BOOK PROPOSAL

FOUR PART MONOGRAPH

I will provide two popular Computer Algebra Systems code, Mathematica and GeoGebra, to construct and analyze curved space mechanical energy curves for three Natural Space and Time Squares.

Part 1 of the monograph explores a computer contrivance I've invented to explore space curves. The tool I use to explore S&T squares I call a Curved Space Division Assembly (**CSDA**). I use a CSDA to construct Parametric Geometry Dynamics for all three S&T's.

This paper is a four-part monograph on Parametric Geometry constructions of Central Force Field Mechanical Energy Curves.

1. Computer based contrivance to construct Natural Mechanical Energy.
    a. Curved Space Division Assembly (**CSDA**).
2. S&T1
3. S&T2
4. S&T3

TARGET UTILITY

This monograph is a STEM product aimed at Middle School and Secondary Ed students worldwide. It can be studied as a single text or the ensemble can be utilized as stepping stone learning curve of the central force fields with which we live. An understanding of the analytics of the previous S&T time square is prerequisite to understanding the next level S&T square of the Human Knowledge Base.

If we select the time line Galileo as that point in human history where we recognized our Earth is not the center of Creation; we begin with Space and Time Square1 (S&T1). Let me suggest two more S&T's as significant milestones of our human knowledge base. (S&T2) would be Sir Isaac Newton and his Universal Law of Gravity. Followed by (S&T3); late 19th Century and early 20th Century collective development of Quantum Thermodynamics.

This monograph will suggest a parametric philosophical geometry:

PARAMETRIC UNIFIED FIELD GEOMETRY.

I will succeed in finally joining Sir Isaac Newton's Classic Big with early 20th century Quantum Small.

Main endeavor for year of our Lord 2021

I've spent most of my life-time exploring Sir Isaac Newton's S&T2. Concepts from 'Principia' composed a significant part of my HS (physics) igniting my passion to construct mechanical energy curves of Gravity-fields. Add to this the explosive popular science of "Cosmos: A Personal Voyage" by Carl Sagan, Ann Druyan, and Steven Soter, with Sagan as presenter, for popular science intellect tickler concerning Space and Time of the late 60's.
https://en.wikipedia.org/wiki/Cosmos:_A_Personal_Voyage

Because of the simplicity of Dr. Sagan's television diorama, weighted down by the complexity of Sir Isaac's Calculus and The Principia's elegant beautiful geometry, I felt required to attempt connecting Parametric Geometry simplicity with the complicated difficult.

I invented my Parametric Geometry 'Curved Space Division Assembly' (**CSDA**) to aid my pursuit. I've explored imagined natural curves and lines with this tool for three maybe four decades. I feel I've accomplished what I set out to do so very long ago. I embrace my current project (Three Space and Time Squares of Human Experience) with intentions of dampening the noise that the human collective knowledge base has become, enabling general curiosity to participate in 21st Century philosophical discoveries connecting mechanical counting of time with dynamic energy of space and have done so! I can't and won't prove a thing my imagination conjects, for this is how I see the Natural lines and curves of God's Creation. In other words, this is my opinion using 21st century computer document geometry. It matches very well with previous centuries building blocks constructing our human knowledge base!

I intend to develop the Natural Curved Space tools of exploration, my Curved Space Division Assembly (**CSDA**), how to use it, then in order, construction and analysis of; S&T1, S&T2, and S&T3.

ALΣXANDΣR; CEO SAND BOX GEOMETRY

12/22/20; pages: 12; words 12k.

