

A GLIMPSE INTO THE ALL-ENCOMPASSING REALITY



How all that exists is merged into one

The Unified Reality. Why?

- All that we see around us, including ourselves is real. So why do we have the notion of ‘The Ultimate Reality’?

The way we see the Universe and perceive our own ‘living’ could themselves be the Ultimate Reality. After all we are witness to them, to say the least.

Here is why

- **BECAUSE OF MATHEMATICS (AND THE MATHEMATICIANS!)**
- **BECAUSE PHYSICS PERPETUALLY HINTS US**
- **FOREMOST, MIND CONSTANTLY CRAVES FOR IT**

Different words in different languages

“Implying the same meaning”

Studies of mathematics, physics, biology, psychology and methodic philosophy point to the ultimate tapestry in their own contexts, and by their own terminologies—all in a nutshell insinuating a texture beyond the reality of the universe we directly perceive.

Starting from concepts of Zero & Infinity, mathematics in myriad ways reveals how entities exist, and even continue .

A GLIMPSE FROM MATHEMATICS

Mathematics doesn't provide clues as to what the Physicality is like, or what the Ultimate Texture could be. The very existence of Mathematics itself images the existence of the Universe.* The rationality behind the existence of mathematics parallels to the rationality behind the unfolding and continuance of the universe.**

* a well pondered fact in the mathematical community

** explanations in my just released book: [Physical Laws of the Mathematical Universe: Who Are We?](#)

Major branches in Mathematics

- Arithmetic
- Geometry in all its forms
 - Euclidean
 - Coordinate
 - Differential
 - Algebraic and relating to Topology
- Trigonometry
- Set Theory
- Group Theory
- Algebra
- Calculus
- Statistics and Probability
- The Mathematics that goes into the Advanced Concepts and Theories
 - Spacetime continuum
 - Parallel-dimensions
 - Multi-dimensions (like by Calabi-Yau Manifold)
 - String Theory and its inbuilt Symmetries and Super-symmetries
- & Mathematical Paradoxes (I will get to some of them)

All of these in one way or another reflect the way the universe structures and goes on

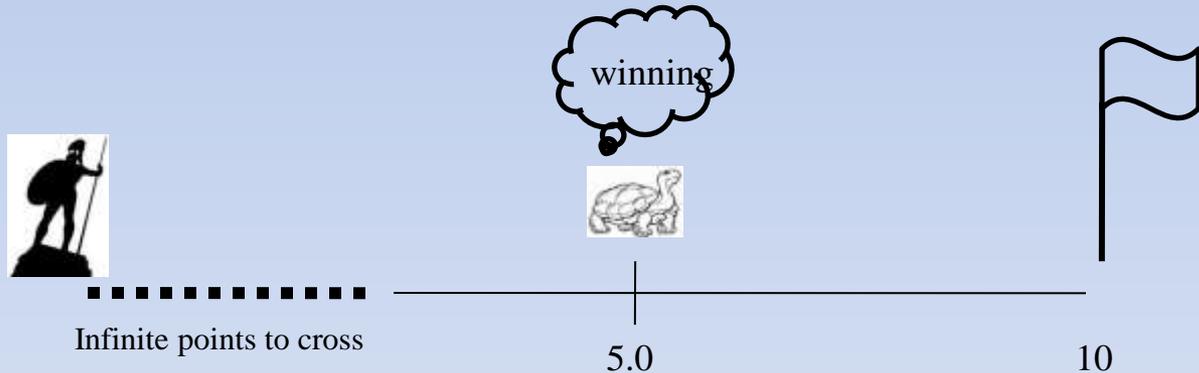
A simple arithmetic

“Countability Is possible only because there is an empty space present between the counts”



Zeno's paradox:

Achilles cannot win a race with tortoise if tortoise starts slightly ahead. Paradox exists because of infinite countability between any two points on the race track.



Example: Between points 1 and 2, infinite points (in no specific order 1.12, 1.13, 1.14; 1.121, 1.122, 1.123; 1.211, 1.212, 1.213.. so on) exist.. There is no upper or lower limits, or a specific range of counts in between counts.

