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The Abstract: Resolution of Riemann hypothesis which is true and applying the same to resolve Yang Mills mass gap theory.

The content:

Resolution of Riemann hypothesis:

Riemann hypothesis is *true.*
All the non-trivial solutions of Riemann zeta function in the space 0<R(s) <1 lie along the critical line R(s) =1/2.

Resolution:

Define Mathematical rectangular micro complex space A extending from Imz(s) = - infinity to + infinity and R(s) =0 to 1.

Define square space macro complex space B extending from Imz (s) = - infinity to + infinity and R(s) =-infinity to +infinity.

Micro Space A is **smoothly enclosed** in macro space B.

Consider any function F(s) satisfying the functional equation in micro space A

F(s) = (2^s) (Pi ^s-1) sin (pi*s/2) G (1-s) F (1-s) (reference from will

Where G () is gamma function.

Using the properties of power, sine and gamma function in space A for non-trivial zeros of F ()

F(s) =0 implies that F (1-s) =0 (from the basic laws of algebra)..... (1)

Now in space B for non-trivial zeros of F () which comes out of pure mathematics automatically from the properties of power, gamma function

Sin (pi*s/2) =0 automatically implies that

F(s) =0, and F (1-s) not= 0. (From the basic laws of algebra) …….. (2)

Now as the mathematical space A is smoothly enclosed inside the space B
Equations 1 in space A and equation 2 in space B will be simultaneously satisfied

iff

F(s) =0 only along R(s) =1/2 in the space
A And
F(s) never equals zero for R(s)>1/2 on space B.

Conclusion: for any function F(s) to have trivial and non-trivial zeros both simultaneously in the space A & B conditions as derived just above are

1) F(s) will be zero along the line R(s)=1/2.
2) F(s) will have no zeros after R(s)>1/2.

Now replace F(s) by Riemann zeta function Z(s) as zeta also satisfies the properties of F(s)
This proves the Riemann hypothesis.

Hence resolved.

Resolution of mass gap theory in Yang Mills experiment from the pure mathematics principles as used in Riemann hypothesis resolution

Its physical Implication: resolution of Yang Mills and mass gap theory using the same pure mathematics as in the resolution of Riemann hypothesis

In special theory of relativity mathematical formulation using Lorentz transformations two spherical wave fronts

x^2+y^2+z^2 = (ct)^2 …..(1) And
x'^2 +y^2 +z^2= (ct')^2….(2) are equated to produce the structural results in the form of 1/ (1-v^2/c^2)^1/2.

Here also the basic principle of pure mathematics has been violated as, this result is pure mathematically valid iff both the mathematical spherical equations are centered at the same point pure mathematically.
Hence the mathematical structure for mass

M=m'/1/ (1-v^2/c^2)^1/2. is also not valid

Except at the pure. Mathematical origin of the two spheres and thus not the correct mathematical relation reflecting true hidden physical aspects of special theory of relativity.
In other word, the pure mathematical laws have been violated in the attempt to represent the special theory of relativity in mathematical relations.

Conclusion:
There is no such mathematical result **M=m'/1/ (1-v^2/c^2)^1/2**
existing related to the mass of a particle having speed which was creating unnecessary discrepancy in the experimental results of yang mills that quantum particles traveling at speed of light have positive masses.

Hence there is no mass gap and the discrepancy between mathematics and physics doesn't exist at all.

Physical results:
Even light traveling at its own speed has positive mass.

Thus Mass gap theory is resolved using the same pure mathematics as used in Riemann hypothesis.

Reference:
Wikipedia Riemann hypothesis and Yang Mill mass gap theory **,special theory of relativity**

Clay Mathematical Institute's list of seven unresolved problems.