Reading from the SandBox

Analytical pursuit of Central Force Space and Time Squares:

- S&T1: Galileo; Constant Acceleration Space and Time. (pg. 12-?)
    - MAA Mathfest August 2015
    - Wolfram technology Conference October 2015
- S&T2: Sir Isaac Newton; Changing Acceleration Space and Time.
    - JMM meeting January 2014
    - Wolfram Technology Conference October 2014
- S&T3: Quantum Small; Constructing atoms of the Periodic Table, Space and Time of nuclear level energy curves holding atoms together. Quantum Thermodynamics Experience of like element Atoms, what happens when atom sweat or become very, very, cold. Electromagnetic Bonding.
    - Wolfram Virtual Technology Conference October 2020

CSDA construction of three Natural Space and Time Squares:

$$\text{ParametricPlot}[\{\{1\text{Cos}[t],1\text{Sin}[t]\},\{t,t^2/-4+1\},\{t,t\},\{t,1\},\{1,t\},\{\frac{3}{2},t\},$$
$$\{t,\frac{7}{16}\},\{\frac{5}{2},t\},\{t,\frac{-9}{16}\},\{t,(t-4(\frac{13}{4}))\},\{\frac{13}{2},t\},\{2,t\},\{1/8\,,t\},\{t,\frac{9}{8}\},\{1,t\},\{t,2\}\},$$
$$\{t,-4,14\},\text{PlotRange}\rightarrow\{\{-1.5,3\},\{-1.5,3\}\}]$$

The Wolfram Language (Parametric) code has been clarified using drawing tools. Overlay lines and curves of drawing tool utility are true representations of lines I imagine to exist for all three S&T squares I write about.

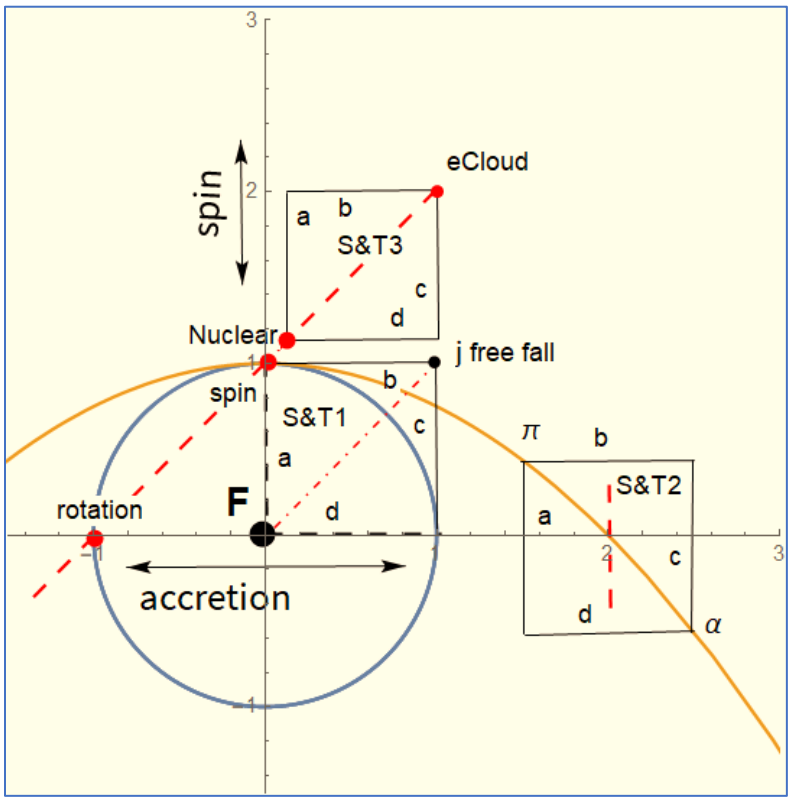

Figure 1: Basic CSDA representation of three S&T square. S&T1; Galileo, S&T2; Sir Isaac Newton, S&T3; 19th and 20th Century Collective; Quantum Thermodynamics.

S&T1: (j) is a 1st second free fall above the surface acceleration curve of M_1. S&T1 has two diagonals. Surface acceleration curve and free fall linear diagonal to central force F.

S&T2: energy curves possessed by orbit of M_2, are labeled as limiting curves; high energy and low energy not perihelion/perigee and aphelion/apogee. S&T2 Central Force **F** is M_1. M_1 rotation is labeled accretion, and M_2 motion is plotted on the parabola period time curve**.** S&T2 has one curved diagonal.

