Reading from the SandBox

Methods to construct and balance G- field orbit level energy curves.

S&T2 ME curves of Sir Isaac Newton and Johann Kepler

March 20
2021

I use Central Relative Curved Space Analytical means to construct planet level G-field orbit curves. I begin with two Unity Curves to determine amount of energy available for distribution between potential and motion. There are three parts to my CSDA construction. A basic M1M2 CSDA, a curved space directrix, and rotation plane of M1 on which I lay the system latus rectum of M2 as the average diameter of the period. I will connect central force F high energy, low energy, and average energy position vectors to the curved space directrix using event radii abscissas. To balance energies of position radii, it is necessary to construct two congruent space time squares; S&T1 and S&T2, connecting central force POTENTIAL control of S&T2 with respect to Galileo's S&T1.

How to balance conserved G-field orbit energies.

Methods of construction for G-field ME for STEM HS and Middle School.

Readings from the Sand Box

Index (open; unfinished considerations)

10 pages; 1600 words

The curved space directrix is used to balance orbit energy curves. This is accomplished with Galileo's S&T1 Space and Time Square providing congruent acceleration phenomena between S&T1 (Galileo) and S&T2 (Sir Isaac). Location of S&T1 and S&T2 is accomplished with two unity curves. Such an event happens when **CSDA** energy tangents read slope $(m = \pm 1)$@ +latus rectum endpoint (2, 0)

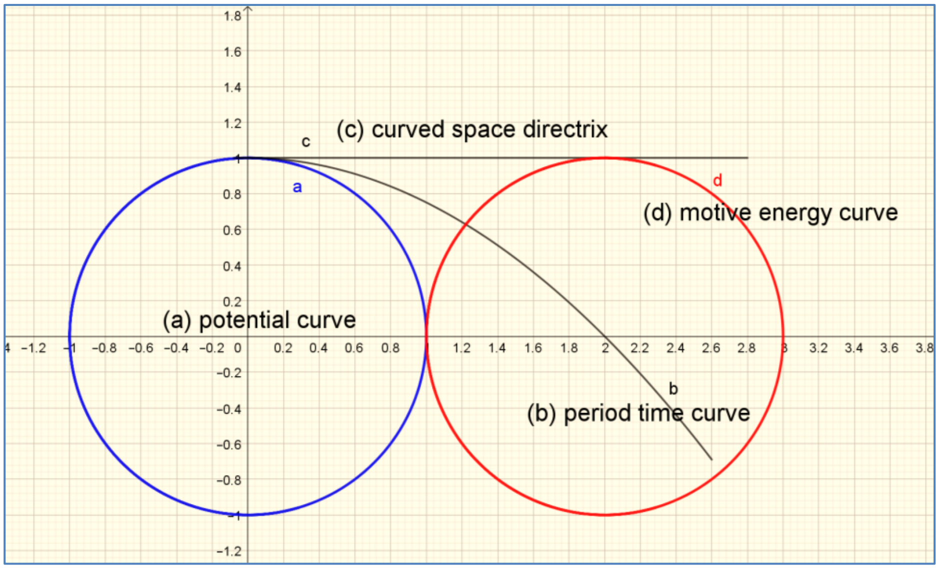

Figure 1: basic CSDA with potential curve, motive energy curve, period curve, and curved space directrix. (orbit balance.ggb; 12.1DEC20 orbit decay USB)

Let (a) be the potential energy curve of M_1.
Let (d) be the motive energy curve of M_2.

Let (b) be the period curve of M_2. Let (c) be the curved space directrix. I use text properties for (b) as GeoGebra will fix labels of constructions with limited positioning.

No.	Name	Description	Value	Caption
1	Curve a	Curve(1cos(t), 1sin(t), t, -5, 5)	a:(1cos(t), 1sin(t))	potential
2	Curve b	Curve(t, t² / -4 + 1, t, -0.08, 2.6)	b:(t, t² / -4 + 1)	period
3	Text text1		"b"	
4	Curve c	Curve(t, 1, t, -0.06, 2.8)	c:(t, 1)	directrix
5	Curve d	Curve(1cos(t) + 2, 1sin(t), t, -5, 5)	d:(1cos(t) + 2, 1sin(t))	motive

Created with GeoGebra

Next step is constructing S&T1 of Galileo. S&T1 will fix acceleration parameters of G-field central force mechanical energy between M_1M_2 onto the period time curve.

