#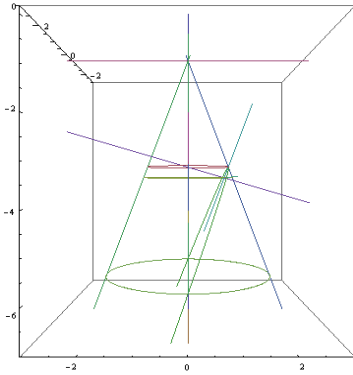 NEW EDUCATION PARADIGM ABOUT CENTRAL FORCE SPACE CURVES FOR INTERNET TV; PODCASTS, VIDEO EDUCATION: A SAND BOX GEOMETRY PROSPECTUS

Sand Box Geometry Icon

COPYRIGHT ORIGINAL GEOMETRY BY the SANDBOX

Sand Box Geometry LLC, a company dedicated to utility of Ancient Greek Geometry in pursuing exploration and discovery of two Central Force Field Curves, gravity and nuclear.

My company icon demonstrates computer parametric geometry code to construct the focus of an Apollonian parabola section within a right cone. Apollonius never identified the parabola focus, as signicant a part of the curve as its shape.

"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.

By persistent effort spent to construct the focus using parametric geometry I found my invention **CSDA**, the slide rule I use to explore curved space **mechanical phenomenon** motion and stability. https://en.wikipedia.org/wiki/Phenomenon

The following two 2014 abstract/talks are culmination of twenty-year effort to simplify space curve math, take out the heavy stuff and using a computer, revisit initial human philosophies about central force field properties for a new perspective.

On the Heliocentric Circular Mechanical Energy Curves of Galileo
JOINT MATH MEETING
BALTIMORE MD; 2014

I've always been fascinated by space curves. Allow me to take you back to Galileo and Kepler, to the beginning exploratory of a g-field space curve known as Mars. Galileo and Kepler were contemporaries; Galileo lived 11 years longer than Kepler and was aware of Kepler's solution concerning the enigma the retrograde motion of Mars presented. He refuted Kepler's argument defining the space curve Mars claiming 'the ellipse is much too complicated a curve to be used by God to move His planets; they move in circles'. I will show the perception of Galileo is also correct, maybe more so.

Your abstract has been successfully processed for the **Baltimore, Maryland** meeting.

Your abstract number is: 1096-F1-592.

A SHORT PAPER ON UNIFIED FIELD GEOMETRY (CAS GEOGEBRA)

I have always been interested in utility of plane geometry curves to study mechanical energy curves of the gravity field. To do so I invented a <u>Curved Space Division Assembly</u>, acronym **CSDA**, the parametric graphing assemblage of two plane geometry curves I use to explore mechanical properties of gravity field curved space. Exploring mechanical properties of curved space requires a parametric geometry construction of Sir Isaac Newton's Universal Law of Gravity. This paper will demonstrate methodology to do so using STEM high school math and physics, a first ever construction of the connecting principal of Inverse Square Law joining micro infinity, populated by curvature, with macro infinity where resides radius of that curvature. In other words, I join curved space with square space. I will demonstrate means to apply Sir Isaac Newton's Universal Law of Gravity to give shape to mechanical energy curves of real space time orbits existing in our system, using NASA data of our planet group.

Subject Wolfram Technology Conference

Dear Alexander,

From   [Wolfram Events Team](#)

I am pleased to report that your talk, "CONSTRUCTING PLANE GEOMETRY G-FIELD INVERSE SQUARE LAW" has been selected for presentation at the conference. We are still building the schedule, but currently your talk is slated in the "Science/Engineering/Technology" track
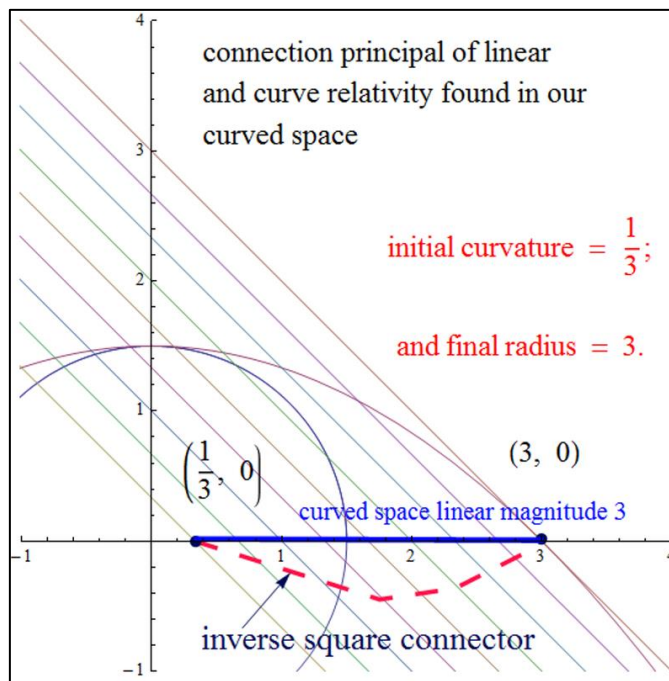
To   alexander@sandboxgeometry.com

