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The Abstract:

Riemann Hypothesis Resolution Using Nash equilibrium to find the best location of non-trivial zeros and discovering the locality-at-a distance (Bell's theorem) in mathematical field

I

ntroduction:-#The established concepts here in my work here will reveal entirely a new aspect about the entire physical envelope of mathematics itself , hence raising a revolutionary question in the minds of all of us that how far mathematics is truly capable of representing/describing different physical phenomenon/scenarios. This paper will change the fundamental way mathematicians have been looking at mathematics so far in history and its extremely mysterious relationship with physics and thus clarify that why it resisted the elementary methods of mathematics in past . and the most important thing is that to comprehend this paper sense fully individual imagination of reader is extremely crucia.l It will show that how even 'points in mathematical space' are also aware of John Bell's theorem(that two separated points on the piece of paper are inter-linked a nd well-informed about each other and hence leaving no chance for breaking symmetry of pattern and non-singularity in Nature. Anywys, nature includes the paper on which I have drawn the graph of Riemann zeta function in **figure Y** .

Riemann hypothesis states that nontrivial zeros of Riemann Zeta function in the domain space Ω_o lies on the critical line R(s) = ½. It indirectly interprets the **physical pattern** that nontrivial zeros in domain space Ω_o will lie on the geometrical **line of symmetry** of domain space Ω_o, exactly like in the case of domain space Ω_1 wherein all the zeros lie on the line **bisecting** Ω_1 where Ω_o & Ω_1 are analytically continued domains of Riemann zeta function 'f(s)'.

Thus, it discloses that origin of mathematics which we ourselves defined considering some set of physical presumptions (***what we call LOGIC in literature***) emerges in the resolution of Riemann hypothesis and mysterious physical property is :-

"In analytically continued domains, the line of degeneracy (zeros) coincides with the corresponding bisecting lines of domains Ω_o & Ω_1. Both will have same number of line of degeneracy (zeros). As the zeros are *symmetric* about R(s)= 1/2 in Ω_o , only way to locate them spatially will be only one line of degeneracy in Ω_o like Ω_1 where the line of degeneracy(zeros) coincides with the line of symmetry which further lies in the direction of **degree of freedom** of the domain space." I meanreaders should try to figure out the possible ways of arranging periodical zeros in the domain space and thus automatically one will realize that only possible way to aarrange all zeros can be as mentioned in famous Riemann hypothesis.(reader should consider oneself as subject student of drawing while reading this paper and try to do manually on a piece of paper.

What it also reveals that when decimal system in numbers, operators like *addition, subtraction, multiplication, division, the numeric '0'* we had borrowed some **LOGIC** from basic physics which has emerged in the mysterious results of Riemann hypothesis.

Ant this is why entire physics of Riemann zeta function is restricted to the physical presumptions while evolving complex number, 0, power function(), of which Riemann zeta function 'f(s)' is constituently made up of. My work tries to illustrate and reveal these latent physical principles of symmetricity governing the mechanism of mathematical steps of each constituent of zeta functions which has emerged in the particular way of spatial locations of zeros of 'f(s)'. It unveils the entire physics of SYMMETRY and reveals that locations of zeros in domains Ω_o. and $\Omega_{1,}$ lie long the *only possible direction of degrees of freedom ,no matter it seems to us visually along real axis(horizontal) or imaginary axis(vertical direction) in affirmation to the basic assumptions of Euclidean principle of relativity—which is the underlying assumptions while developing quantum mechanics that denies the absolute significance of direction.(Ref.P.N.410-418,chapter 17,Quantum Mechanics,Third edition, Eugen Merzbacher)*

I ,therefore request readers/reviewers first to try to unearth the physical presumptions which were taken by none other than our predecessor mathematicians themselves while developing the elementry constituents of mathematics e.g. *positive, negative, multiplication,division, power, 0*) etc. and their mechanisms precisely and extremely minutely in terms of **physics of symmetry**) . Secondly, try to relate that how same presumptions (what we call **LOGIC mathematicians took earlier**) govern the particular locations of zeros of f(s) *that appears extremely mysterious* to mathematicians of similar mindset".So, qualification I would seek in readers is to start with an extremely crude mind power as totally unaware of mathematics and question none other than oneself at each and every no

matter obvious step about the latent governing physical principles of symmetry .in Ω_o. and Ω_1.

The clue is to question even most basic assumptions for example : why negative * negative becomes positive ? and if so what are the restrictions it leads to the possible structural world of mathematics in future? I few change this elementary aspects of mathematics, what consequences it will have on the Riemann hypothesis's mysterious result .Will still the line of trivial and nontrivial both kind of zeros remain on the symmetrical line of respective domains??.

It further throws light upon the factthat :what's the core difference between function being real-valued and complex-valued in context of physics? That is, my work here unearths the truth of **Real-valued** mathematical functions which are based upoon the Newton's classical laws of Kinematics. So,to describe /represent quantum phenomenon that characteristically remain invariant under arbitrary displacement in space & time weurgently need to develop/evolve newmathematics beyond '**Real valued** function' to represent such physical phenomenon. Hence, the evolution of complex- valued mathematical functions which considers '-' & '+' no more simply relative to each other *Ref.(P.N.12-13,chapter-2,Quantum Mechanics,third edition by Eugen Merzbacher*).

Thus, it leads to the future precautions for physicists and applied mathematicians both :- whenever applying mathematics to describe /represent any physical/economic or any other phenomenon/scenarios, we must first check at least 1000 times whether **real-valued** function is capable/compliance of/with representing that or not and avoiding blunder lying t the boundry of physics and mathematics and mysterious/bizzare consequences like in Yang Mills mass gap experiment in contrast to

mathematical results of special theory of relativity using Lorentz transformation.. Hence, to write the equation of quantum geometrical objects/phenomenon/scenrios likes *spherical wave front of light* in the mthemtical formulation of specil theory of relativity --which remains invariant for all observers --*complex-valued function* is required. so, there is ugent need to develop new branch of complex- valued mathematics to deal with such physical phenomenon to deal with quantum geometries.