Let S&T1 be of Galileo and S&T2 be Sir Isaac. The construction exhibits two balanced energy curves (potential and motion) and two congruent S&T space-time squares.

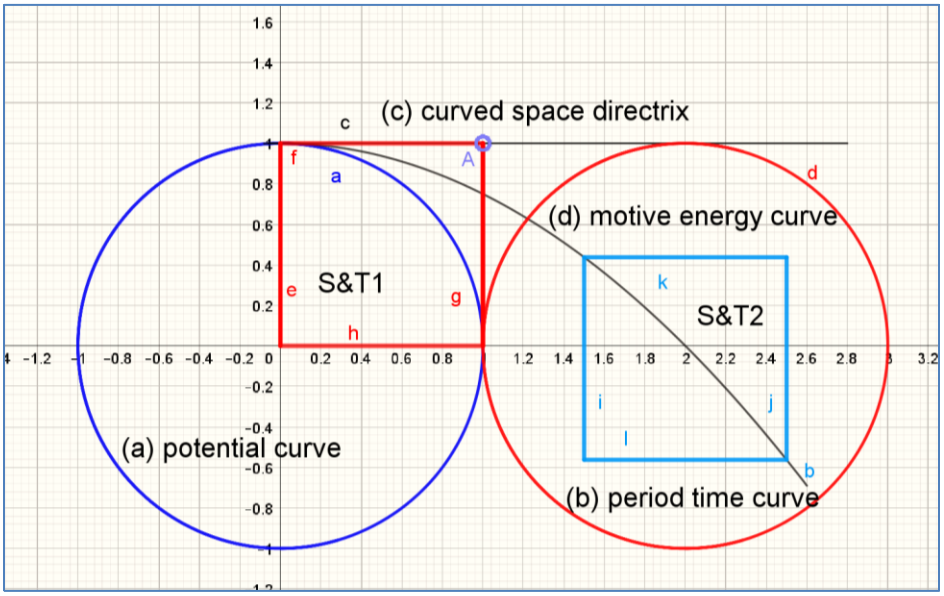

Figure 2: basic CSDA with two balanced energy curves and two congruent (S&T!) & (S&T2) space and time squares. (12.1DEC20orbit S&T balance ggb)

(S&T1, Galileo) provides free fall surface acceleration values of M_1 space and time needed to construct a congruent S&T2, (Sir Isaac). By congruent space and time squares I reference the displacement corner (A) above acceleration curve of M_1 as 1^{st} sec free fall position of Galileo (S&T1). When hooked via period time curve diagonal of S&T2, will provide equivalent Cartesian mechanical space-time coordinates:

$$(1\,\text{sec}\,space, 1\,\text{sec}\,time).\ [e \cong i, h \cong l, g \cong j, f \cong k].$$

GIVEN: ORBIT PARAMETER FOR CONSTRUCTION ARE ARBRITARY:

High Energy: $\left(\frac{3}{2}, \frac{7}{16}\right)$.

Average energy and diameter: $(2, 0)$.

Low Energy: $\left(\frac{5}{2.}, \frac{-9}{16}\right)$.

No.	Name	Description	Value	Caption
1	Curve a	Curve(1cos(t), 1sin(t), t, -5, 5)	a:(1cos(t), 1sin(t))	
2	Curve b	Curve(t, t^2 / -4 + 1, t, -0.08, 2.6)	b:(t, t^2 / -4 + 1)	

