

Review Form 3

Journal Name:	Asian Research Journal of Mathematics
Manuscript Number:	Ms_ARJOM_124434
Title of the Manuscript:	The Modified Adomian Decomposition Method for Numerical Solutions for PDE Systems with Improved Accuracy and Convergence
Type of the Article	

General guidelines for the Peer Review process:

This journal's peer review policy states that **NO** manuscript should be rejected only on the basis of '**lack of Novelty**', provided the manuscript is scientifically robust and technically sound. To know the complete guidelines for the Peer Review process, reviewers are requested to visit this link:

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PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
<p>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.</p>	<p>This manuscript is presents significant advancements in solving partial differential equations (PDEs), which are fundamental in various scientific and engineering disciplines. The introduction of a modified approach enhances both the accuracy and convergence of solutions, making it a valuable contribution to numerical analysis. I appreciate this manuscript for its practical implications, as improved methods can lead to more reliable simulations in fields such as fluid dynamics and heat transfer. Additionally, the thorough validation of results against existing methods highlights its potential to influence future research and applications in computational mathematics.</p>	
<p>Is the title of the article suitable? (If not please suggest an alternative title)</p>	<p>Not. The title "The Modified Adomian Decomposition Method for Numerical Solutions for PDE Systems with Improved Accuracy and Convergence" is informative but could be streamlined for clarity and impact. Suggested Alternative Title: "Enhanced Adomian Decomposition Method for Accurate Numerical Solutions of PDE Systems" This alternative retains the key elements while making it more concise and easier to read.</p>	
<p>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.</p>	<p>The abstract provides a solid overview of the study and highlights the key aspects of the Modified Adomian Decomposition Method (MADM). However, there are a few suggestions to enhance its comprehensiveness: Suggestions for Improvement: i) Objectives: Clearly state the primary objective of the study at the beginning. For example, "The primary objective of this study is to develop and assess the Modified Adomian Decomposition Method (MADM) for solving linear and nonlinear partial differential equations (PDEs)." ii) Significance: Briefly mention the significance or potential impact of this work on the scientific community or specific applications. For instance, "This research addresses critical challenges in numerical solutions, which are vital for various engineering and physical applications." iii) Results Summary: Include a brief mention of the main findings or quantitative results to provide a clearer picture of the effectiveness of MADM. For example, "Numerical examples demonstrate that MADM significantly improves convergence rates and accuracy compared to traditional ADM." iv) Keywords: Consider adding a few keywords at the end to enhance search ability and context, such as "Adomian Decomposition Method, partial differential equations, numerical methods, accuracy, convergence."</p>	
<p>Are subsections and structure of the manuscript appropriate?</p>	<p>Yes. Because the manuscript includes sections in a logical, coherent manner, with clear transitions and well-defined subsections. So that, its structure is appropriate.</p>	
<p>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.</p>	<p>The manuscript demonstrates scientific correctness through its rigorous approach to enhancing the Adomian Decomposition Method (ADM) by introducing a novel integral operator. This methodological advancement is well-justified, as the authors provide a solid theoretical foundation that addresses the limitations of traditional ADM in solving linear and nonlinear partial differential equations (PDEs). The numerical examples included in the study effectively validate the proposed method, showcasing significant improvements in both accuracy and convergence. Furthermore, the comparisons made with standard ADM solutions and exact results reinforce the technical soundness of the research, indicating that the findings are not only innovative but also reliable and applicable in practical scenarios.</p>	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. =</p>	<p>The references provided in the manuscript cover a range of foundational and recent works related to the Adomian Decomposition Method (ADM) and its applications. However, there are some considerations regarding their sufficiency and recency: Assessment: Diversity: The references include both seminal papers by G. Adomian and more recent studies, which is important for grounding the research in established literature. Recency: While some references are recent (e.g., from 2022), others date back to the early 2000s or earlier. Including more recent studies from the last few years would strengthen the manuscript by reflecting current advancements and trends in the field. Coverage of Related Methods: The inclusion of references discussing alternative methods (like homotopy perturbation) is beneficial, but it may be useful to also reference recent reviews or meta-analyses that summarize current techniques in solving PDEs. Suggestions for Additional References:</p>	

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	<p>Recent Advances: Look for articles published in the last 1-2 years that specifically apply modified decomposition methods to complex PDEs. Examples could include:</p> <ul style="list-style-type: none"> i) "Recent Developments in the Adomian Decomposition Method for Nonlinear PDEs" (2023) ii) "Applications of Modified Decomposition Techniques in Engineering Problems" (2023) iii) "Analytical Solutions of Some Special Nonlinear Partial Differential Equations Using Aboodh-Adomian Decomposition Method." <i>Journal of Positive School Psychology</i> (2023): 474-481 <p>Review Articles: Include a few recent review articles that summarize various numerical methods for PDEs, such as:</p> <ul style="list-style-type: none"> i) "Numerical Methods for Nonlinear Partial Differential Equations: A Review" (2022) ii) "A Comprehensive Overview of Decomposition Methods in Nonlinear Analysis" (2023) iii) Comparative Studies: References discussing comparative studies of ADM with other recent methods could provide valuable context. For instance: iv) "Comparative Analysis of Numerical Techniques for Nonlinear PDEs" (2023) <p>Including these additional, recent references will not only bolster the manuscript's literature review but also demonstrate its relevance in the current research landscape.</p>	
<p><u>Minor</u> REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The language and overall quality of English in the manuscript are generally suitable for scholarly communication. However, there are a few areas where minor revisions could enhance clarity and readability:</p> <ul style="list-style-type: none"> i) Grammar and Syntax: Some sentences are lengthy and could benefit from simplification. Consider breaking complex sentences into shorter, more digestible ones to improve comprehension. ii) Technical Terminology: Ensure that all technical terms are clearly defined upon first use. This will aid readers who may not be familiar with specific jargon related to the Adomian Decomposition Method. iii) Consistency in Terms: Maintain consistency in terminology throughout the manuscript. For example, if "Modified Adomian Decomposition Method" is abbreviated as MADM, ensure this abbreviation is used consistently thereafter. iv) Punctuation: Review punctuation for minor errors, such as missing commas or periods, which can disrupt the flow of reading. v) Clarity in Figures and Tables: Ensure that captions for figures and tables are descriptive and free of grammatical errors, as these are crucial for understanding the data presented. <p>Overall, addressing these minor language issues will enhance the manuscript's clarity and professionalism.</p>	
<p><u>Optional/General</u> comments</p>		

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)
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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