ICRAMCS 2026

THE EIGHTH EDITION OF THE INTERNATIONAL CONFERENCE ON RESEARCH IN APPLIED MATHEMATICS AND COMPUTER SCIENCE
April 23-24-25, 2026 | Marrakech, Morocco

Study of Nonlocal Singular Elliptic Systems in General Fractional Modular Spaces

Communication Info

Authors:
Abdelbasset LAGNAOUI [1]
Hamza EL-HOUARI [2]
Hicham MOUSSA [1]
Hajar SABIKI [3]

[1] Faculty of Sciences and Techniques, Béni Mellal, Morocco
[2] Faculty of Sciences and Techniques Errachidia, Errachidia, Morocco
[3] National School of Business and Management, Béni Mellal, Morocco

Keywords:
(1) Singular problems
(2) Fractional Musielak spaces
(3) Sub–supersolution method
(4) Variational approach
(5) Nonlocal elliptic systems

Abstract

Our aim within the present study is to investigate the solvability of an elliptic system problem steered by the fractional $m_{x,y}(\cdot)$-Laplacian inside the fractional Musielak framework. The system is characterized by singular terms presenting both convex and concave behavior. Our strategy is based on the generalized Galerkin method, complemented by suitable perturbation arguments and comparison tools.

References

[1] Arhrrabi, E., El-Houari, H., *Fractional Sobolev space: Study of Kirchhoff–Schrödinger systems with singular nonlinearity*, CUBO, A Mathematical Journal, 26 (2024), 407–430.
[2] Azroul, E., Benkirane, A., Shimi, M., Srati, M., *Embedding and extension results in fractional Musielak–Sobolev spaces*, Applicable Analysis, 102(1) (2023), 195–219.
[3] Bahrouni, A., Missaoui, H., Ounaies, H., *On the fractional Musielak–Sobolev spaces in R^d: Embedding results and applications*, arXiv preprint, arXiv:2302.09073 (2023).
[4] Bonder, J. F., Salort, A. M., *Fractional order Orlicz–Sobolev spaces*, Journal of Functional Analysis, 277(2) (2019), 333–367.
[5] Bonder, J. F., Salort, A., Vivas, H., *Interior and up to the boundary regularity for the fractional g-Laplacian: the convex case*, Nonlinear Analysis, 223 (2022), 113060.