Review of: "Multiplicity of solutions for nonlocal fractional equations with nonsmooth potentials"

Ali Tfayli

Potential competing interests: No potential competing interests to declare.

In this insightful paper, the authors delve into a category of nonlocal fractional Laplacian equations entwined with nonsmooth potentials. Employing an abstract critical point theorem for locally Lipschitz continuous functionals and drawing upon the fractional Sobolev spaces framework delineated by Servadei and Valdinoci, the authors skillfully demonstrate the existence of a minimum of three weak solutions. Their adept proof offers correctness and intrigues with its interesting approach.

Key Observations:

1. The paper would benefit from introductory content highlighting the practical applications of these equations. Exploring their real-world implications could enhance the reader's engagement and understanding.
2. There's a minor clarification needed in equation (1.4), where replacing "a.e." with "a.a." would ensure accuracy and clarity.
3. Regarding the eigenvalue problem (2.2), the derivations in (2.3) and (2.4) might pose challenges for less experienced readers. It would greatly assist if the authors referenced relevant literature or elucidated further to aid comprehension.

Overall, the paper stands as a commendable extension of variational inequalities, skillfully navigating the realm of nonlocal fractional equations with nonsmooth potentials. Its correct and interesting proofs add value to the field, while the suggested improvements would elevate its accessibility and relevance, thereby fostering greater appreciation and understanding among readers.