

Anamorphic Images and The δ CELT[®]

Kenneth Brecher

Departments of Astronomy and Physics

Boston University

brecher@bu.edu

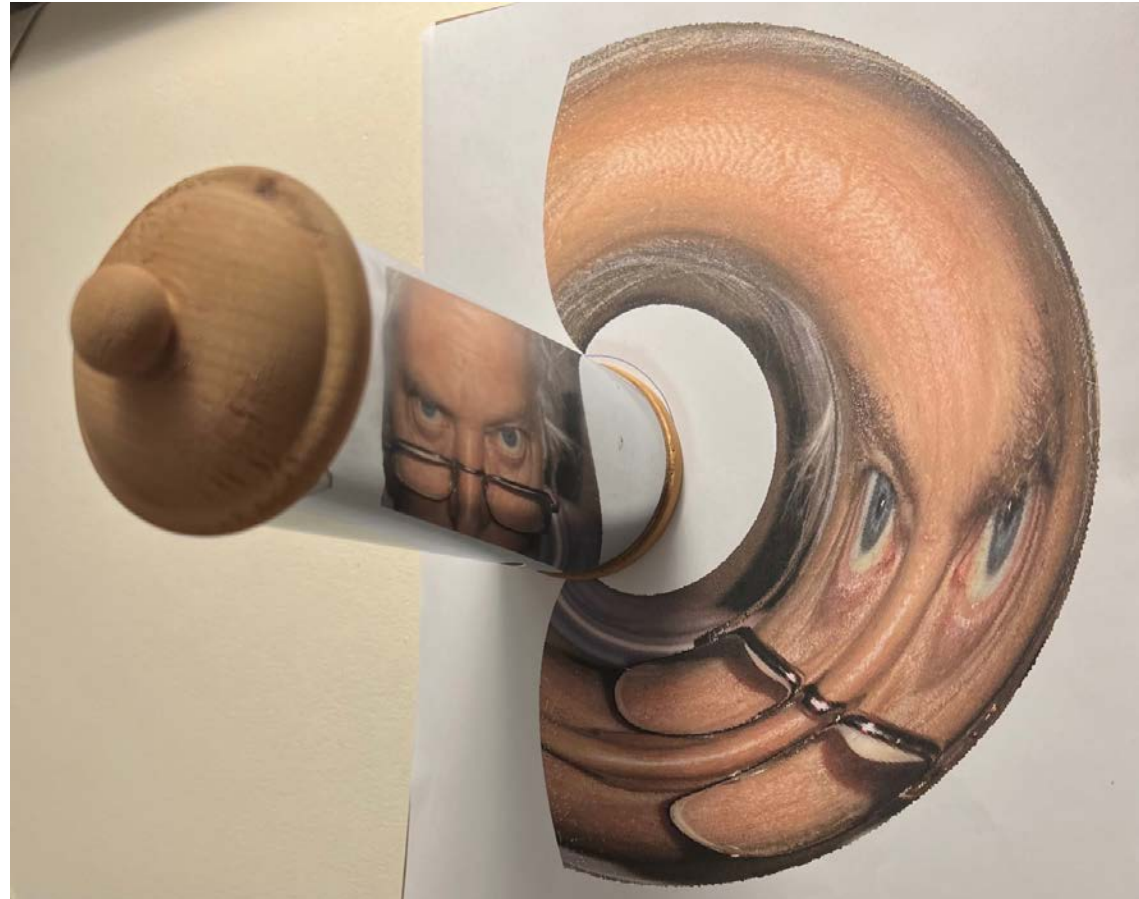
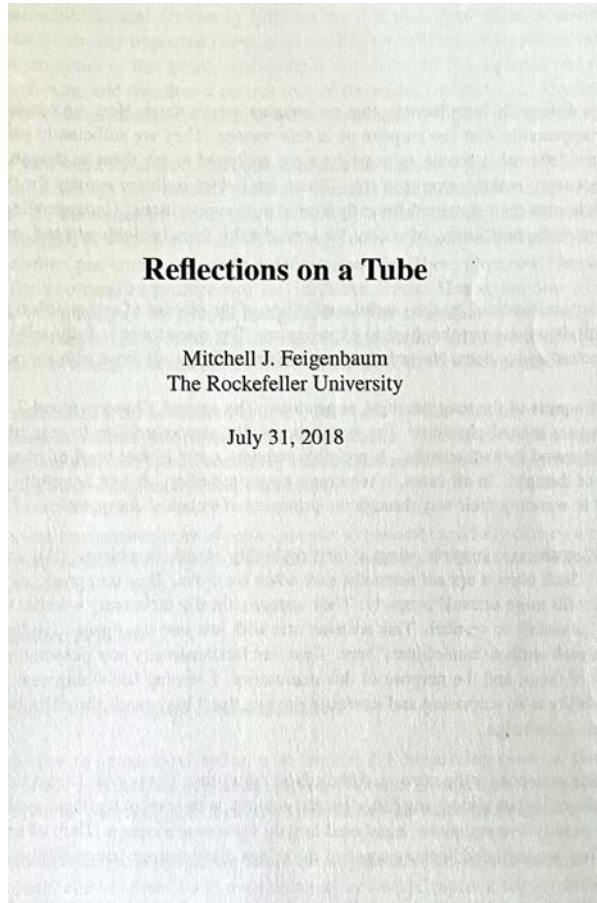
<https://siriusenigmas.com>