This lead us to -

The concepts of Zero and Infinity

- ‘Zero’ is not an entity that is smaller than 1, it is simply the empty-space before One. Addressed as ‘nothingness’ in ancient philosophical texts, Zero would imply the absence of countability.

*Theories and concepts in advanced physical sciences and teachings in ancient philosophical texts advocate the presence of an extent besides the furls of space-time. The ‘self-realized’ call it the ‘Watcher’. The aspect of ‘observer’ self sprouts in the empirical judgments and mathematical explanations**

INFINITIES

Set theory in mathematics describes different levels of infinities, based on the count density.

For instance: 1, 2, 3, 4 as discrete entities are part of a set.

In comparison, there are numbers which have infinite decimal expansion. As a result their number space will be far more dense.

Through different levels of infinities originated the concept of Universal Set

Russell's paradox:

A universal list, which contain all the lists.

The notion basically implies that that the universal list should be part of itself, for the statement to be correct.

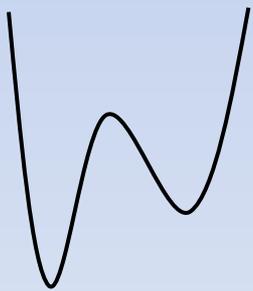
Such mathematical paradoxes are in fact revelatory, and point to a larger conceivable picture of the actual reality.

I cannot go into more detail in this introductory presentation. This is explained with a possible resolution, in a general reader's layout, in the just released book.

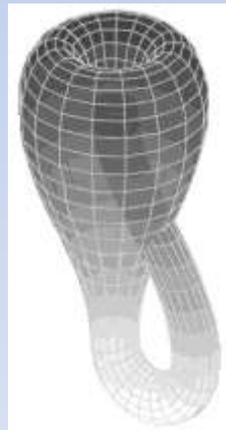
[\(Read about the book.\)](#)

MATHEMATICS IMAGES THE PHYSICAL UNIVERSE

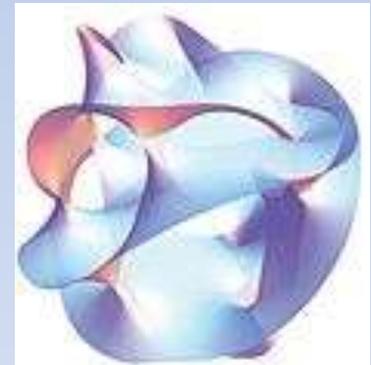
- These are only tiny amount of glimpses from simple mathematics. The detailed shine of physicality, and how utmost space-time flows can be envisioned from fields of Arithmetic, Geometry, Set theory, Algebra and its complex forms.
- Mathematics in its complex states such as Topology, Calculus, the higher dimensional forms (such as Calabi-Yau manifold) can highlight how the Universe exists through the continuum of the entities.



A polynomial expression



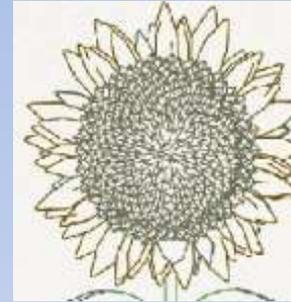
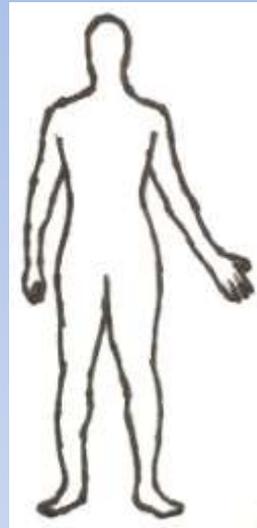
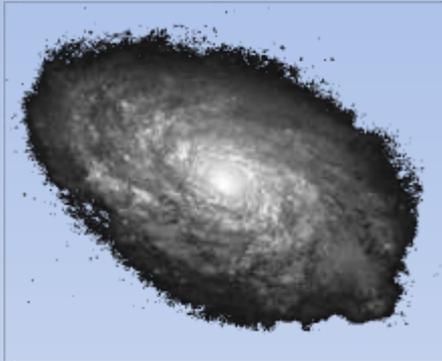
Klein bottle: A Mathematical form



Calabi-Yau manifold models the continuum of dimensions, higher than that of three that we sense (Image credit: A Hanson)

A little glimpse from the book.