Date   07/16/2014 16:14

The following URL will take you to Sand Box Geometry.org and construction of inverse square connection.   sandboxgeometry.org/hartford-maa-august-2013.html

HARTFORD CONNECTICUT MATHFEST AUGUST 2013

MY **CSDA** WORKS SCALAR MATH PROPERTIES AND VECTORED GEOMETRY PROPERTIES OF FIELD ENERGY CURVES. MY FIRST PAPER (LEXINGTON) IS PRIMARILY VECTORED G-FIELD ENERGY CURVES. SAN DIEGO DEALS WITH SOURCE PRIMITIVE OF SCALAR PROPERTIES OF THE DEPENDENT UNIT PARABOLA CURVE AS WELL AS PROPENSITY OF THE INDEPENDENT UNIT CIRCLE TO ACQUIRE PHYSICAL PROPERTIES OF ENERGY CURVES POPULATING OUR PHYSICAL WORLD (I DEMONSTRATE PLANE GEOMETRY SOUND WAVE PROPAGATION AS AN EXAMPLE OF **CSDA** CURVES WORKING TOGETHER). HARTFORD PRESENTATION IS PRIMARILY SCALAR, EXPLORING ESSENTIALS OF DIVISION AND MULTIPLICATION. I DO SO WITH TWO INFINITIES. MACRO INFINITY TO METER RADIAL EXPANSION OF ENERGY CURVES AND MICRO INFINITY TO USE INVERSED CURVATURE EVALUATION OF MACRO SPACE RADII. IT ALL BEGINS WITH EUCLID'S PERPENDICULAR DIVISOR. I PROVIDE THE FIRST EVER EUCLIDEAN PLANE GEOMETRY METER OF INVERSE SQUARE ENERGY CURVE PROPAGATION BY SUBSTITUTING CURVATURE AS SIR ISAAC NEWTON INTENDED HIS INVERSED RADIUS TO BE UNDERSTOOD. I DO SO BECAUSE I COULD NEVER CLEARLY UNDERSTAND A FLAT PLANE GEOMETRY CONSTRUCTION OF AN INVERSE SQUARE.   ORIGINAL COPYRIGHT GEOMETRY BY THE SANDBOX

Intentions: Using Parametric Geometry I will construct a Euclidean Perpendicular Divisor to investigate methods of construction that go beyond finding the median of magnitude. I refer to Euclid's Divisor as a Linear Division Assembly and using his precise and exact mathematical method to find linear center will create the Sand Box Geometry **Curved Space Division Assembly©,** using a Unit Circle and Unit Parabola.

The Sandbox **CSDA** will use Euclid's divisor to split our perception of field space into two infinities using curves. The first infinity will be inversed linear meter of macro space and clearly defined by the circumference of the **CSDA** independent curve circle. Here we find the collected population of inverse integers used to meter lines from Cartesian center past the unity boundary into the infinity of macro space. Curves can be used to partition magnitude. It is the construction of division as an ancient ratio comparative where linear magnitude is assigned the numerator and 'counting' integers determining partition of magnitude assigned the denominator. When 'counting' integers are inversed for denominator operation, essentially traditional curvature term used as endpoint position in the micro infinity composing radii endpoint magnitude in macro curved space, I demonstrate the first plane geometry explanation and construction of Sir Isaac Newton's Inverse Square Law.

Parametric geometry and inverse square connection. The platform is parametric division of perfect square space (9 / (1/3)) using division diagonals on a 3 x 3 multiplication table.

alexander@sandboxgeometry.com

Early thoughts (1998) on philosophies on Central Force Fields and Curved Space; excerpted from my unpublished work "THE PLANE GEOMETRY OF <u>CENTRAL RELATIVITY</u>: COLLECTED ESSAYS on GRAVITY CURVES with *Mathematica*"

The following orbit properties are a result of four papers concerning a subject that has long held my interest. Gravity. Not so much the physics text book equations of rate change of velocity in the gravitation field, nor for that matter, the heavy calculus of elliptic integrals to define orbit positions in the field with respect to time, but the plane geometry description of working g-field (energy) curves.

