

Review Form 3

Journal Name:	Journal of Advances in Mathematics and Computer Science
Manuscript Number:	Ms_JAMCS_126844
Title of the Manuscript:	Numerical solution of fractional diffusion equation by shifted Legendre operational matrix method and fractional linear multi-step methods.
Type of the Article	

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>
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.	The paper proposes an efficient method for solving fractional diffusion equations using the operational matrix of fractional derivatives with shifted Legendre polynomials and the spectral Tau method. Numerical examples demonstrate the accuracy of this approach.	
Is the title of the article suitable? (If not please suggest an alternative title)	Yes	
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 is informative but could be improved for comprehensiveness and clarity.	
Are subsections and structure of the manuscript appropriate?	Yes	
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 appears scientifically robust and technically sound, as it rigorously applies advanced mathematical tools, including the operational matrix of fractional derivatives and spectral Tau methods, to tackle fractional diffusion equations. The use of shifted Legendre orthogonal polynomials is a well-established technique for enhancing accuracy in spectral methods, indicating that the authors have chosen an appropriate mathematical framework. Additionally, the Caputo derivative is suitable for fractional diffusion equations, particularly in modeling real-world processes with memory effects. The validation through numerical examples further strengthens the manuscript, as it demonstrates the method's accuracy and computational efficiency, confirming its practical applicability and reliability.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form. :	It is important to consider whether the manuscript cites recent advancements in fractional calculus, spectral methods, and numerical approaches for fractional diffusion equations. If the manuscript lacks recent references, here are a few recommended additions that could enhance the background and context: <ul style="list-style-type: none"> Fractional Order Commensurate Model of Contaminated Soil–Soil-plant interaction with Non-singular Kernel. Caputo fractal fractional order derivative of soil pollution model due to industrial and agrochemical Control strategies for fractional order soil microplastic pollution model and preserving nutrient cycle integrity Optimal control on ABC fractal fractional order model of micro-plastic pollution in soil and its effect on the nutrient cycle These references provide recent insights into numerical for fractional differential equations and could	

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	strengthen the manuscript's literature review. Adding these would ensure the manuscript is well-grounded in the latest research.	
<u>Minor</u> REVISION comments Is the language/English quality of the article suitable for scholarly communications?	Language is to polish in the introduction part for recent advance.	
<u>Optional/General</u> comments	<ul style="list-style-type: none">• Make sure the reference number are correctly cited.• Reference format must be unique.	

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?	<i>(If yes, Kindly please write down the ethical issues here in detail)</i> No	

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