THE UNIVERSE IS MATHEMATICAL



Some of the natural objects (from an ever expanding list) that reflect a mathematical pattern, known as The Golden Ratio. The number (1.61803) denotes an unending decimal expansion.

THE MIND IS MATHEMATICAL TOO



Parthenon



Mona Lisa



Pyramid of Giza



Notre Dame



World class music symphonies
(such as by Mozart and Beethoven)

Beautiful man made objects and human creativities that please the mind reflect the Golden Ratio too.

Mathematics has a power to illustrate most elegantly how the parallel worlds, encompassing the universe and the mind entities exists. The findings in classical and advanced physics run alongside such illustration.

PHYSICS CORROBORATES WHAT MATHEMATICS ILLUSTRATES

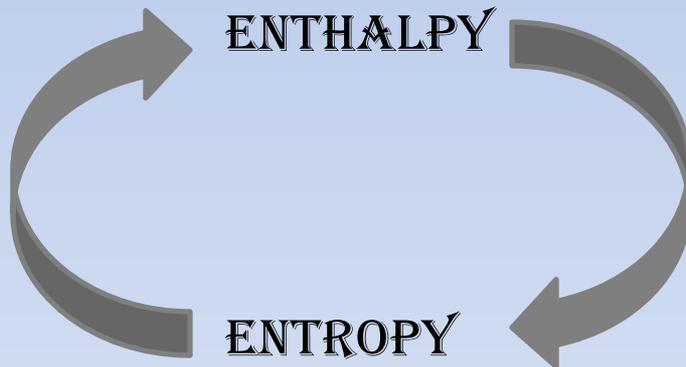
- Classical mechanics
- Thermodynamics
- Special and General Relativity
- Quantum Mechanics
- Proposed unification of matter and forces by the string theory and all its modernizations.

*As an example principles of physics tell us that To Exist is to Co-Exist
Advanced concepts suggest that the matter and the universal forces exist through
“dualities.”*

Simple examples of duality are Action-reaction; Enthalpy-entropy; Mass-energy; Space-time; Space-movement; Particle-wave; Mass-gravity; Matter-antimatter; Mass-force; Positive-negative. The workings in the universe occur in partnerships.

THE EXISTENCE THROUGH CO-EXISTENCE

- Co-existence imply concurrence. The partners are the flip sides of the same coin, or reside in symmetry, an indispensable concept to understand the working of the universe.



Enthalpy and entropy are the flip sides of the same coin.

CONCURRENCE IN PERPETUITY

Symmetry implements through all that there is. It is in the structure, and it is in the process. Physics from every angle highlights the infiltration of concurrence or symmetry. Mathematics beautifully illustrates how concurrence (or symmetry) prevails alongside the image of the empty space. Our existence itself could point to the essentiality of the manifestation of symmetry, at all levels .

Because of the introductory level of this presentation I can highlight only a small number of points from the subject that I am trying to communicate. There are exponential details and astonishing beauty on the path that could lead to the ultimate schematic of space-time, and its evolution.

For instance, how symmetry is essential for the unfolding of the Universe, or what is the role of concurrence in the implementation of parallel universes cannot be pointed here. For queries and talks write to me, or take a peek at [the book](#).

WHAT IS MIND?

- The sum of entities that exist through us
 - Emotions, Interests, Passion
 - Memory
 - Dreams

Independent of these entities we have the five senses through which we perceive the 3-D universe.

THE UNIVERSE AND ITS PARALLEL UNIVERSES

The continuum of parallel universes that quantum mechanics relentlessly indicates must subsume our own dwell in its flow. To see how we would need to tease out the truest nature of self.

This is an introduction in a minute quantities. The details are not just end-less, they are the most ravishing.