3	Text text1		"b"	
4	Curve c	Curve(t, 1, t, -0.06, 2.8)	c:(t, 1)	
5	Curve d	Curve(1cos(t) + 2, 1sin(t), t, -5, 5)	d:(1cos(t) + 2, 1sin(t))	
6	Text text2		"(a) potential curve"	
7	Text text3		"(d) motive energy curve"	
8	Text text4		"(b) period time curve"	
9	Text text5		"(c) curved space directrix"	
10	Curve e	Curve(0, t, t, 0, 1)	e:(0, t)	
11	Curve f	Curve(t, 1, t, 0, 1)	f:(t, 1)	
12	Curve g	Curve(1, t, t, 0, 1)	g:(1, t)	
13	Curve h	Curve(t, 0, t, 0, 1)	h:(t, 0)	
14	Text text6		"S&T1"	
15	Curve i	Curve(1.5, t, t, -9 / 16, 7 / 16)	i:(1.5, t)	
16	Curve j	Curve(2.5, t, t, -9 / 16, 7 / 16)	j:(2.5, t)	
17	Curve k	Curve(t, 7 / 16, t, 1.5, 2.5)	k:(t, 0.44)	
18	Curve l	Curve(t, -9 / 16, t, 1.5, 2.5)	l:(t, -0.56)	
19	Text text7		"S&T2"	

Created with GeoGebra

Next, we need construct 3 points on the curved space directrix.
1st point (A); will be Cartesian location of balance pin for unity curve conserved ME distribution between potential and motion: $(1, 1)$.
2nd point (B); will be a position vector (f) connection between central force **F** and Sir Isaac's (high energy curve) displacement radius perihelion on the curved space directrix $(1.5, 1.0)$ using S&T2 event abscissa $(r, f(r))$ on the time curve produced.
3rd point (C); will be a position vector (h) connection between central force **F** and Sir Isaac's displacement radius (low energy curve) aphelion on the curved space directrix $(2.5, 1.0)$ using S&T2 event abscissa $(r, f(r))$ on the time curve produced.

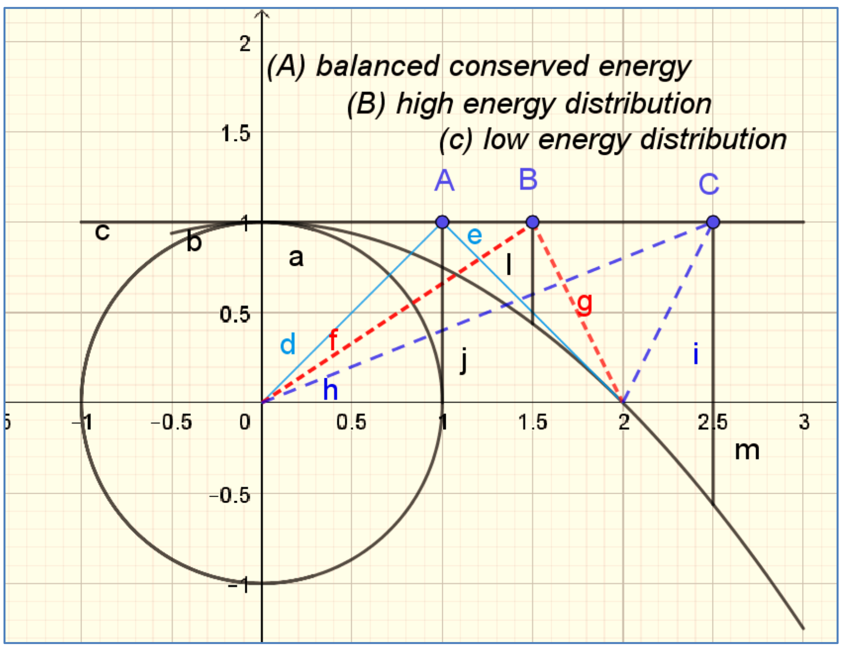

Figure 3: mapping conserved energy distribution of M1M2 changing acceleration orbit curves. (12DEC20 orbit energy dist)

Position vectors are origin vectors connecting potential energy of **F**, via the curved space directrix, with event $(r, f(r))$.

Johann Kepler

Construction (3) would suggest that the word Empirical, connected with his conserved area per unit time, be an unconditional statement.

Both S&T's have area of 1 unit, and energy focal radii (d, f, and h) form energy distribution triangles of Central Force F, with area of 1 unit space-time energy, for any M_2 orbit event.

The final leg of energy distribution triangles relates to average energy curve @ $(2,0)$, the positve side of system latus rectum embedded in plane of accretion as base for all energy distribution triangles.

