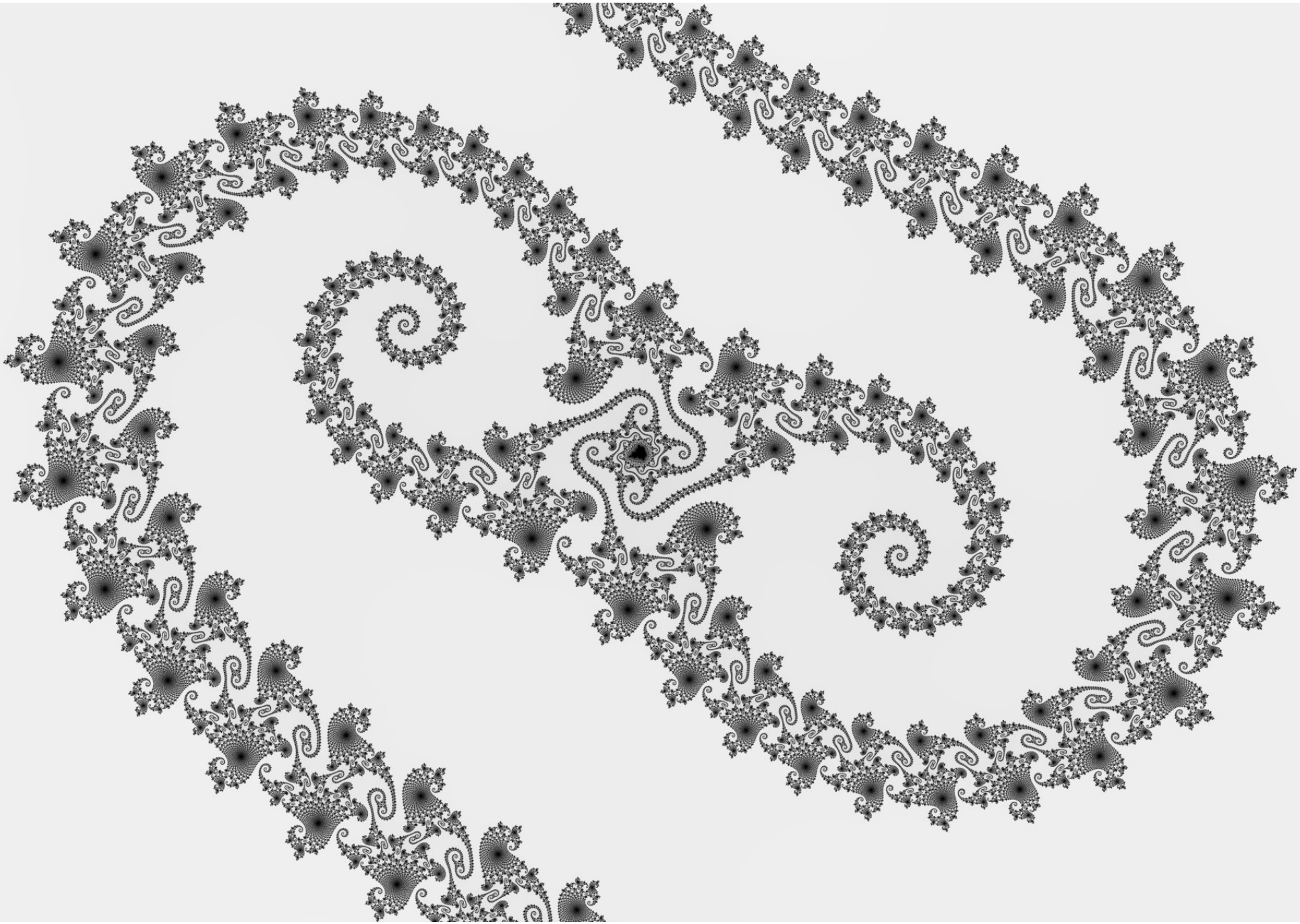
Gaston Julia
1893 - 1978

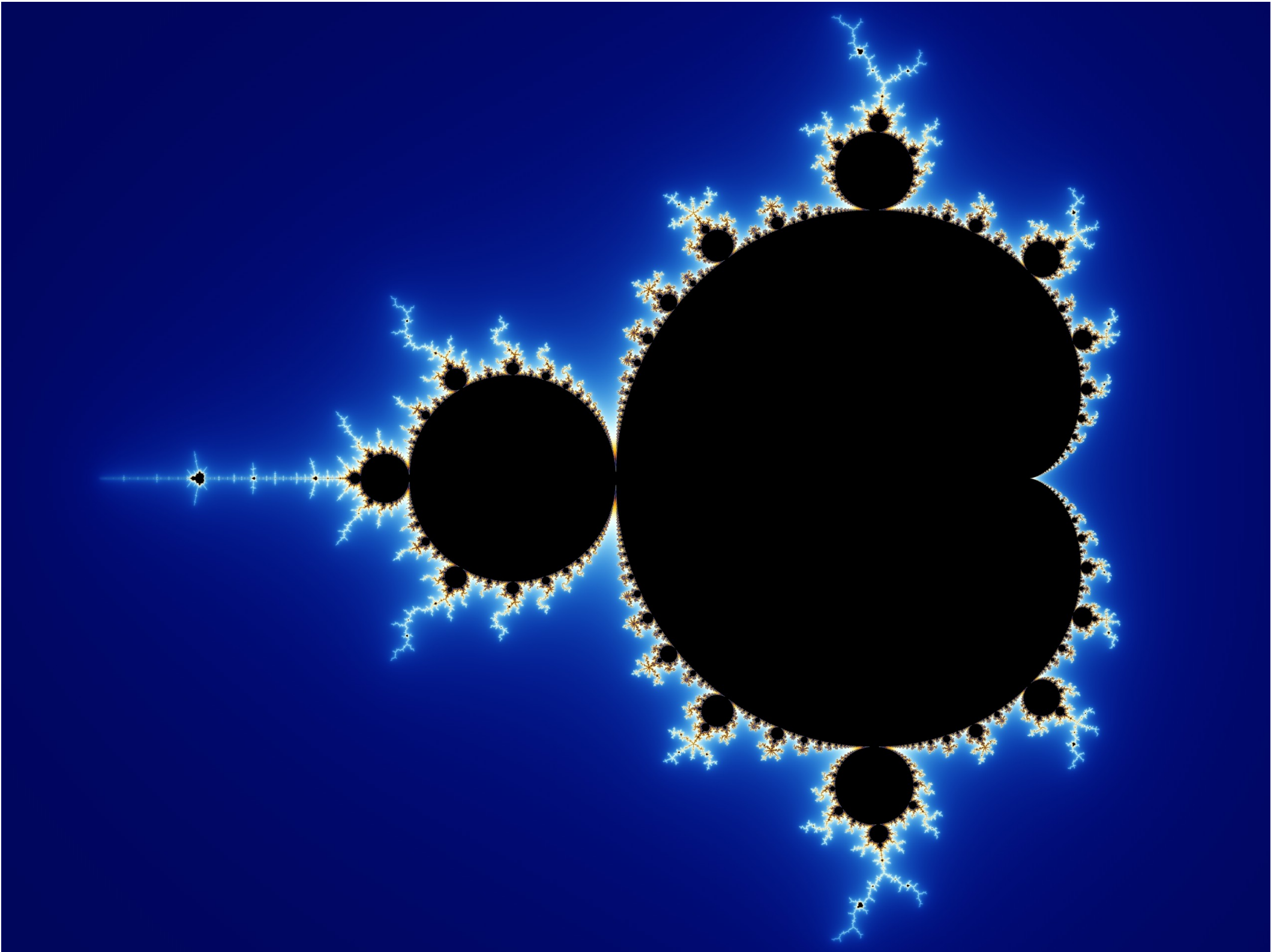




IBM