At last. It will not be unjustified to mention here that discrepancies in mathematics and physics, can come up if not properly/precisely checked before applying as in the case of mathematical formation of physics of special theory of relativity using real-valued function for quantum geometrical objects e.g. spherical wave front- leading to *Yang Mills mass gap experimental results*.

Riemann hypothesis Resolution, hence paves the way for establishing the restrictions of mathematical function for representing physical scenariosin order to avoid friction between mathematics and physics. After all, mathematics is alanguage of physics and so, we must check its compatibility with physics s we do in terms of computer language and the hardware running it..

So, please, forget entie mathematics like a **crude novice learner** and keep on searching step by step physical assumption(in terms of underlying SYMMETRY) behind each mathematical definitions we proceed hereonwards and check *which physical property remain intact/invariant under symmetricl trnsformations* while carrying out of these mathematical steps. Once we are able to do/realize these latent,inherent physical principles of SYMMETRY in I think Riemann hypothesis is resolved!

Reader will find the both qualitative and quantitative parts of proof, although just few qua ntitative steps involving the 0(zeros) is suffiecient to resolve Riemann hypothesis.

One will find the quantitative part under exclusive heading in the text "***Quantitative Main Proof of Riemann Hypothesis"*** **and the figure Y** drawn at last. Rest is Qualitative aspect of resolution to better feel my work intuitively.

Qualitative part starts here:

1. Every thing in this Universe is composed of matter/energy any subject/assumption/thought/thing is technically driven by the Physics of Matter and energy and hence the Riemann hypothesis.

Whenever, we define some mathematical figures, we presumes some physical principles (what we call **Logic**) behind that ,

So envelope of mathematical processes and phenomenon is restricted within those specific principles of physics.

Example:-

(i) Suppose if I define '**COW**' as a biological figure representing non-aquatic animals, all theenvelope of behaviors of cow is restricted to the biology of non- aquatic organisms.

So, **cow** can't represent an animal which is *aquatic*. The scope of cow is restricted. similarly in mathematics- physics when we define 'X' as figure representing only physically symmetric found objects in Nature so, 'X' can't represent asymmetric objects. So, X is restricted to the physics of symmetric,

Another example:-

(ii) If we define 'y' that changes its physical characteristics upon the co-ordinate transformation 'y' can't represent any quantum variable (which is invariant physically under co-ordinate transformation.)

That means capability of x & y to representing the type of physical phenomenon is limited same property holds true/reflected in Riemann hypothesis. Whatever mathematical figures we see as the constituents of Riemann Zeta functions and equation, all were defined on the principles of homogeneity, and uniformity so, the entire physics of Riemann zeta function is restricted to the physical principle of uniformity and homogeneity.

i.e. In two domains Ω_o &Ω_1

underlying symmetry would remain intact i.e.

a) Number. of lines of degeneracy would be same in Ω_o &Ω_1.

b) Line of degeneracy is the spatial line of symmetry along the **direction of degree of freedom(***extremely crucial***)** of the respective domain regions.

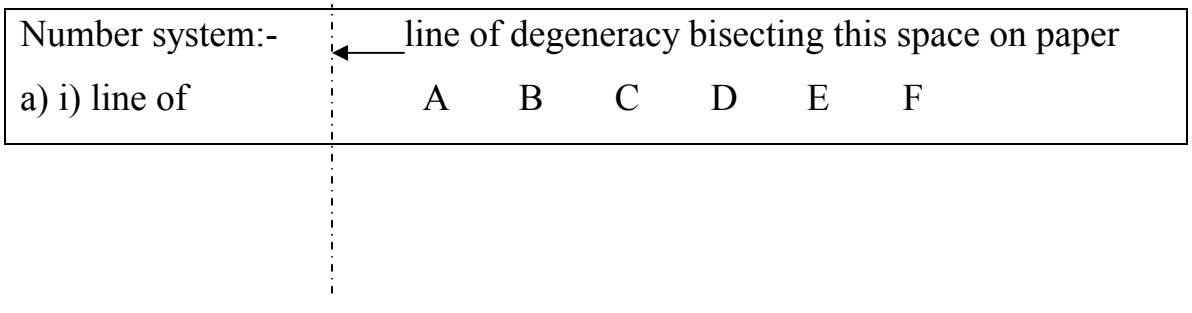
What we have to change our view of looking at R(s) =1/2 as nothing but the spatial line of symmetry along the direction of degree of freedom.

i.e. analytically continued domains Ω_o &Ω_1

retain the pictorial/physical symmetrical properties .

For that we will now define the physical principles upon which entire Riemann zeta function rests or exists

Note:- Visualize the mathematical variables as the artistic figure and find the physics behind that.



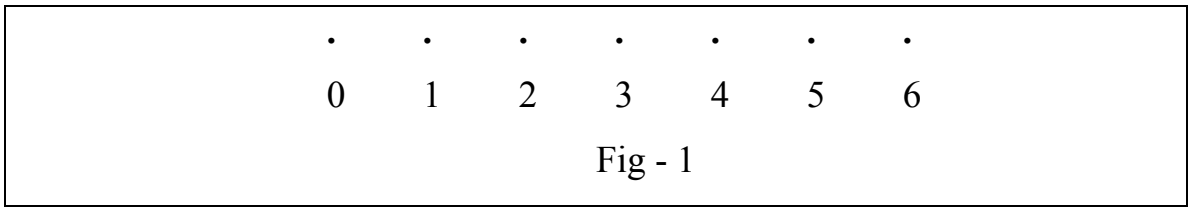


Fig - 1

Relativity in number system:

If OA=1 (Base)

Distance between OB= 2 unit

OC= 3 unit, OD= 4 unit

But if we assume OB as 1 unit (Base) then

OA= 1/2 unit

OC = 3/2 units

Hence

numbers 1,2,3,3/2,1/2,1/3 etc. all are relative w.r.t each other Space underlying variable (here fixed space on the paper) will change its value the moment base value is changed.