S&T3: S&T3 connects nuclear corner of space and time with ecloud corner of same space and time. S&T#3 has one linear diagonal connecting nuclear shaping forces of nucleus and ecloud with atom spin and rotation. S&T3 explores Quantum level thermodynamic experience of Q (heat) and electromagnetic bond.

All Sand Box **CSDA** S&T squares are 1st Quad constructions. Please note!! *Important*; S&T1, S&T2, and S&T3 all share a relative connection with the same central force spin and rotation axis!

The tool I have used to explore S&T squares I call a Curved Space Division Assembly (**CSDA**). I use a CSDA to construct Parametric Geometry Dynamics for all three S&T's.

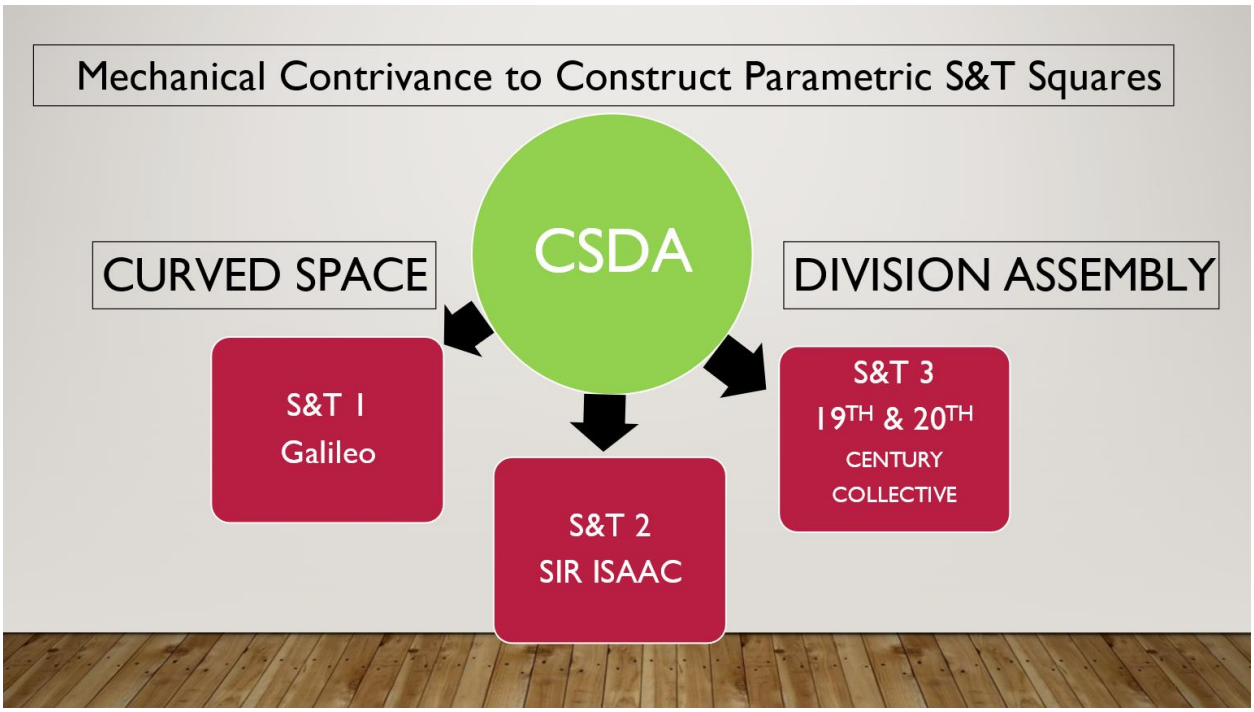

Figure 2: CSDA as source primitive of three Space and Time Squares. (PP; 3space & time squares; 4)