M.I.T. 1964 New Physics Graduate Students

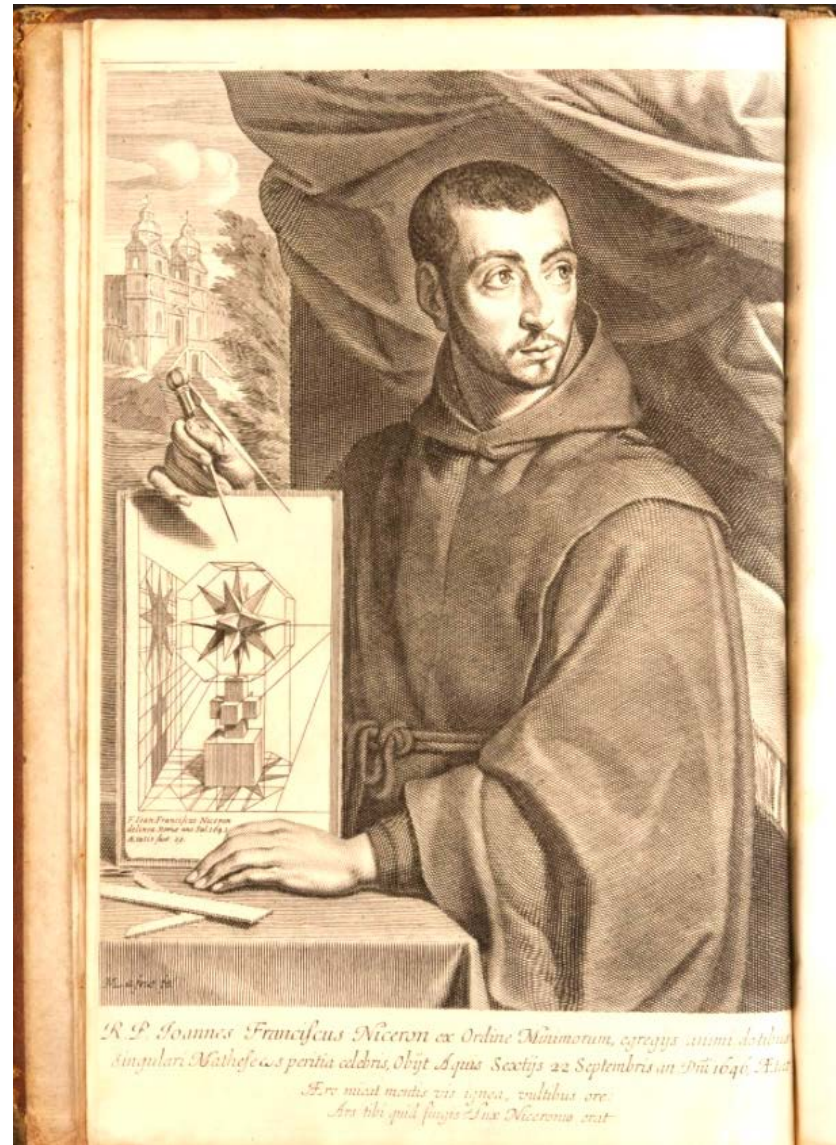
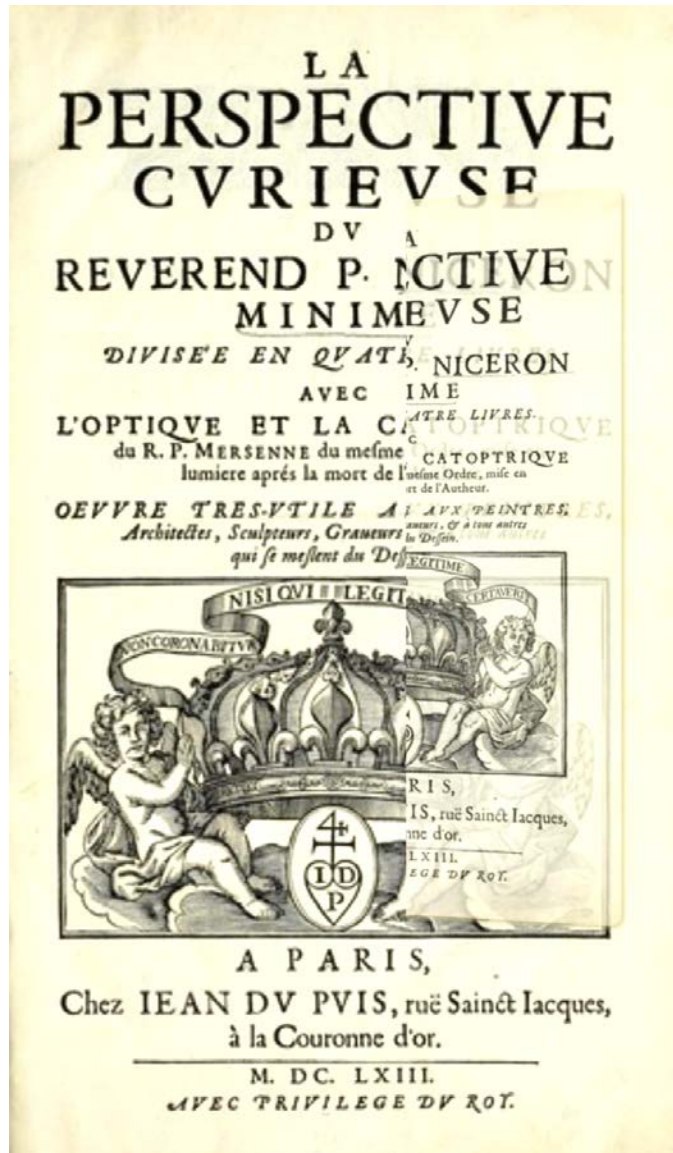


KB, E. Schreier, M. Breidenbach, D. Shapero, MJF (ca 1985)

Impetus for “Reflections on a Tube” by MJF: Extended Visit to Boston University in 2006



Niceron “Curious Perspective” (ca. 1638)