My interest has always been the resulting curvature of space by gravity. Unfortunately, there seems to be no circumventing the physics text book equations to see space curves. Calculus was developed by the Master Geometer Sir Isaac Newton, to help mathematics describe the central force geometry structuring orbit curves that led to his Law of Universal Gravitation. This was my dilemma. If one did not understand the working math used to describe the nature of the field, how could one hope to visualize the shape of the field space

I had the answer to this quandary twenty-five years ago. I opened a copy of "The Mathematical Principles of Natural Philosophy " by Sir Isaac Newton and was mesmerized by the drawings. This was geometry far beyond the simple triangles, tangents, and circles I struggled with in High School. They are truly an art form. Some twenty-five years later, I would see the same complexity in a chance peak at the work of Johann Kepler, "The New Astronomy".

If geometry had been the base tool for these two great Masters, then it might be possible to use Euclidean geometry to produce and define the shape of a gravity field.

Discouragement of such an avenue for field investigation, is abundant. The philosophies concerning the nature of our Universe have divided into two camps. The classic mechanics of Newton, and the quantum mechanics of Max Planck and the twentieth century. Even the geometry of the space occupied by the Universe is divided. Euclidean space seems to falter in the space of nuclear interactive forces (the two forces needed to build atoms, attraction and repulsion) as well as at

velocities approaching the speed of light. The geometry of Euclid needs relativistic correction when examining these facets of the creation.

Professor Einstein spent the years after his publication of "The Theory of Relativity" (Special, 1905) and the "General Theory of Relativity (1915)" in search of a Unified Field Theory. This theory would be the lens to clarify the blurring of the fields produced by the four forces of nature. This blurring of field forces produces the dichotomy suffered by natural philosophies of Quantum and Classic Mechanics.

The four forces we know of are electro-magnetic, gravity, strong nuclear and weak nuclear. They all act over distance. The method and means by which these forces evoke influence with each other is by their field attributes. Professor Einstein believed that the fields of these four forces could be collected into one Unified Field Theory.

The mathematics explaining these fields is difficult. The mathematics of Einstein, and Minkowski N-vectors to define relativistic experience of gravity is even more esoteric. Hence the effort to understand the Nature of gravity as an approach to understanding energy shaping field mechanics has become, in one word, recondite.

The difficulties of the mathematics defining the nature of fields are overwhelming and only reinforced my determination to find a method far less complex, to view the shape of curved space.

Fall 1997   Alex L. Garron Jr.

SANDBOX GEOMETRY MISSION STATEMENT:

I use parametric geometry as an exploratory tool to discover (and understand) aggregate knowledge (over the last 400 years) for presentation to 21st century 8th -10th grade students using 21st century technology to rediscover philosophical beginnings and study of the central force fields we live with.

I use the term *aggregate knowledge* with this reasoning. To provide a basic synopsis of central force field technology we must bridge the divide between classic mechanics of Sir Isaac Newton, Galileo, and Kepler, with Thermodynamic and Quanta Philosophies. Difficult but not impossible using computer-based math technology and God given human imagination.

- I'll begin with central force gravity curves described by Sir Isaac Newton, touch 1850 Russia with a visit with Dmitri Mendeleev and his work on the periodicity of elements.
- I'll use GeoGebra to find the link parametric geometry provides constructing planetary orbit energy curves; and use that link to build a nuclear standard model. Once methods constructing an atom have been found, using unity lines and curves of a **CSDA**, periodicity of vibration (the only motion a single atom can exhibit, alone and outside the collective); can be constructed using a dynamic latent heat thermometer. Such motion by vibration can only be induced by change of latent heat phenomenon with time expended energy input output. Parametric construction of a dynamic latent heat thermometer on the first ten elements will be demonstrated.
- Next, we visit Quanta Philosophies to acquire rules shaping atoms in order to construct the first ten elements of Mendeleev's vision. I construct one atom. I use unity lines and curves used to construct one to construct two, explore electromagnetic bonding of two like elements.
- We'll finish this rendering of two central force fields, gravity and nuclear, with a return to 1850. It is at the beginning of Thermodynamic Science I

borrow the concept of heat (Q), removed from the captive bonds of earth; transitioned to interstellar space where chaos of (Q) resides. From 3°K @ interstellar medium (ISM) to 10's of millions of degrees K @ stellar centers. ISM is the where, chaos of Q (cold to hot; our solid, liquid, and gas) cultivates Greek Philosophers perception; Earth, Air, and Fire.