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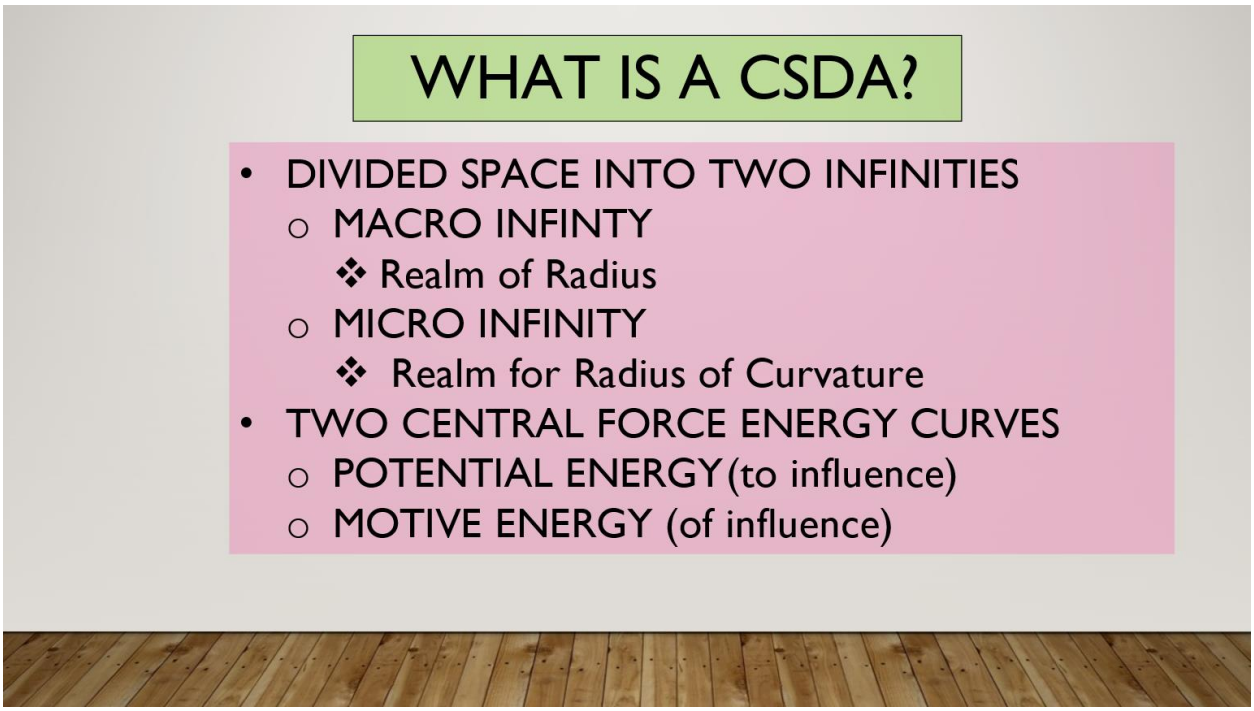

Figure 3: A CSDA divides space into two infinities of our being. Micro infinity (quantum small) and macro infinity (classic big). ((PP; three space and time squares…#7).

Two reasons for division of space into two separate infinities would be:

1. To aquire a unifying geometry for Quantum Mechanics (small) and Classic Mechanics (big) of Sir Isaac Newton.
2. Two infinities also bring into play the parametric geometry of curvature and radius of curvature, a required geometric map linking curved space with square space.