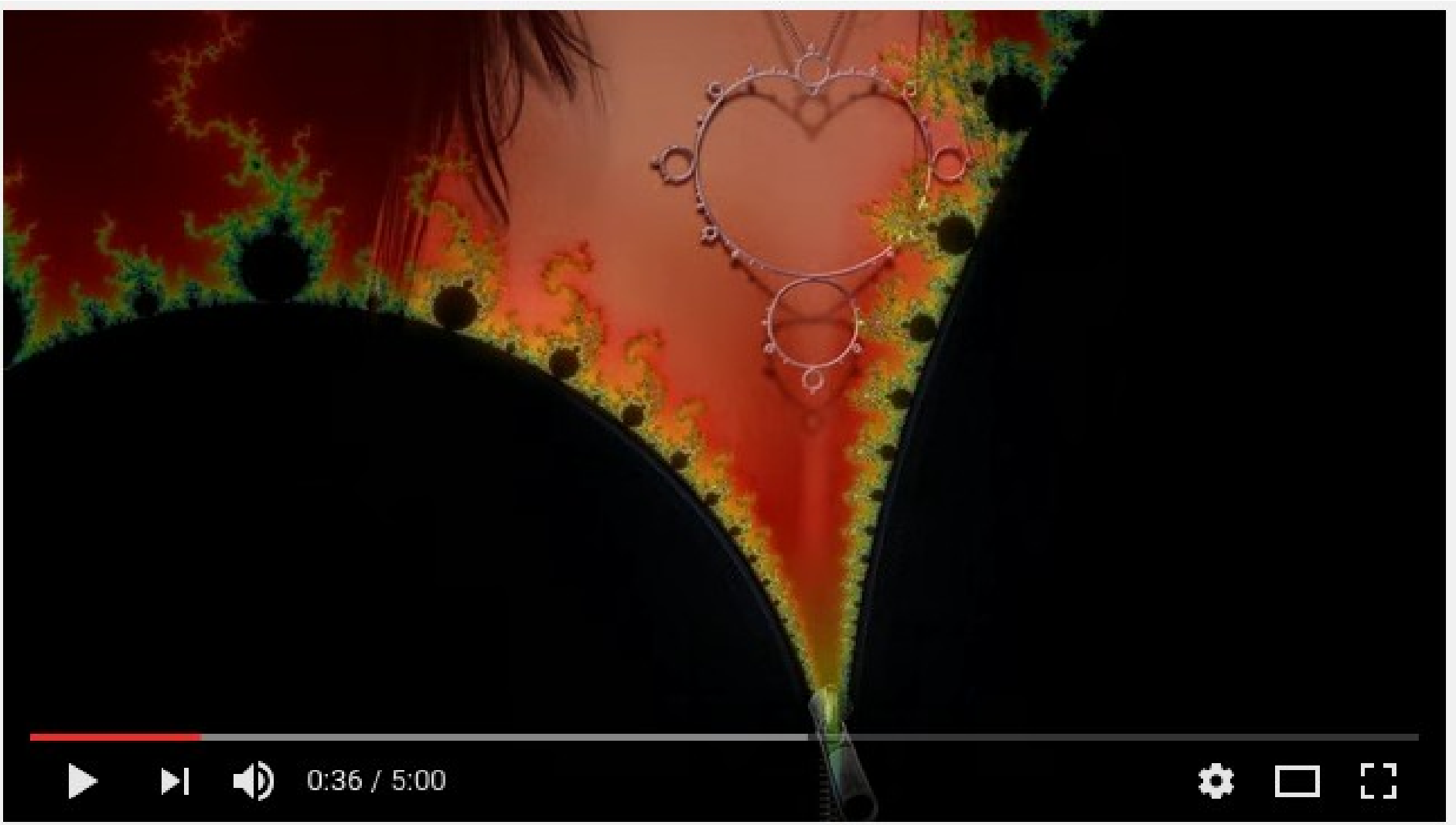
Business Partner



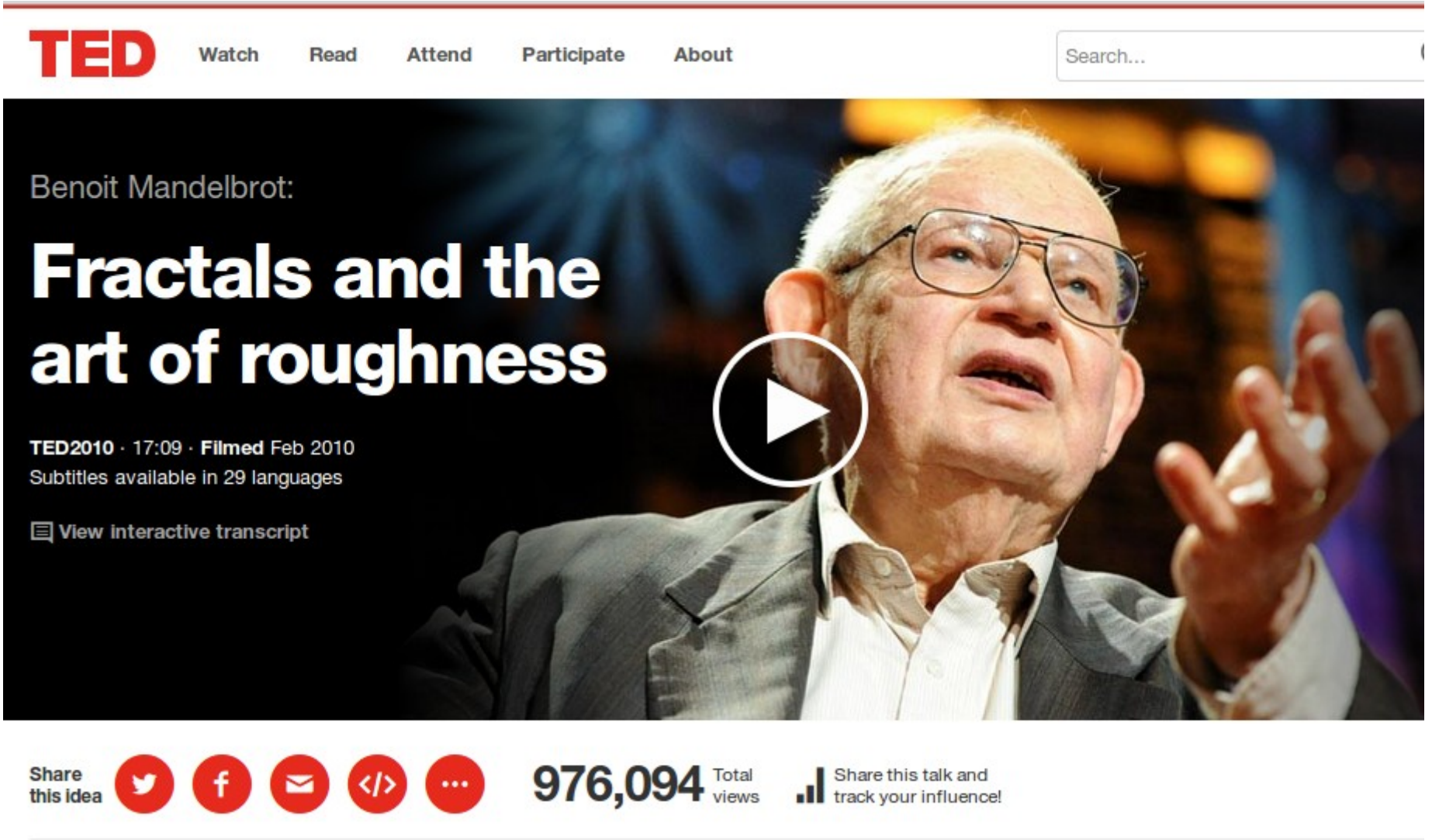


2010: A Mandelbrot Odyssey