Mean to say :- if I say what is the numerical value assigned to the distance between New York and Washington D.C.- this can have different answer, depending on the unit of base taken by observe if measures in term of cm it will be different In term of Km, it will be different.

So as the observer define the unit distance,

2 mean double the space **congruently**

3 men triple the space **congruently.**

Physics of '**congruently**'(means discreetly homogeneous,equidistant) is presumed here in Euclidean space of this paper.

The numerical value of the required distance would vary(taxonomy of projctive geometry*; [Ref.Weisstein, Eric W. "Projective Geometry." From MathWorld--A Wolfram Web Resource. http://mathworld.wolfram.com/ProjectiveGeometry.html]*

What is the underlying physical situation that we intend to represent using numbers like 1,2,3,4 etc.?

Numbers are relatively assigned to something in Euclidean/Newtonian space as in Newton's law of Kinematics.

And here a portion in Euclidean space on THIS paper or this Earth space is represented by number.Numebers are merely a language through which we are describing some underlying physics. Prime numbers don't have any isolated existence,rather we can find the particular pattern between the coreesponding points in physical Euclidean space of paper.

And the extremely important part is that in this Universe something occurs not just because of its internal mechanism but also on the external environment /repercussions of the occurrence of event. That's what is theorized by John Bell(interconnectedness in Universe).The way the things occur ,because that's the most favourable way and "**shortest"**(not necessarily as defined in Occam Razor. Trajectory that appears to be relatively longer and unfavourable in a subspace can be the shortest in thecorresponding space . I mean shortest path could be locally longer. This was probably the virtual abstract behind the General theory of Relativity as proposed by albert Einstein which says : a particle traces geodesic in the distorted spac-time. We need to expand the meaning of Geodesic within the domain of Euclidean

space to Quantum space where space and time might not be most elementary concepts rather we realize them just because of special wave-like character that produces feeling like space-time to our senses. I know in the most likelihood it seems delusional to most of us, but that could be the hard reality of nature.any way non-fundamentalism of space-time was talked about in attempt to resolve EPR(Einstein Podolsky-Rosen Correlation) paradox.

And the most astonishing fact is a particle knows inherently what is the shortest trajectory in the long term! What is coming into mind that no principle of causality can resolve it considering space and time as the most basic entity.

What I mean here is that Motion what has been seeming to us as a fundamental event in nature could be nothing but an internal experience in our eyes. Ref. [*http://www.google.co.in/imgres?imgurl=http://www.paraswadher.com/wp-content/uploads/2009/05/optical-illusion.png&imgrefurl=http://www.paraswadher.com/2009/05/optical-illusion-2/&h=768&w=1024&sz=264&tbnid=iA3yRuihzbBeWM:&tbnh=113&tbnw=150&prev=/images%3Fq%3Doptical%2Billusion&zoom=1&q=optical+illusion&hl=en&usg=__dV_8dTSQk-IdNib8-fUcuMgXSL0=&sa=X&ei=B5lbTf-tEYSyuAPQ2aWWDQ&ved=0CCMQ9QEwAA*]

Why I am explaining these (might seem deviated to the reader in the short term!) is that

Even mathematical results are fundamentally a physical phenomen and the mysterious mathematical results are nothing but a reflection of mysteries in Nature itself.

Any ways ,mathematics is just alanguage of Physics that we use to communicate the underlying realities physical Nature.

In the simplest way I am saying : can there be any other way the line of zros of Riemann could be located given the ambit of physical laws. Readers can themselves think of it and find the best way to avoid unnecessary chirality, handedness , non-singularity ,[*Ref. P. 410,Chapter-17,Quantum mechanics ,Third edition,Eugen Merzbacher*] the best way is as Riemann hypothesis bwilkl have to be true at all cost.(but this justificationby me is just another way out to facilitate readers to imagine what I mean to say. This isjust a cross verification after unarguably confessing that Riemann Hypothesis is true.

(ii) While defining negative number we take the mirror image of the physical space covering '+' numbers as in the figure 1 so, again physics of congruency in space is the basic assumptions behind the mathematics of '-' & '+' Numbers on **number line**.

Visualize positive numbers spatials and negatives numbers spatial location are exactly equal/congruent (**or mirror image as in optical physics**) with each other.

Law of congruency" in physical space is assumed to define '+' & '-' on number line.

'+' & '-'are relatively defined w.r.t. each other '+' & '-' are not absolute phenomenon rather depends on the observer's convention. so it is compatible with Newton's classical mechanics.

It assumes that 'space' is assumed to be constant in dimension observers can discretely define the space and all space intervals are fixed constant visually by humanize .

It, observer can't defined fixed/congruent space- intervals numerical distinctions can not exists to represent these spaces as they can n't be quantized. So numbers are compatible with only those physical phenomenon which can be quantized(*Ref. P.4,chapter1,third edition,quntum mechanics,eugen merzbacher).*

As in EPR paradox resolution, if space- time are not basic entities, we can find something which cann't possess fixed dimension in space-time. There can be found so many quantum particles which are in divisible hence numerical distinctions has no relevance here

#What is '0' ?

'**0**' is something lying exactly congruent or the bisection of entire physical space on this paper covering positive & negative numbers

'**0**' lies on the mirror bisecting the image and object spaces (as in opticsl physics) this is the **line of degeneracy**

It' doesn't exist physically in space of paper it's just something reference w.r.t. others spaces are quantized .

So, '**0**' is the "**absolute"** phenomenon. It lies on the line of degeneracy of a function in the domain space where it has been defined/pictorially /graphically drawn

0 means those points in graph/picture function changes its nature

#Physical inference :- Absolutism is the genesis of Relativity That's the physics underlying 0(zero).