Latus rectum end point (2,0) is refence energy of M2 orbit energy.

Position (A) is the median marker for energy distribution between M_1M_2.

(A) is the pin of a natural perpetual energy pendulum, equal swing from curved space potential (Central Force F) to square space average energy curve (2, 0). All happening via Galileo's S&T1 abscissa boundary separating micro infinity from macro infinite space with spherical profile acceleration curve of S&T1.

(B) and (C) represent limiting parameters of Sir Isaac Newton's S&T2 orbit period curves. Position vector (f) is connected to high energy @(B); closes energy distribution triangles of S&T2 at average diameter of orbit. Position vector (h) is connected to low energy @(C); closes energy distribution triangles of S&T2 at average diameter of orbit.

orbit energy distribution

Alexander

No.	Name	Description	Value	Caption
1	Curve a	Curve(1cos(t), 1sin(t), t, -5, 5)	a:(1cos(t), 1sin(t))	
2	Curve b	Curve(t, t^2 / -4 + 1, t, -0.5, 3)	b:(t, t^2 / -4 + 1)	
3	Curve c	Curve(t, 1, t, -1, 3)	c:(t, 1)	
4	Point A		A = (1, 1, 0)	
5	Point B		B = (1.5, 1, 0)	
6	Point C		C = (2.5, 1, 0)	
7	Curve e	Curve(t, -t + 2, t, 1, 2)	e:(t, -t + 2)	
8	Curve d	Curve(t, t, t, 0, 1)	d:(t, t)	
9	Curve f	Curve(t, 0.66t, t, 0, 1.5)	f:(t, 0.66t)	
10	Curve g	Curve(t, 2.5 - t, t, 1.5, 2.5)	g:(t, 2.5 - t)	
11	Curve h	Curve(t, 0.4t, t, 0, 2.5)	h:(t, 0.4t)	
12	Curve i	Curve(t, -1.5 + t, t, 1.5, 2.5)	i:(t, -1.5 + t)	
13	Curve j	Curve(1, t, t, 0, 1)	j:(1, t)	

14	Curve k	Curve(0.5, t, t, 0, 1)	k:(0.5, t)	
15	Curve l	Curve(1.5, t, t, 0, 1)	l:(1.5, t)	
16	Curve m	Curve(2.5, t, t, 0, 1)	m:(2.5, t)	
17	Text text1		"(A) balanced conserved energy"	
18	Text text2		"(B) high energy distribution"	
19	Text text3		"(c) low energy distribution"	

Created with GeoGebra

STATE OF A NATURAL PENDULUM

Point A is the G-field fulcrum of pendulum energy swing.

I believe orbits collapse or open with respect to M_1 when any side of S&T2 becomes altered units of time or altered units of space. S&T1 as potential, also participates, if 1st second free fall is altered changing structured space time sides of S&T's.

Nothing lasts for ever though it may feel like eternity in the scale of human time.

M_1M_2 orbits will remain stable, collapse, or open.

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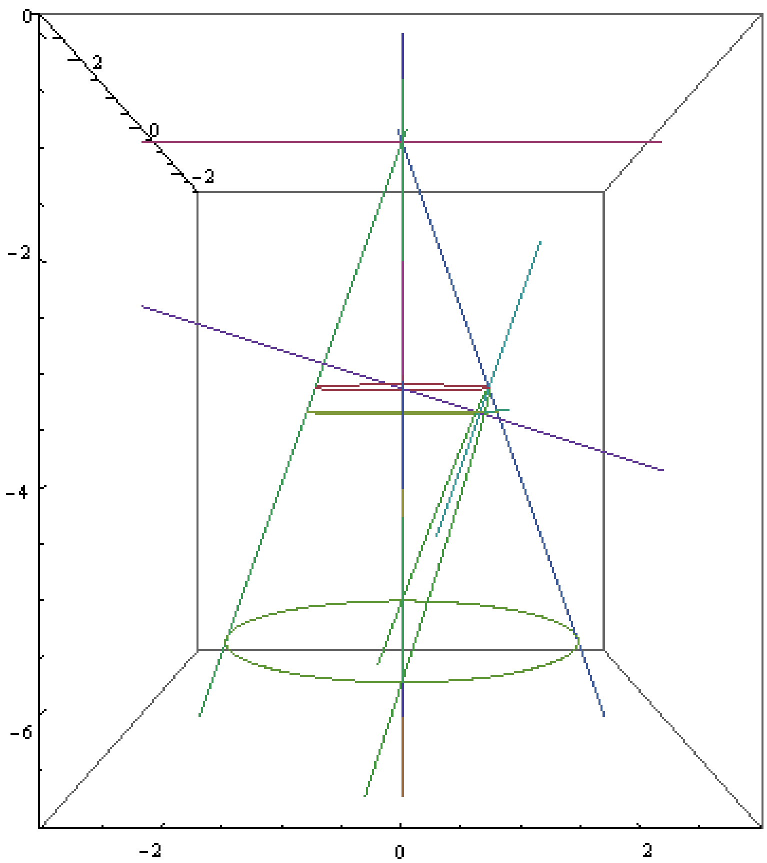
Using computer parametric geometry code to construct the focus of an Apollonian parabola section within a right cone.