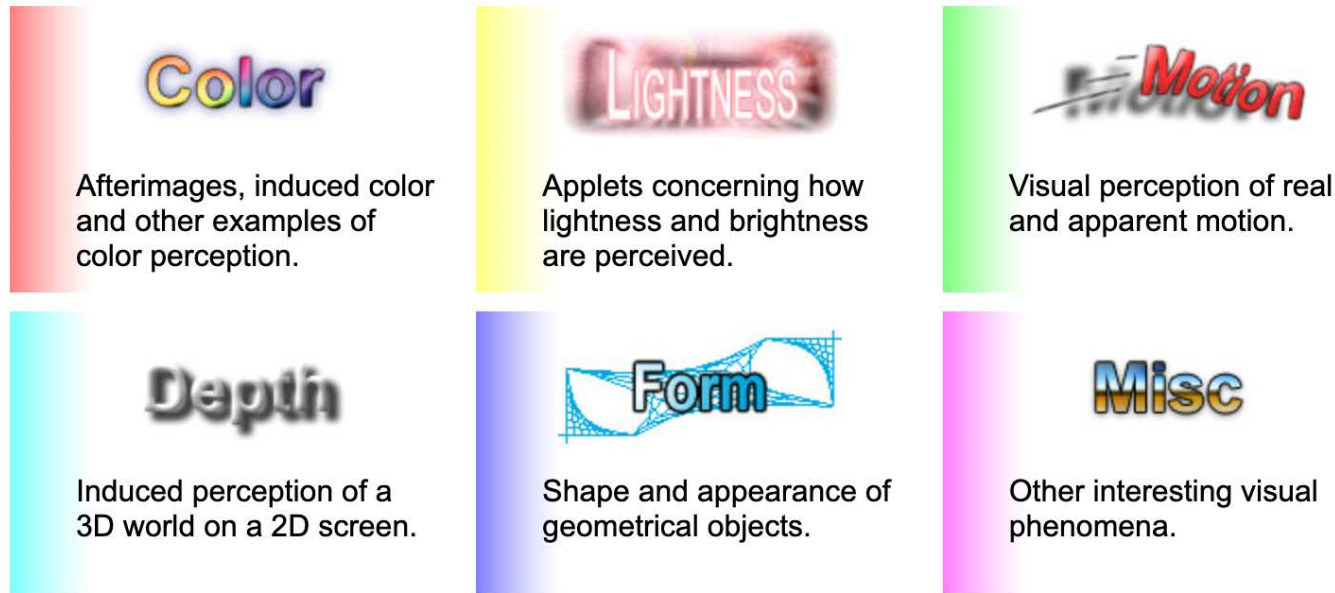


(Studied under Mersenne ca. 1632; book first published 1638; revised posthumous edition pub. 1663)

“Project LITE: Light Inquiry Through Experiments”

(KB NSF funded Project 2000 – 2015)

ATLAS OF VISUAL PHENOMENA



~300 dynamic Flash & JAVA apps - mostly now deceased;
binocular spectroscope; and still accessible printable PDFs

<http://lite5.bu.edu/monoapps1.0/StereoLITE/AnamorphicImages/>

<https://www.youtube.com/watch?v=fEMHhRkEe8w>

Anamorphic Imaging Developments: Ray Optics as well as Visual Perception



(Brecher, European Conference on Visual Perception, St. Petersburg, 2006)

MJF with KB Dichopter[®] (2018).



KB & MJF (ca ??)



Origins of the δ CELT[®] Design*



***US Design Patent # D908,809**

The ϕ TOP[®]

The PhiTOP[®] is a prolate ellipsoid with ratio of major to minor axes equal to $\phi \sim 1.618\dots$



“The ϕ TOP: A Golden Ellipsoid”

<https://archive.bridgesmathart.org/2015/bridges2015-371.html>

ϕ TOP[®] Dynamics

Spin the PhiTOP[®] starting from its stable static equilibrium position, and it will stand up and spin stably for several minutes. <https://www.facebook.com/watch/?v=585963451767606>



Cf. “Physics of the PhiTOP[®]”, K. Brecher and R. Cross, The Physics Teacher, 57, 74, 2019.