"Relativism property found in nature in macro space that we visualize through eyes has its genesis in absolutism" lying in side the brain through which we sense the external word as talked in the epestimological body of

thought by Bohr while developing the Quantum Mechanics (*doctrine of complementrity Ref., P.4,chapter1,Third Edition,Quntum Mechanics,Eugen Merzbacher)*

Physically in term of classical law of mechanics of Newton observer is absolute and discretionary and spatially located at the point of origin '0' ie zero positive, negative displacement are defined w.r.t the point of origin 'O'

Or, Origin an independent phenomenon located at '0' in the physical space of this paper

Or, **'+' -' '*'/,** are derived products from 'O'

Zero is a physical phenomenon of indivisibility hence, non- multiplicative

So, **0** is something where spatial distention on the paper vanishes the physical space of paper.

So, **0 * 0** & **0/0** is meaningless.

as '**0**' represents Physical phenomenon of **indivisibility** and **non-multiplicity**

Physical principle behind mathematical and process higher

1 Decimal system:- 987654321 **.** 987654321

2

Fig- 2

3 It pressure that Ω_o & Ω_2 are same in the aspect that both are analogs to micro and macro spaces.[this is the most important preassumption taken while developing decimal number system.is it not analogous to mico and macro space s in Euclidean spce and

quntum mechanical space.this peassumption restricts the entire physics of symmetry of number theory bsed upon decimal system.*if we change it hereiself,entire results of number theory and hence, the results of Riemnn hypothesis will change accordingly.CRUX of seemingly mysterious(but actually not)RIEMANN HYPOTHESIS* (terminology I have used is same as in the above mentioned in reference chapters of quantum mecxhanics by Eugen Merzbacher.)

b) Ω_2 & Ω_1 are complementary and relative reciprocal mapping of each other.

i.e. both are reciprocal of each other although these two domain spaces appearedto be micro & macro in Euclidean space of **this paper**, its not so actually as the outside world and cur brain's internal world(doctrine of complementarity) are both relative image mapping of each other. As the case is with convex lens. but the internal laws of both the spaces are same – [**An important revelation in physics will follow from here,nd it's really the case and give the fundmental clue to unify relativity and quantum mechanics and this will follow from the implications ofRiemann hypothesis**]

which forms the LOGIC while evolving (defining in mathematical operation) as below (*try to questioneach and every elementary step of ,say for example 'multiplications of two decimal system numbers' and try to find out the underlying physical assumptions*.:-I take case of multiplications here for example

3589	&	3589
X 4527		X 4527

Fig-3

i) We start from right to left	i) we start from right to left
ii) different digits lie on the different levels are analyzing to energy levels	ii) Same

inside an atom. That's evident when we keep on shift one place left consecutively after finishing each line e.g. here by 7,then,2,then5,then 4(why so? Try to find the similarity with quantum mechanics of energy levels inside the atoms.

iii)	Every digit gets an equal chance Participate	iii) same

So, these mathematical laws are delibertely made analogous to physical realities .i don't know then why it seems so mysterious to us in the case of Riemann hypothesis..a fmous proverb suits here to clify what I meant to explain so far in this paper.: "**As we sow,so we reap".**

Indeed relativistic and quantum would both are special mapping of each other. And even in relativistic world. Energy levels like inside an atom exists, which might be hard to imagine at present t first reading It might take considerable time what I mean here.

::in above case of multiplication , suppose we change the bsic mechanism i.e.specific order :i.e. reverse th e order in choosing the digital sequence nd make it hapzard,say ..first digit to second, then third,then first,then fourth nd see how the entire result. So, multiply in first row s below:

7 to8,7to 5,the 7to9 and then t lst 7 to 3 and see what happens to the entie number theory based on multiplication s basic operator and henceRiemann hypothesis.

This is the core relation between mthemtics and physics which we have developed ourselves deliberately. For cross- verification one can see by

changing the established order of symmetry in selecting the digit in basic mechanisms and I can assure: zeros of Riemann zeta functions might No more be located on the geometrical lines of symmetry in respective domains in Ω_o &Ω_1

#

Powerfunction(),e^formulae in mathematics – Physical assumption preassumed .revealation of symmetry regarding spatial locationof '0'on number line in Euclidean space of this paper

We know

$2^1 = 2^2$

$2^1 = \frac{2^2}{2^1} = 2$

$2^2 = \frac{2^3}{2^1} = 2^2=4$

$2^4 = \frac{2^5}{2^1} = 2^4=16$

But we don't know what is ment by the term

$2^0, 2^{-1}, 2^{-2}, 2^{-3}$, etc.

What presumption mathematics makes before defining there values

i) Micro world or right of decimal point is analogous to Macro world or left of decimal point in mechanism and just mapping or chagrient inverse of each other. Such that graphically or pictorially all properties like

degeneracy, continuity differtiability will be intast or we consay they are analogue to mirror image and object spaxe of geometrical optics.

Or, in projection Geometric language. Both are images of each other in physicl same of Geometrical optics so, which physical properties remain latest here.

i) Continuity

ii) Diffeniality/ degenerey

iii) Relative location of point in corresponding spaces

Mean if 'nose lies between two eyes symmetrical object domain, its mirror image will have same relative order i.e. nose will lie between eyes symmetrically only. It cann't be that both eyes will two eyes,so,physical preassumptions remain intact. [projective geometry; *Ref.*, *Weisstein, Eric W. "Projective Geometry." From MathWorld--A Wolfram Web Resource. http://mathworld.wolfram.com/ProjectiveGeometry.html*

"This is the physical property that has been preassumed while definining power operator which property is reflected/emerging in the graph of reimann zeta function which says lie of degeneracy would remain intact in anal continued domains Ω_o & Ω_0

[[Riemann zeta function f(s) is a complex-valued function and the complex function is used to represent something for which physical significance is intact despite being displaced arbitrarily in space-time.

Ω_{o+2} is mapped onto 1 as mirror reflection. Thgus physical properties of graph/interference patrtern would remain invariant [*Ref. Chapter-4 ,tgd.wippiespace.com/public_html/pdfpool/riema.pdf*]

While defining power(),exponential functions

Ω_1 is mapped onto Ω_0 and

$\Omega_o \cup \Omega_2$ is mapped onto Ω_2

So, physical properties of graph/interference pattern would remain invariant.

