

Author : Pankaj Mani,FRM,CQF(manipankaj9@gmail.com)

Twitter id : @mathstud1

New Delhi,India

Abstract : Short but Deep meaning behind the proof. No use of contradiction method .Riemann Hypothesis has to be definitely TRUE using the Physical Invariance Principles underlying the Foundations of Analytic Continuation Proof of Riemann Hypothesis. I will lead to to the future research that Mathematics as a System has its own physical principles lying at the foundation.

Axiom : If a function is analytically continued i.e. it satisfies the same functional equation ,the physical characteristics remains conserved .

Proof :

Using the above Theorem if there are physical characteristics which will remain conserved upon analytic continuation of the Riemann Zeta Function .

Physical characteristics here are Infiniteness of Zeros and the Collinearity of Zeros

That implies if Trivial Zeros are Collinear and Infinite ,Non-Trivial Zeros will also be Collinear and Infinte.

And As we know from the Riemann Zeta functional equation that Non-Trivial Zeros will be symmetric about the Critical Line $R(s)=1/2$ in the Critical Strip.

So, using the invariancy of Physical Characteristics , IT is proved that Non-Trivial Zeros will be Infinite and Collinear .Collinear means that They will have to lie on the $R(s)=1/2$ Hence i.e. **Riemann Hypothesis is TRUE. QED.**

$$\zeta(s) = 2^s \pi^{s-1} \sin\left(\frac{\pi s}{2}\right) \Gamma(1-s) \zeta(1-s)$$