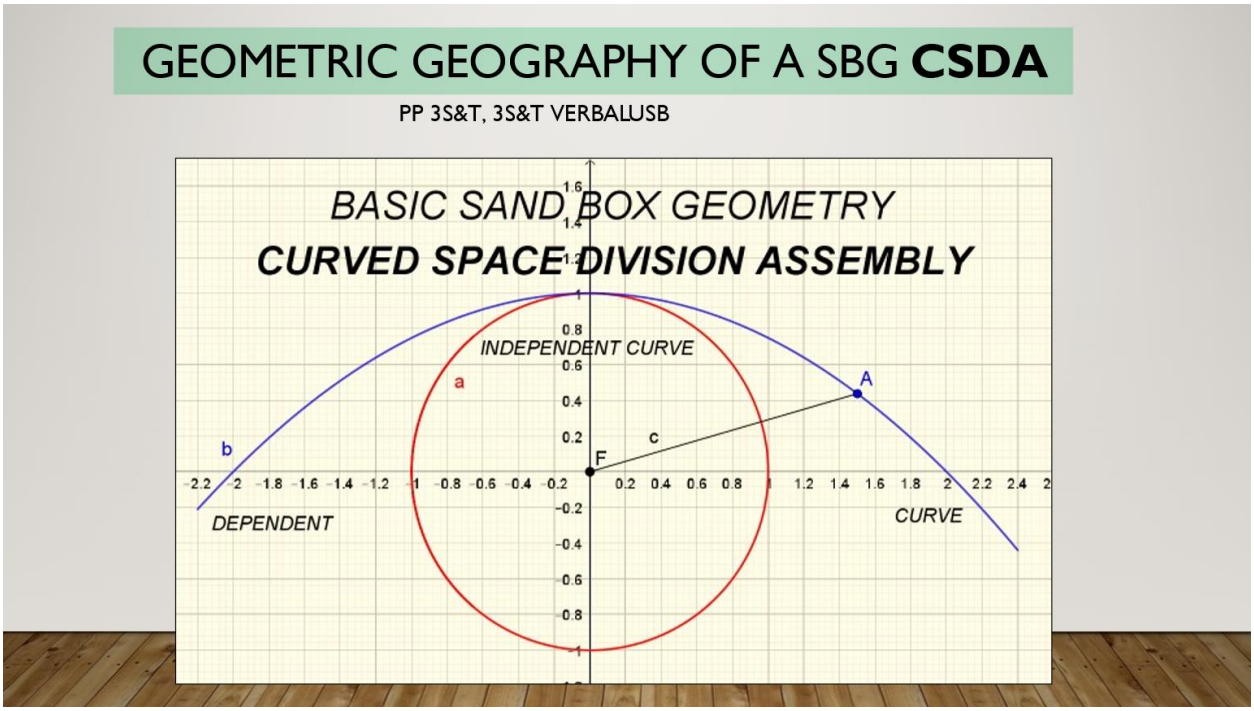

Figure 4: Geography of a basic CSDA borrows calculus terms to name two curves of space.

The independent closed curve is potential energy of M_1 surface acceleration curve. The open curve is dependent on M_1 influence and tracks motive energy exchange between M_1 inflence and M_2 motion.

E:\LIBRARY TALKS\Mechanical energy curves of gravity.docx

POSTULATE: Work must be done to change position (A) into an (S&T2) orbit curve with respect to M_1 on **CSDA** dependent space&time curve. Without means to sustain energy to orbit M_1 on curved time diagonal, curved orbit motion decays into a linear (S&T1) constant acceleration curve, and will free fall to surface acceleration curve of M_1.

I reference the surface acceleration curve of M_1 as an Acceleration Sphere of Influence. In fact, this curve as surface acceleration of M_1 collective mass/volume ratio is a **CSDA** Principal **ASI**. Above the surface acceleration of M_1, potential of position is influenced with another type of acceleration curve. These are Definitive **ASI** having specific definition with respect to intensity of **CSDA** Principal **ASI**.

CSDA ACCELERATION CURVES

The geometry of **CSDA** acceleration curves found in S&T2 demonstrates connecting influence effects of changing Definitive **ASI**'s with respect to a system Principal **ASI**.