Now we must understand the vast meaning of term "physical property/pattern"

That means,physical properties of f() are invariant in pairwise domains regions(or space) juxtaposedly.

$\Omega_1 \cup \Omega_o \cup \Omega_2 = \Omega_0$
$\Omega_1 \cup \Omega_o \cup \Omega_2 = \Omega_0$
$\Omega_1 \cup \Omega_o \cup \Omega_2 = \Omega_0$

Case A: if Ω_1 is a space of degeneracy(zeros) in interference pattern, $\Omega_o \cup \Omega_2$ will also be space of degeneracies(zeros) or it will not be a space of no zeros at all.(both are possible forms of different type of symmetry groups)

Case B: In Ω_1 phgysical properties of graph /interference symmetrical line of domain space coincides with the line of degeneracies(zeros) periodicity of zeros.graph is symmetrical about the possible direction of degree of freedom (here only way is horizontal, as vertical cann't be possible ..and thus it denies the absolute significance of any specific direction as taken in the foundations of Euclidean principle of relativity and quantum mechanics *(P. 410 chapter 17,Third Edition ,Quantum Mechanics,Eugen Merzbacher*)

So, in o the line of symmetry would coincide with the line of zeros would be mirror image sof each other about horizontal real axis here(only possible direction of degree of freedom to locate the pattern of degeneracies.) zeros woud be periodical.

Case C: $\Omega_o \cup \Omega_2$ has no trivial zeros horizontally and Ω_2 also has no trivial zeros horizontally(Horizontally means the degreeof freedom)

#

[[vertical and horizontal are relative terms they don't have any absolute significance,what is significant is the possible degree of freedom]]

Thus the physical significance remains invariant upon mapping.and this way underlying assumptions of complex number,quantum mechanics,Euclidean principle of relativity are all intact and hold satisfied

To cross verify we can say that R(s)=0 &R(s)=1 will have same physical significance in context of graph/interference patternof f(s)as R(s)=0inΩ_0 is mapped onto R(s)=1 in $\Omega_o \cup \Omega_2$ in context of power function definition(2^0is mapped to R(s)=1 and that's why we have defined 2^0 equals 1! What physical preassumptins was taken inherently/latently while defining something raised to power '0' (is it not taking some specific physical symmetry into assumptions)

And we can cross check thatR(s)=0& R(s)=1 both arte corresponding poles in figureY in corresponding domain spaces.

So, the most important aspect of above work is that evem so called mathem,atics is independent of horizontal and vertical . what is significant is the direction degree of freedom where the physical pattern could be established. And why so in case of Riemann zeta function? This is because it is a complex-valued function(evolution of complex number to be compatible with invariancy of quantum mechanical phenomenon w.r.t. observers.)

So,

$$2^{-1} = \frac{2^1}{2^2} = \frac{1}{2}$$

$$2^{-2} = \frac{2^1}{2^3} = \frac{1}{4}$$

$$2^{-1} = 2^{1} = 8 \quad \text{——}$$
$$\overline{2^{4}} \qquad 8$$

And hence to maintain uniformily and homegenily and non- singularily

$$2^{\mathbf{0}} = 2^{1} = 1$$
$$\overline{1^{1}}$$

So, '**0**' P is bound here onwards on follow above physical laws. The moment we defined

$2^{\text{'}\mathbf{0}\text{'}} = 1.$

If we had not defined $2^{\mathbf{0}}=1$ '**0**' would n't have bounded to show this physical property.

So, '**0**' is not exclusive of other value the function attains.

It can attain value only on those location where graph changes its intrinsic nature this is a cyclic phenomenon. Function starts attaining values in a specific pattern that can be visualized in picture

(X_1) of Riemann Zeta function.

That above zero and below zero. Function a definite pattern exists. So, logically what we have to resolve :-

That in the graph of f(s) in domain Ω_1. if line of degeneracy lies on the line bisecting the domain-spaii area.

Then, line of degeneracy in analytically continued graph of f(s) in domain Ω_0 will also be bisecting the domain

Now, what is the physical aspect of mathematical term "Analytic continuation of function" ?

Analytical continuation in technical terms mean

f(s) will satisfy the same functional equ in all the domain areas in which it's continued function.

So, what is the physics mechanism behind the functional equn ?

Physics of functional equ'n mean. In all the dom the generic characteristic of function hold true.

What is meant by the "generic characteristic Illustrate :-

Generic characteristic means projective geometrical properties as degeneracy, bour or periodicity, symmetricity, will In technical term it mean the location of '**0**' or symbol of degen from where power negative, and end nuber system was defined. Will run intact.

So, we will basically focus on the generic location of 'zeros' of all function satisfying the specific all equn.

i.e. generic property of location of zeros of all satisfying the functional equ^{n}

Note:- If f(s) is analytically continued in Ω_o & Ω_0. = it automatically means F(s) will be analytically continued in Ω_o, Ω_1

[*Ref.*http://mathworld.wolfram.com/AnalyticContinuation.html]

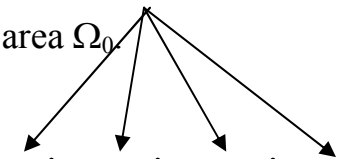
#Quantitative Main Proof. Of Riemann hypothesis

What two mathematical seln will determine the location of zeros in the domain Ω_o & Ω_0.

0 * 0 *not equal to*'≠' **0** .....(1)

and **0 * non-zero number *equal to* = 0** ……(2)

visualize how elementary terms are connected through operator '*****' for the domain area Ω_0.



$f(s) = 2^s * \pi^{1-s} * g(s) * f(1-s) * (\sin \pi s/2)$ [to be noted five constituent terms connected by'*****'**]**

If f(s) attains thennumerical value '**0**' for same 'S' in ***L.H.S.*** then, ***only one term in R.H.S***. can & must attain the n value '**0**' to hold equality sign'=' between L.H.S. & R.H.S.

