

Review Form 3

Journal Name:	Asian Research Journal of Mathematics
Manuscript Number:	Ms_ARJOM_128342
Title of the Manuscript:	Nonlinear Partial Differential Equations in Fractional Sobolev Spaces: Existence, Regularity, and Stability.
Type of the Article	

PART 1: 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. A minimum of 3-4 sentences may be required for this part.	This manuscript presents significant theoretical advancements in the field of nonlinear partial differential equations (PDEs), specifically within the context of fractional Sobolev spaces. It explores the existence, regularity, and stability of solutions to fractional PDEs, contributing original theorems related to embedding properties, energy minimization, and the maximum principle. The results have substantial implications for the study of nonlocal problems and fractional diffusion equations, which are relevant in applied mathematics and physics. By broadening the understanding of fractional Sobolev spaces, the paper facilitates the analysis of nonlocal interactions and variational problems, thus enriching the scientific community's toolkit for tackling complex mathematical models.	
Is the title of the article suitable? (If not please suggest an alternative title)	The title is quite appropriate as it directly reflects the core themes of the paper, including the focus on nonlinear partial differential equations in the context of fractional Sobolev spaces, as well as key concepts like existence, regularity, and stability.	
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 generally well-composed and comprehensive. It clearly outlines the scope of the paper, which includes the existence, uniqueness, regularity, and stability of solutions to fractional PDEs.	
Is the manuscript scientifically, correct? Please write here.	Yes, the manuscript is scientifically sound. It provides rigorous proofs and demonstrates a deep understanding of the theoretical underpinnings of fractional Sobolev spaces and their application to nonlinear PDEs. The theorems and their proofs are well-founded, and the use of concepts such as the maximum principle, energy minimization, and Sobolev embedding is accurate. The manuscript adheres to established mathematical methods and integrates them coherently.	
Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.	The references cited in the manuscript appear relevant and up-to-date, covering key works in the area of fractional Sobolev spaces and nonlinear PDEs. However, make references in alphabetical order	

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Is the language/English quality of the article suitable for scholarly communications?	The language and English quality of the article are appropriate for scholarly communication. The manuscript is written in a clear and precise manner, with a good use of technical terminology.	
Optional/General comments	The manuscript is well-structured, and the presentation of the results is logical and coherent. The use of theoretical results in the context of nonlinear PDEs is a strong point of the paper. A broader discussion of potential applications or implications of the findings could help contextualize the theoretical results. Some sections of the manuscript, especially in the later parts of the results, are quite technical, and providing more intuitive explanations or examples could make the concepts easier to grasp for readers who are less familiar with the field.	

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

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