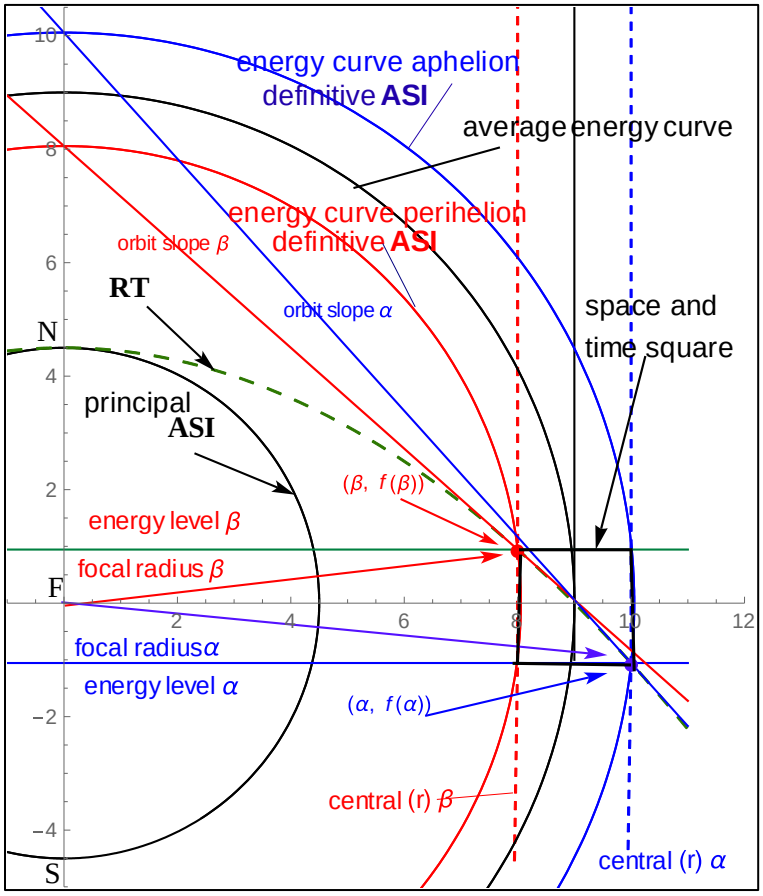

Figure 5: S&T2 trapped between two definitive **ASI** with respect to a system independent Principal **ASI**. *Mechanical energy curves of gravity(2011).docx*

Focal radii of a **CSDA** are Central Force position vectors and can follow $(f(r))$, the changing energy of M_2.

CSDA spin radii are one-unit meter of initial focal radius of central force **F** to dependent time curve vertex. This makes the 1st quad rotation plane the positive side of **CSDA** system latus rectum (4p), a magnitude two position vector @ $(2, 0)$.