Now from the graphical figures

2^S, π^{1-s}, g(s) can never attain the numerical value '**0**' [*Ref.{http://www.wmueller.com/precalculus/families/1_41.html; http://mathworld.wolfram.com/GammaFunction.html}*]

a) $2^S \pi^{1-S}$ *not equal to* '≠' **0**

b) g (s) *not equal to* '≠' **0** for all s .So, the only terms that can attain the numerical value '**0**' will be either

f(1-s)

or, sin (πs/2)

Now,

Sin πs/2= **0** for s= 2kπ where k∈I

This implies

for s= 2k π we k∈I

f(s) *equals* '=' **0** in **L.H.S.**

Iff f(1-s) ≠ **0** in **R.H.S.** [as only **one** term can be zero beacuse

0 * **0** *not equal to* '≠' **0**]

So, what does it mean pictorially/graphically

for s= 2kπ (k∈I)

The points 's' & '1-s' cann't **both** be the spatial location of zeros for f(s) .

……..(3)

for remaining points

f(s) *equals* '=' **0** iff

f(1-s) *equals* '=' **0** ; sin πs/2 *not equal to* '≠' **0** [*as only* ***one*** *constituent terms out of* ***five*** *can attain 0 on each side of equality sign i.e.* ***L.H.S. &R.H.S.*** **]**

for 's' such that 's' ≠ 2kπ k∈I

's' & '1-s' will **both** have to be juxtaposedly /simultaneously the **spatial location** of zeros for f (s).

or **neither** will be the **spatial**

location of zero for f(s) **…… (4)**

Now, in domain area Ω_o . also

f(s) = 2^S* π^{1-S}* f(1-s) *g (s) *sin (πs)/2) (the functional equn having **five** constituent terms for being analytically continued in Ω_o & Ω_0 w.r.t. each other]

2^S *π^{1-S}*g(s) *not equal to* '≠' **0** for s∈ Ω_0.

Unlike Ω_0 here.

sin πs/2 **= 0** for all s∈ Ω_o

So, technically what it means that

f(s) *equals* '=' **0** in ***L.H.S.***

i ff f (1-s) *equals* '=' **0** in ***R.H.S*** [as **one** term **compulsorily** on each side will have be **0**]

what it implies pictorially/graphically? [as **0 * non-zero number *equal to* = 0]**

It implies

's' and **'1-s'** will both have to be **spatial location** for zeros of f(s) or neither will be zeroin Ω_0. ……. (**5**)

But its evident already from the equation [The Riemann zeta function is given for complex *s* with real part greater than 1 by

$$\zeta(s) = \sum_{n=1}^{\infty} \frac{1}{n^s} = \frac{1}{1^s} + \frac{1}{2^s} + \frac{1}{3^s} + \cdots.$$

in Ω_2. **……(6)**

Ref.(*http://en.wikipedia.org/wiki/Riemann_hypothesis*)

Note; notations are different for Riemann zeta function taken by me and in the above reference; Not to be confused. Both are same Riemann zeta functions)

the

f(s) *not equal to* '≠' **0** for R(s) >1 i.e. in Ω_2

Pictorially/graphically it implies.

No 's' in Ω_2 can be **spatial location** for zeros of f(s**). …….(7)**

Now. How to satisfy (3), (4), (5)& (7) simulataneously [for becoming analyutically continued f(s) will have to satisfy the above four conditions simultaneniously. .*Ref*. [***Flanigan 1983,p.234***]

So, all (i), (ii),(iii) & (iv) will be satisfied in Ω_o line of degeneracy(zeros) bisects doman space Ω_0 in **fig.Y** in the possible direction of ***degree of freedom;here along imaginary axis)***

#This was what preassumed while introducing/defining '**0'** as a mathematical terms while their evolution That object and mapped domains will have return the physical **projective** geometric properties.

i) line of degnerecy

ii) plinth of dicsontinion

iii) plints of non differentiability.

So, this way. The physical pleassumption hold true and line of degenary will bisect 2 and either prepatics of zeros in Ω_o to be within the restriction

imposed by ourselves on *physics of mathematics* as mentioned in the very beginning part of this paper

i) periodicity of zero in Ω_0

ii) Symmetricity of graph about the real- axis.

#Physics of Real-valuel function & evolution of complex- valued function to formulae I phenomenon.

IIntrospection into the formulation of equn. 1 in quantum mechanics.

The most general form of a wave is in **'+'** s is

ψ_1 **(x.t) = cos (kx-wt) +** δ **sin (kx-w)**

and for negative direction if is

ψ_2 **(x.t) = cos (ks +wt) +** δ **sin (kx- w)**

And for negative direction . if is

ψ_2**(x, t) = cos (ks +wt) +** δ**sin (kx + w)**

Until herre, **'+'** & **'-'** are relative term mathematics bounded within the classic law off mechanics by Newton.

i.e. **'+' & '-'** are not absolute phenomen but is it so in quantum mechanics/w No /

that's what found in yang Mills man & experiment. [*Ref.* *http://www.claymath.org/millennium/Yang-Mills_Theory/*]

So, the need for evolution of cs number over where **'-' & '+'** are not

So, as the fundamental property of quantum wave is- they don't charge their physical character upon arbitrary displacement in spaces time upon arbitrary displacement in space & time nor should phase constant has any physical nor should phase constant has any physical significance. That means. Observer's this physics of quantum waves

Real-valued mathematics is no more compatible sreal-valued mathematics is no more compalible and hence needs modification and leads to the evolution

of complex valued function position. [*Ref. chapter-2 ,quantum mechanics,Third edition,Eugen Merzbacher]*

So, to be invariant under all **x,f,Є.**

It must be required that

ψ, (x,t) = ψ_2 (s,t) $\forall$ x,t, Є

cos (kx-wt+ Є)+ δsin(ks-wt+ δ) = a(Є) [cos(kx-wt)+ δsin (kx-wt)]

Companing cochriants of **cos(kx-wt)** and of **sin (ks-wt).,** we find that last equn. Leds to

cos Є + δsin Є = a & δ cos Є- sin Є = aδ

i.e. Mathematics will have to satisfy above two condition to be able to represent quantum phenomen

then equn are compatible for all **Є**

iff δ^2 **= -1 or** $\delta = \pm$ **i.**

and so, **a=Є** i.s

that is ψ_1 **(x,t)** or ψ_2 **(x,t)** will be a **Complex-** valued function.