PHYSICAL LAWS OF THE MATHEMATICAL UNIVERSE: WHO ARE WE? sets off from the first page on an arduous and ambitious journey to define and describe a comprehensive depiction of reality that embraces the rigors of physics, the elegance of mathematics, and the intricacies of human perception. Neeti Sinha brings to bear her extensive education and research as she pursues an explanation that unites these often disparate disciplines in service of a nuanced description of the wonders of the whole universe.

In the course of its exploration of this topic, *Physical Laws of the Mathematical Universe: Who Are We?* unites insights from the fields of mathematics and physics in light of human perception to explain the contours of the universe and the origins of its parallel forms. The work also demonstrates how major scientific conundrums find their resolution when one adopts a holistic perspective. Finally, the author uncovers the profound foundations of human appreciation for truth and beauty in the aesthetics that bind together physics and mathematics.

If you look at your life and the world and wonder about their true nature, then *Physical Laws of the Mathematical Universe: Who Are We?* will accompany you on a journey that may test the limits of your understandings of the universe while opening to your gaze vistas you previously had not imagined.



Author photo by
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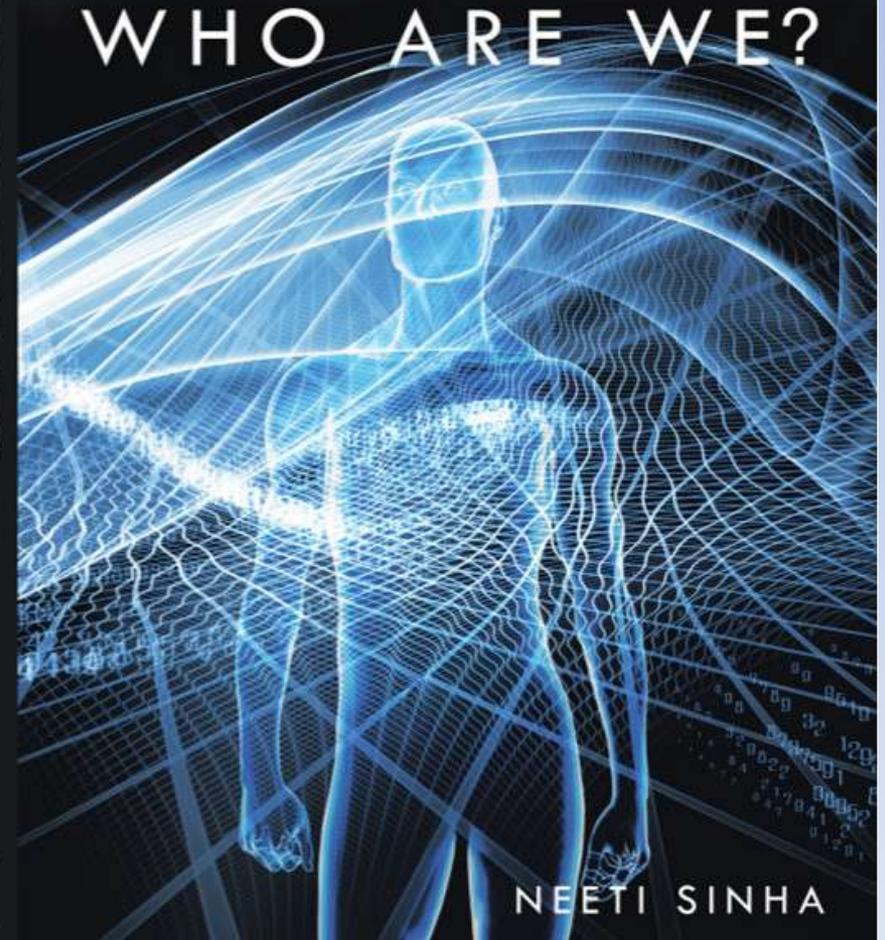
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PHYSICAL LAWS OF THE MATHEMATICAL UNIVERSE: WHO ARE WE?



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MAGNIFIED UNIVERSE: COSMIC LANDSCAPE IN QUANTUM DÉCOR

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P. S.: Don't get baffled by the involved mathematics and theories in physics. Their complex forms can be seen in a most simplified way to acknowledge the spacetime continuum that physics describes, and mathematics exposes.