

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

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Potential competing interests: No potential competing interests to declare.

\textbf{Report on the paper } \\\

Multiplicity of solutions for nonlocal fractional equations with nonsmooth potentials\\

By Ziqing Yuan, Lin Yu}

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In the note by Ziqing Yuan and Lin Yu, entitled: "Multiplicity of solutions for non local fractional equations with non smooth potentials", the authors establish the existence of at least three weak solutions for non local fractional problems by an abstract critical point theorem.\\

The main result are clear and the conditions are well controlled.

The manuscript is adhere to the relevant standards for reporting and data deposition.

For the importance of the argument treated and the results obtained, the paper will be surely useful for a lot of scientists working in new trends of variational methods, so that it is worthy of publication in your journal.

I would like to point out some minor essential revisions: Add the following work to your Bibliography \\

1- A. Ghanmi, M. Kratou, K. Saoudi, D. D. Repovs; Nonlocal p-Kirchhoff equations with singular and critical nonlinearity terms; Asymptotic Analysis 131 (1), 125-143 (2023).\\

2- M. Kratou; Kirchhoff systems involving fractional  $p$ -Laplacian and singular non-linearity; Electronic Journal of Differential Equations, Vol. 2022 (2022), No. 77, pp. 1-15.\\

- 3- A. Ghanmi, K. Saoudi; A multiplicity results for a singular problem involving the fractional p-Laplacian operator, Complex variables and elliptic equations 61 (9), 1199-1216 (2016).\\
- 4- A. Ghanmi, K. Saoudi; The Nehari manifold for a singular elliptic equation involving the fractional Laplace operator, Fractional differential Equations 6, 201-2017 (2016).\\
- 5- K. Saoudi; A critical fractional elliptic equation with singular nonlinearities; Fractional Calculus and Applied Analysis 20 (6), 1507-1530 (2017).\\
- 6- K. Saoudi, S. Ghosh, D. Choudhuri Multiplicity and  $H^1$ -older regularity of solutions for a nonlocal elliptic PDE involving singularity; journal of mathematical physics 60 (10) (2019).\\
- 7- M. Kratou; Ground state solutions of p-Laplacian singular Kirchhoff problem involving a Riemann-Liouville fractional derivative; Filomat 33 (7), 2073-2088 (2019).