Hence, we conclude here that complex function is only **Capable** for representing quantum phenomenon which are invariant for all observes location in space-time.

Riemann zeta function which is complex has same inhevant absolutisim in physical characteristic which would remain invariant in the analytically continued domain what is the 'absolutism?

Absolutism is line of degeneracy (i.e zeros)

Lying on the symmetrical line of the domain space in Ω_0 & Ω_1

Special theory of relativity **spherical wavefront** of light to be invariant under all oberver's co-ordinates

the function to represent this wave front should be complex not cal-va;ied/

According tp ,e. ots the critical mistake that leads to yang mills man gap experimental results.

But $x^2+y^2+z^2- c^2 t^2$ **is an** Real-**valued** **[** ***Ref.*** *Introduction to Special Relativity*

by [*Robert Resnick*]

Function of spherical wavefont of light which violates the law of mathematics A real-valued function follow, the physics of Newton's law of kinematics, not the special theory of relativity what I mean here.

Same $\psi(x,y,z,t)$ **like** $e^{\pm(k_1 x \pm K_2 y \pm K_3 z \pm wt)}$

Is compatible for representing invariance of spherical wave front of light a quantum phenomenon).

And once it's complex y and –mills man gap experiment that has found "classical waves traveling at **'c'** have positive masses is not in dissonance But for that a new branch of complex geometry needs to be formulated to represent quantum geometry as real-valued geometry is insufficient for there quantum invarincy or phenomenon.

Notasion $\pm$

i) Ω_0 :- domain region on paper ranging from

R(s) =0 to R((s)=1 and

Im (s) = - ∞ **to Im (s) = +** ∞

ii) Ω_1 :- entire domain region as paper extending

from **R(s) =- ∞ to R(S) = +∞**

Im (s) = - ∞ to Im (s) = + ∞.

iii) Ω_2 :- domain region paper extending

Right of **R (s) = 1**

'S' is the complex variable

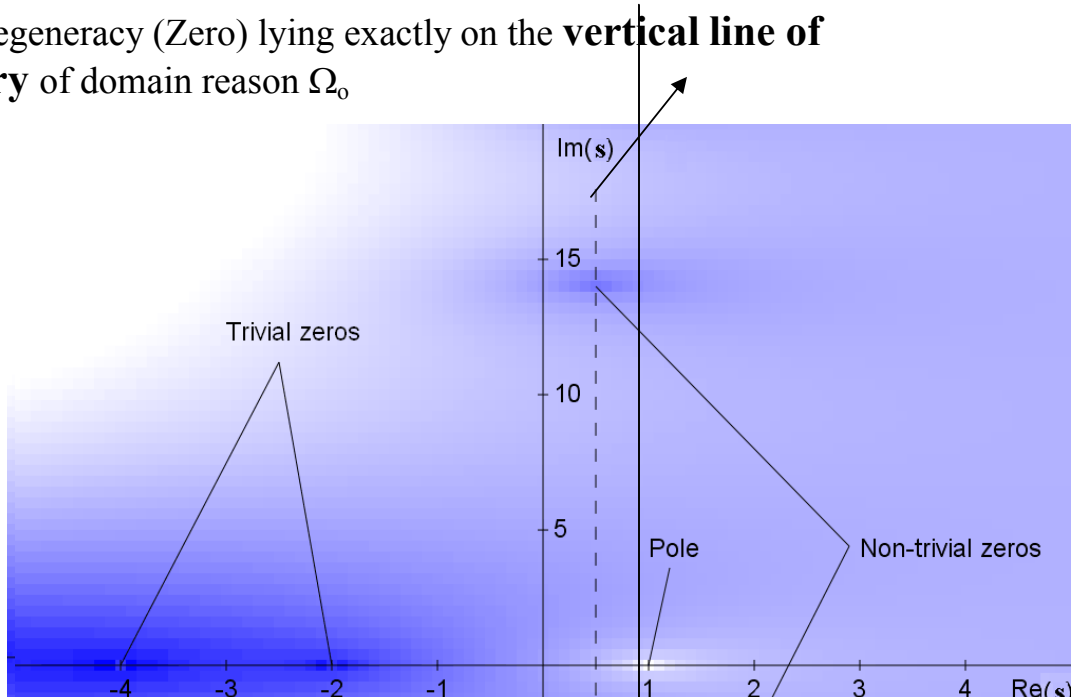
f(s) represents Riemann Zeta function

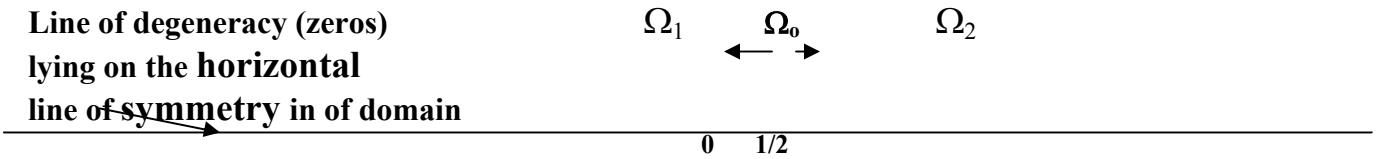
g(s) represents gamme function.

In the functional equ[n] satisfied by Riemann zeta function in qualytically continued domains.

Reference :- References have been used wherever needed inside the content above.