I have found means to simplify the complicated using parametric geometry construction of energy curves derived from two central force fields of study, classic mechanics (gravity) and quantum philosophies. I author a melding of Sir Isaac Newton's Classic Mechanics (gravity) with energy curves of Quantum Mechanics using simple analytic geometry animated with dynamic math of GeoGebra. ALΣXANDΣR; CEO SAND BOX GEOMETRY LLC

http://farside.ph.utexas.edu/Books/Euclid/Euclid.html

Euclid's Elements is by far the most famous mathematical work of classical antiquity, and also has the distinction of being the world's oldest continuously used mathematical textbook. Little is known about the author, beyond the fact that he lived in Alexandria around 300 BCE. The main subjects of the work are geometry, proportion, and number theory.
Most of the theorems appearing in the Elements were not discovered by Euclid himself, but were the work of earlier Greek mathematicians. Euclid is generally credited with arranging these theorems in a logical manner, so as to demonstrate (admittedly, not always with the rigour demanded by modern mathematics)…

It has been almost 2500 years since an update on this foundation philosophy of human math. I intend to do so using parametric geometry (for elementary calculus), Descartes coordinate system (for algebra and analytic geometry), and human imagination; set free from constrained heavy rigors of the past 500 years.

A new invigorated perspective can't hurt! Especially since we of the 21st century have a game changing tool! For ancient Greece, it was the compass, straight edge, and sand box. The computer is todays sand box and has it all. Thanks to https://en.wikipedia.org/wiki/ Alan Turing; beginning philosopher of theoretical computer science. Let me suggest we leave math rigors in Computer Algebra Systems programs, and enjoy untethered exploration of our human knowledge base. Not all of us have the acumen to endure hammering and shaping required by higher ed for permission to enter their chat rooms. Set free your imagination!

CAGE FREE THINKIN' FROM THE SAND BO

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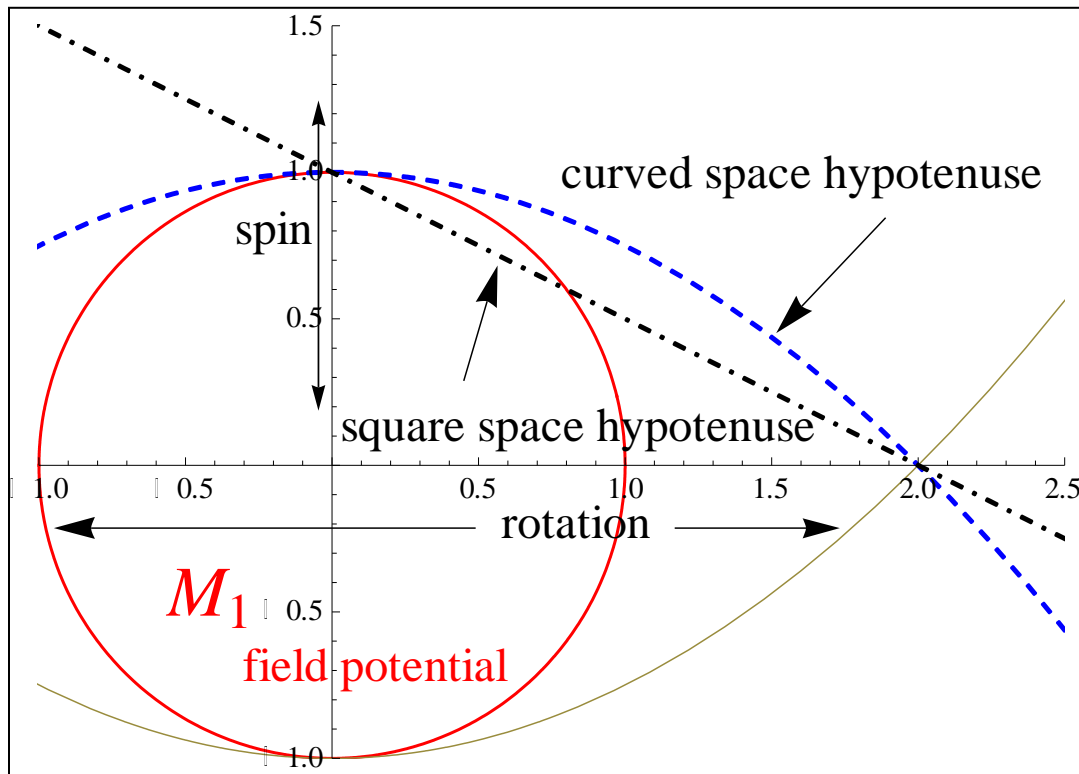

Figure 1: CSDA demonstration of a curved space hypotenuse and a square space hypotenuse together.

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