Sirius Enigmas Spinning Tops: Developed Between 2015 - 2018



ϕ TOP[®]

π TOP[®]

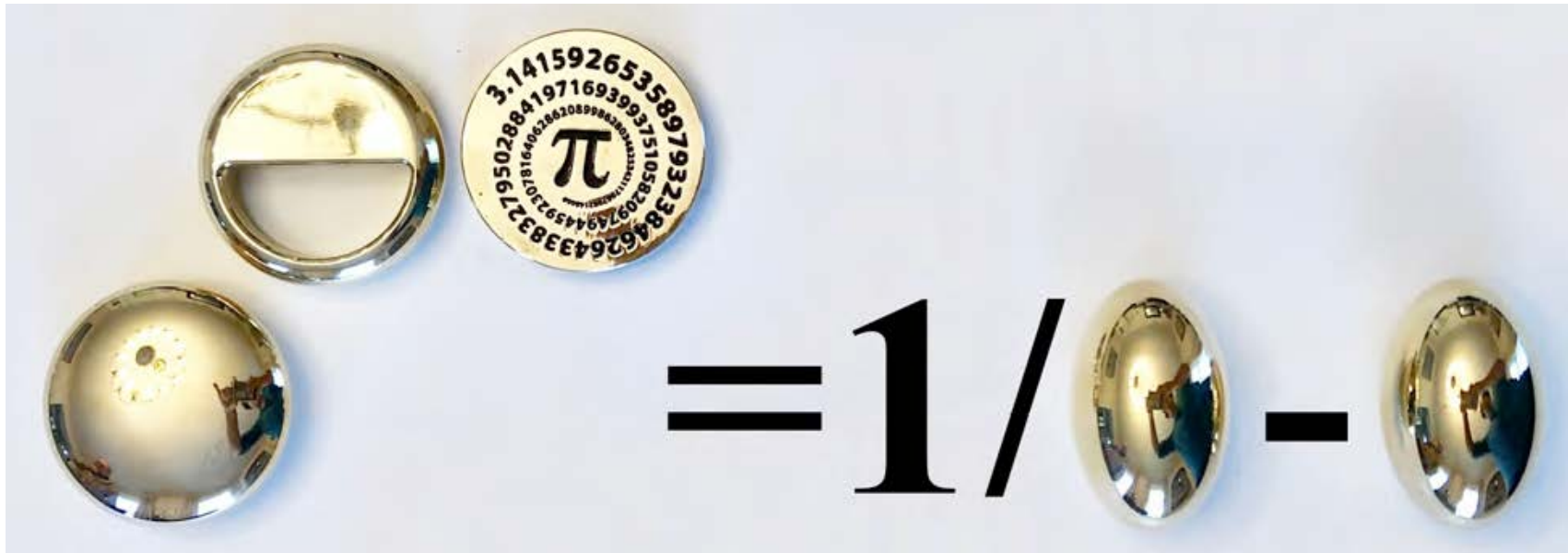
*i*TOP

*e*TOP

Both the ϕ TOP[®] and the π TOP[®] were designed following extensive experiments to optimize their performance. The *e*TOP and *i*TOP followed naturally!!!

**“Sirius Enigmas” Variant on Euler’s
Equation combining e, i, π and ϕ**

$$e^{i\pi} = -1 = 1/\phi - \phi$$



Mitchell Enjoying Sirius Enigmas Top Designs (2/19/2018)



**DeltaCELT or δ CELT[®] Design:
Prolate Ellipsoid with major/minor axis ratio
 $\sim 4.669...$ containing two asymmetric grooves**



<https://www.youtube.com/watch?v=xuCPZoNg4Wc>



Top view of right- and left-handed brass δ CELT[®]s and bottom view



Brass δ CELT[®] with added tungsten weights (top) and lead weights (bottom)

“But It Still Spins” - MJF (2/19/2018)



<https://www.youtube.com/watch?v=Q11U9Oxxtw4>

“And Yet It Moves” - Galileo (ca 1633, or not)