Line of Degeneracy (Zero) lying exactly on the **vertical line of symmetry** of domain reason Ω_o





Ω_1 & Ω_0
Simultaneously

The entired domain $\Omega_1 \cup \Omega_o \cup \Omega_2 = \Omega_0$

Riemann hypothesis (Game of trivial & non-trivial zeros) & Nash equilibrium in Nature hence,Mathematics-MWT

In the functional equation as in reference below satisfied by zeta function in both the spaces-critical and entire.

[http://www.google.com/imgres?imgurl=http://mitocw.udsm.ac.tz/NR/rdonlyres/A18AAA32-2920-45BA-87DE-EAE578585FD0/0/chp_riemann_eqn.jpg&imgrefurl=http://mitocw.udsm.ac.tz/OcwWeb/Mathematics/18-112Fall-2008/CourseHome/index.htm&usg=__9moYk170DTQX1nG6mChGk88nUIY=&h=206&w=419&sz=24&hl=en&start=0&zoom=1&tbnid=5rSllrm5nghlkM:&tbnh=101&tbnw=205&ei=y6y3TbHTGMbVrQeEwpTcDQ&prev=/search%3Fq%3Driemann%2Bzeta%2Bfunction%26um%3D1%26hl%3Den%26sa%3DN%26biw%3D1600%26bih%3D671%26tbm%3Disch&um=1&itbs=1&iact=hc&vpx=517&vpy=336&dur=270&hovh=157&hovw=320&tx=166&ty=71&page=1&ndsp=22&ved=1t:429,r:9,s:0]

There are few possibilities that exist using the ARI THEMATIC of NUMERIC ZERO(0)

1)0*0 NOT=0 (i.e. 2 or more terms on any side of = sign CAN NEVER be ZERO)

2)0* non-zero umber=0 (i.e. at a time only 1 term on each side of equality(=)sign CAN & MUST be ZERO)

Let's mere look at the functional equation JUST as a STRUCTURE where 5 terms on RHS are CONNECTED by the MULTIPLICATIVE sign(*) and superconnected by equality sign (=) with 1 term of LHS.

Possibilities that can occur in this Nature's Mathematical manifestational game are-

i) all those points for which SINE terms can't be zero i.e (ENTIRE CRITICAL SPACE)

hence LHS =0 only when in RHS zeta function term will be ZERO(as other terms can't be ZERO (properties of gamma function, power function…….) (rule no. 2- multiplicative arithematic of numeric 0)

i.e. zeros are SYMMETRIC about R(s)=1/2 in the critical domain.

ii) In the Euclidean space -

if SINE term can't be ZERO for those points when R(s)Not = 2k(Pi) for all integers k (except at the pole)

in LHS zeta term will be ZERO only when in RHS also zeta term will be ZERO

Or,

NEITHER WILL BE ZERO

What does it imply ***GEOMETRICALLY*** *about symmetricity of zeros about line R(s)=1/2 ?*

*it implies - if a point is ZERO one side of critical line in the space , it MUST NOT BE in its reflective side OR there will be no ocation of ZEROs at all(both sides will go*__EMPTY-HANDED__*)*

&

for all other points for which SINE TERMS =ZERO i.e.2k(Pi)

ZETA TERM (only term in LHS) will have to be ZERO.

Now the entire COMPLEX plane points fall within any of the above categories*).*

And GIVEN TH FACT ZETA FUNCTION CAN'T BE ZERO) for R(S)>1 (as the SUMMATION doesn't converge to ZERO)

.THE BEST RESULT (Nature favors Nash EQUILIBRIUM) ***would come to reach equilibrium stage – which is best for both CRITICAL SPACE and the ENTIRE GROUP OF POINTS in the COMPLEX SPACE. i.e. PHYSICALLY IT REFERS TO THE LAW- Things happens which is BEST for both the quantum mind space , through which external euclidean world is SENSED and Euclidean space ITSELF).***

na dthe bst result is-

———THERE WILL BE NO ZEROS AT ALL FOR RIGHT SIDE OF R(s)=1/2

and both line of zeros about R(s)=1/2 in the CRITICAL SPACE reach the limitting position and CONVERGE ULTIMATELY O THE LINE ITSELF Favoring(baising) No side ———

ThIS IS HOW NATURE WORKS>***even in the case of MWT- Schrodinger's Cat.But then the EQUILIBRIUM STAGE IS VERY SUBJECTIVE AND DIFFERENT IN DIFFERENT CASES>***

Nash equilibrium in Riemann hypothesis – Nature favors Nash equilibrium in a complete physical group originally found in Nature.and the Number line in which (for every physical point on right side of 0 there lies a reflection point on left side & for every point there exists corresponding reciprocal point on number line making it like a COMPLETE PHYSICAL GROUP as in the case of our eyes- where for every point that our eyes encounter in the Universe –there lies corresponding image point on retinal space and vice versa forming a complete GROUP. The number line is physically analogous to that. And hence this entire mathematical field will be GOVERNED by Nash equilibrium which states- the best result will come which will be best the entire players do the best for the GROUP and THEMSELVES.

Here the best location of ZEROs will come which will be best for both – the CRITICAL space & the rst of space in the mathematical field –leading the truthfulness of Riemann hypothesis.-

BESTb results is – There would be NO ZEROS after R(s)=1/2 & all the non-trivial zeros will lie on the Critical lineitself favoring the BEST result-Nature favors the BEST result as stated in Nash equilibrium hence in Mathematics(which is abstractly governed by physic &metaphysics.

And the most important discovery of my work- Locality-at- a- distance (bell's theorem) inherent in physical Universe is manifested here even in Mathematical field where they know what the best location of ZEROs would be ? In other words, they are well – informed about all other player's option and work together to reach the state of Nash equilibrium state which is favored by nature.

In a nutshell- nature favors Nash equilibrium & locality- at –a distance inherent in physical Universe also abstractly governs mathematical field (given mathematical logic,intuitonism, mechanism, symmetry, all are based upon the metaphysical-physical – hence the rule of physical universe will NOT surprisingly apply to mathematical field)