A Journey in The Mandelbrot set



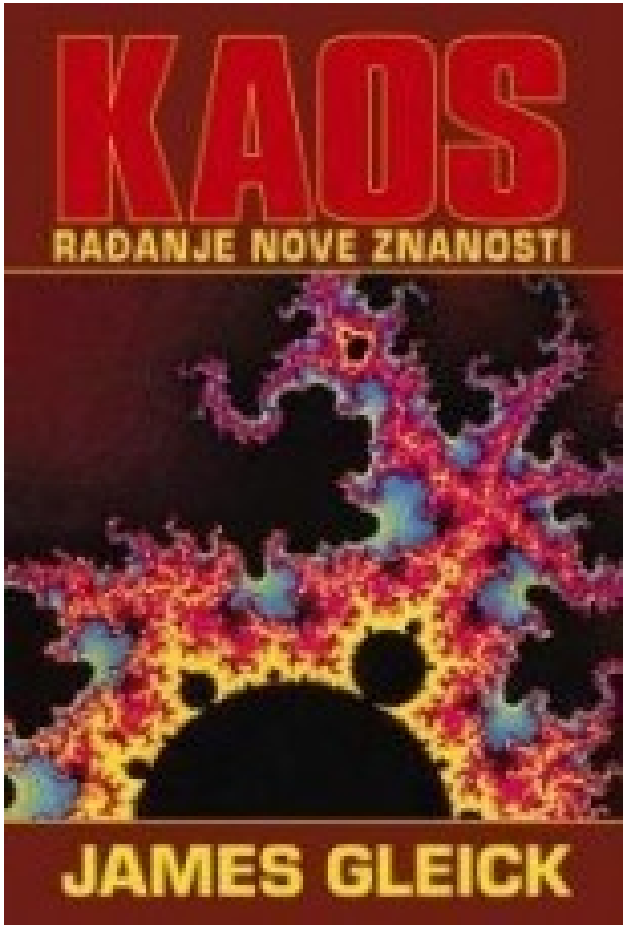
TED2010 - nastup legende



Knjiga

"Vječnost nije dovoljna da ga se cijelog pregleda."

James Gleick



https://ggbm.at/kN6pNaau

Hvala na pažnji!