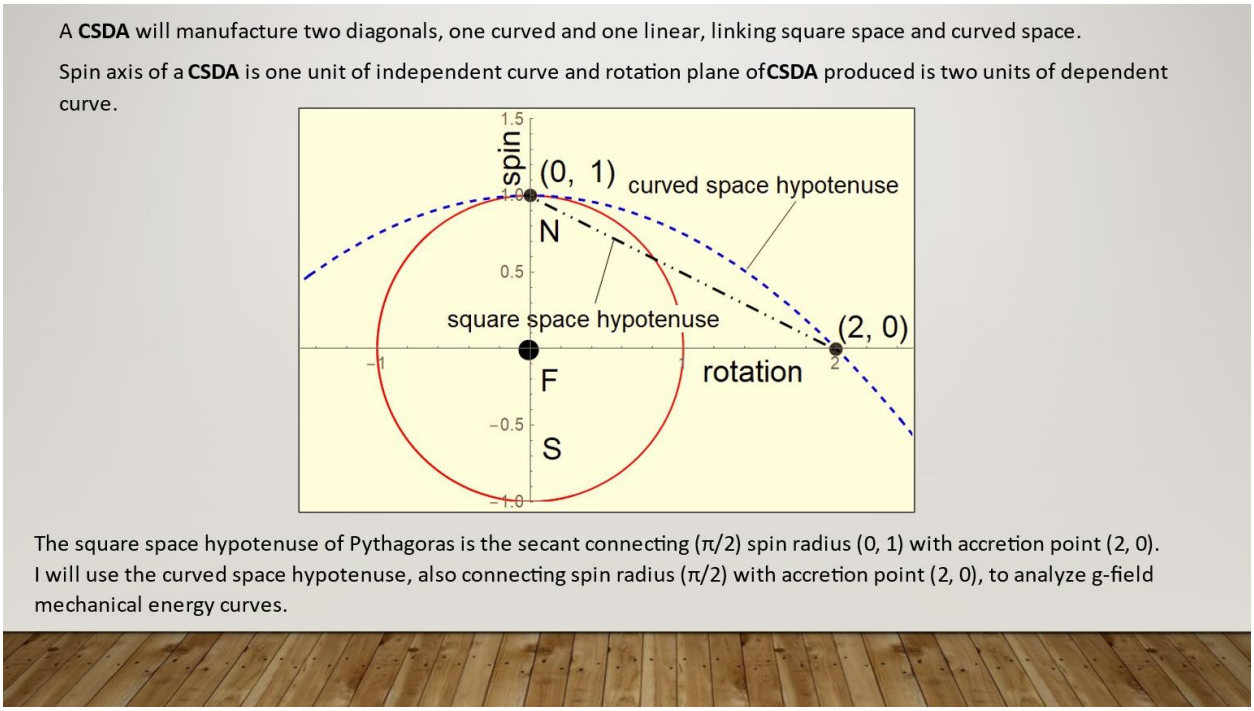

Figure 6: a CSDA has two geometric hypotenuses.

End review of CSDA S&T research tool.

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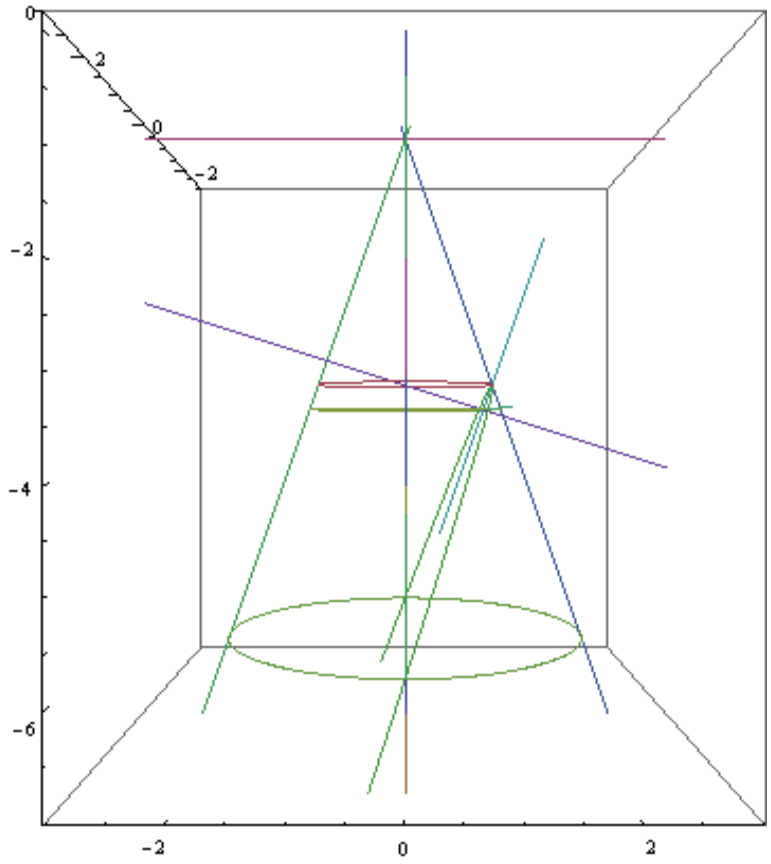
Using computer parametric geometry code to construct the focus of an Apollonian parabola section within a right cone.



