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| Journal Name: | [**Asian Journal of Probability and Statistics**](https://journalajpas.com/index.php/AJPAS) |
| Manuscript Number: | **Ms\_AJPAS\_133553** |
| Title of the Manuscript: | **On Propositions Pertaining to the Riemann Hypothesis IV** |
| Type of the Article | **Original Research Article** |

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| PART 1: Comments | | |
|  | Reviewer’s comment **Artificial Intelligence (AI) generated or assisted review comments are strictly prohibited during peer review.** | Author’s Feedback *(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Please write a few sentences regarding the importance of this manuscript for the scientific community. A minimum of 3-4 sentences may be required for this part.** | **This manuscript contributes to the ongoing exploration of the Riemann Hypothesis by formulating and analyzing various hypotheses related to the Riemann zeta function. It provides new insights into asymptotic bounds, Diophantine approximation, and concentration phenomena, which are relevant in understanding the distribution of zeta function values. By establishing implications and contradictions among different hypotheses, the paper enhances our theoretical understanding of the zeta function and its critical properties. These findings may serve as a foundation for further research in analytic number theory and could potentially lead to new approaches in investigating the validity of the Riemann Hypothesis.** | Thanks for your comments! I have now made changes in the paper. |
| **Is the title of the article suitable?**  **(If not please suggest an alternative title)** | **Suggested Alternative Titles:**  ***"Mathematical Propositions on the Riemann Hypothesis: Asymptotic Bounds and Diophantine Approximation"*** |  |
| Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here. | **The abstract could be slightly restructured to clearly outline the problem, methodology, and results.**  **The term *"enumerate certain hypotheses"* is vague; it would be better to specify that these hypotheses concern asymptotic behavior, concentration phenomena, and optimization problems.** |  |
| Is the manuscript scientifically, correct? Please write here. | The paper introduces optimization formulations (integer programs) that relate to Diophantine approximation but does not provide explicit computational verification. Some claims might benefit from numerical validation.  Some asymptotic estimates rely on prior work without detailed derivations in the manuscript itself. |  |
| **Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.** | The manuscript cites a mix of classical and recent references, covering key works in analytic number theory, Diophantine approximation, and the Riemann Hypothesis. It includes foundational papers by Riemann (1859), Hardy (1914), and Titchmarsh & Heath-Brown (1986), along with more recent works such as Platt & Trudgian (2021), Maynard & Pratt (2024), and Tao et al. (2025). The inclusion of works by Basu (2022–2024) suggests a continuation of previous research by the author. |  |
| Is the language/English quality of the article suitable for scholarly communications? | The manuscript is understandable but would benefit from proofreading to improve clarity, consistency, and readability. While the language does not contain major errors, refining the structure and phrasing would enhance its suitability for scholarly publication. |  |
| Optional/General comments |  |  |

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| **PART 2:** | | |
|  | Reviewer’s comment | Author’s comment *(if agreed with the reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)* |
| **Are there ethical issues in this manuscript?** | *(If yes, Kindly please write down the ethical issues here in detail)* |  |