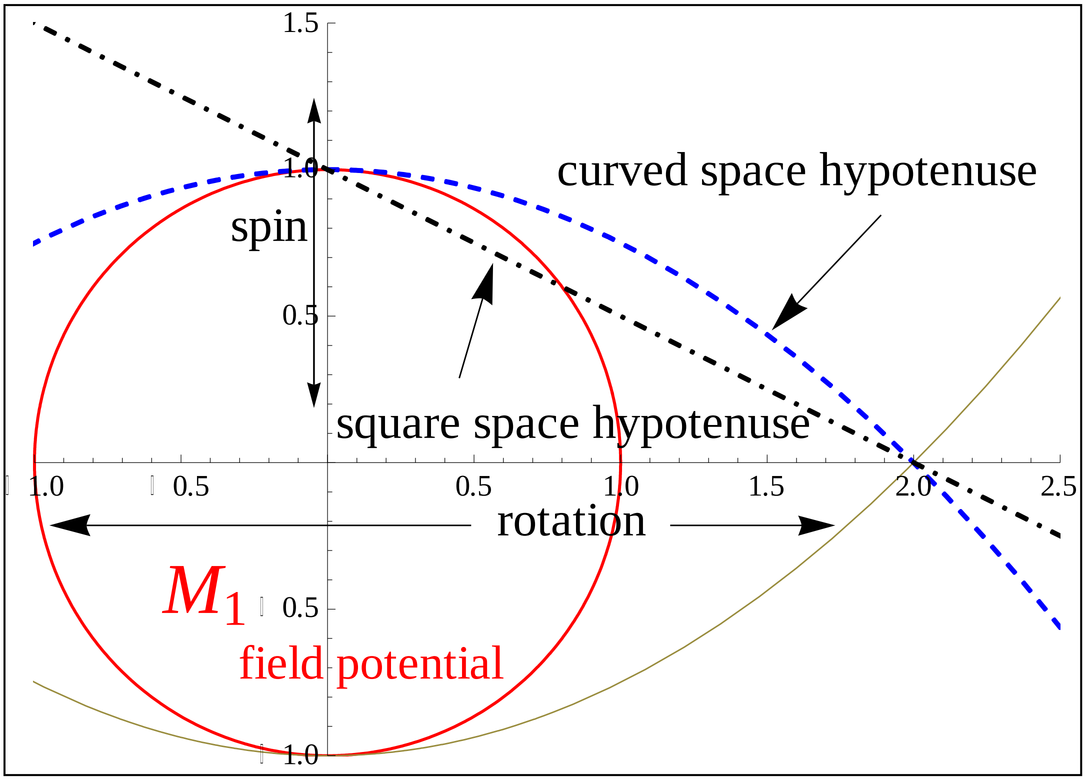
"It is remarkable that the directrix does not appear at all in Apollonius great treatise on conics. The focal properties of the central conics are given by Apollonius, but the foci are obtained in a different way, without any reference to the directrix; the focus of the parabola does not appear at all...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

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.

ALΣXANDΣR; CEO SAND BOX GEOMETRY LLC