"It is remarkable that the directrix does not appear at all in Apollonius great treatise on conics. The focal properties of the central conics are given by Apollonius, but the foci are obtained in a different way, without any reference to the directrix; the focus of the parabola does not appear at all... Sir Thomas Heath: "A HISTORY OF GREEK MATHEMATICS" page 119, book II.

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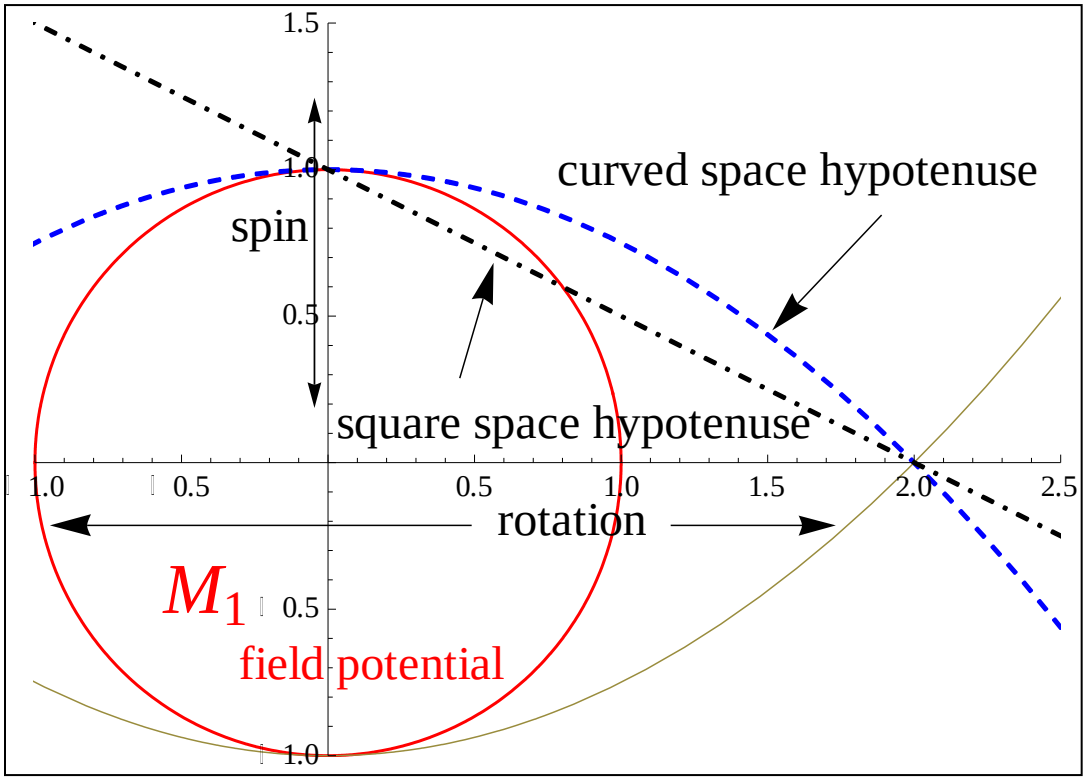
The computer is my sandbox, the unit circle my compass, and the focal radius of the unit parabola my straight edge.

ALΣXANDΣR; CEO SAND BOX GEOMETRY LLC

CAGE FREE THINKIN' FROM THE SAND BOX

The square space hypotenuse of Pythagoras is the secant connecting (π/2) spin radius (0, 1) with accretion point (2, 0). I will use the curved space hypotenuse, also connecting spin radius (π/2) with accretion point (2, 0), to analyze g-field mechanical energy curves.



CSDA demonstration of a curved space hypotenuse and a square space hypotenuse together.

We have two curved space hypotenuses because the gravity field is a symmetrical central force and will have an energy curve at the **N** pole and one at the **S** pole of spin; just as a bar magnet. When exploring changing acceleration energy curves of M_2 orbits, we will use the N curve as our planet group approaches high energy perihelion on the north time/energy curve.

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