Review Form 3

Journal Name:	**Asian Research Journal of Mathematics**
Manuscript Number:	**Ms_ARJOM_125769**
Title of the Manuscript:	**On the Stability Analysis of Commensurate Fractional-Order Systems in the Caputo Sense**
Type of the Article	**Short Research Article**

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PART 1: Review Comments

Compulsory REVISION comments	**Reviewer's comment**	**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. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript fills a critical gap in the stability analysis of fractional-order systems, using techniques like the Schur Complement and Routh-Hurwitz Criterion. By focusing on Lorenz and reverse butterfly-shaped models, it enhances understanding in chaos theory and dynamic systems, offering robust methods for researchers and practitioners in engineering and applied sciences.	**We clarified the definition of the Caputo-type derivative in Section 2.1 and added references for consistency. Section 3 now features an expanded discussion on the Routh-Hurwitz Criterion, with detailed examples for broader accessibility. Results are presented more clearly with improved figures and tables. Lastly, the conclusion emphasizes the implications of our findings for future research in multi-dimensional systems.**
Is the title of the article suitable? **(If not please suggest an alternative title)**	The title "On the Stability Analysis of Commensurate Fractional-Order Systems in the Caputo Sense" is fitting, but a more concise alternative could be: "Stability Analysis Techniques for Commensurate Fractional-Order Systems Using Caputo Derivatives." This version highlights the techniques and applications while maintaining clarity.	
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.	□ **Remove Redundancies**: Eliminate phrases like "this is due to hereditary properties" to streamline the text. □ **Add Key Findings**: Briefly mention the results from applying the stability analysis techniques, e.g., "The methods effectively identify stability conditions in fractional Lorenz and reverse butterfly-shaped systems." □ **Highlight Implications**: Conclude with a statement on the broader significance, such as, "These findings enhance modeling in various scientific and engineering fields."	
Are subsections and structure of the manuscript appropriate?	The manuscript's subsections and structure are appropriate, providing a clear flow of information. Each section is well-defined, aiding reader comprehension. **Recommendations for Improvement**: • **Introduction**: Add a brief overview of the significance of fractional-order systems to engage readers. • **Conclusions**: Expand to summarize key findings and suggest future research directions.	**Overall, the structure is effective with minor adjustments needed for clarity.**
Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.	The manuscript demonstrates scientific correctness and technical soundness through its thorough exploration of stability analysis techniques for fractional-order systems. The authors employ well-established methods, such as the Sylvester Criterion, Schur Complement, and Routh-Hurwitz Criterion, which are rigorously applied to relevant dynamic systems like the fractional Lorenz and reverse butterfly-shaped systems. The use of mathematical definitions and theorems is precise, ensuring that the arguments presented are logically coherent and grounded in established theory. Additionally, the inclusion of practical examples further validates the robustness of the analysis, illustrating the applicability of the methods to real-world scenarios in engineering and applied sciences. Overall, the manuscript contributes valuable insights to the field of fractional calculus, reinforcing its scientific credibility.	

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	he evaluation of scientific correctness and technical soundness would be best placed in the **"Review and Discussion"** section, if available. If such a section does not exist, consider adding a new section titled **"Scientific Validity"** or including these comments in the **"Conclusion"** section. This placement allows for a comprehensive assessment of the manuscript's contributions and methodological rigor.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. **-**	The references in the manuscript appear to be sufficient, covering key methodologies and foundational theories relevant to the stability analysis of fractional-order systems. However, it is essential to ensure that the references are recent, as the field of fractional calculus and stability analysis is rapidly evolving. To enhance the manuscript's credibility and relevance, consider adding the following recent references: 1. **Recent Advances in Fractional Calculus**: Look for articles published in the last few years that discuss new methodologies or applications of fractional calculus in engineering and applied sciences. 2. **Peer Review Literature**: Include references that discuss the peer review process and its implications for scientific integrity, as these can provide context for the importance of rigorous methodology in research [1][2]. 3. **Specific Case Studies**: Incorporate studies that apply stability analysis techniques to real-world systems, which can strengthen the manuscript's practical relevance. By including these additional references, the manuscript will not only be more robust but also reflect the latest developments in the field.	
Minor REVISION comments **Is the language/English quality of the article suitable for scholarly communications?**	The language and English quality of the article are generally suitable for scholarly communication. However, improvements can be made in clarity and conciseness by simplifying some sentences. A thorough proofreading is recommended to correct minor grammatical errors and ensure consistent terminology throughout. Overall, addressing these points will enhance the manuscript's accessibility and readability.	
Optional/General comments	Based on the provided content of the manuscript, there do not appear to be any explicit ethical issues. However, here are some considerations to ensure ethical compliance: 1. **Citation of Sources**: Ensure all references and prior works are properly cited to avoid plagiarism. If any figures, data, or concepts from other works are used, they should be appropriately acknowledged. 2. **Originality**: The manuscript should present original research or insights. If any parts are derived from previous publications, this must be clearly stated. 3. **Conflict of Interest**: The authors should disclose any potential conflicts of interest that could influence the research or its interpretation. 4. **Research Integrity**: Ensure that all data and results presented are accurate and represent genuine findings from the research conducted.	

PART 2:

	Reviewer's comment	**Author's comment** *(if agreed with 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 details)*	

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