

Problems involving the fractional g -Laplacian with Lack of Compactness

Hichem Ounaies*

Department of Mathematics, Faculty of Sciences, University of Monastir, Monastir, Tunisia

July 17, 2023

In this work we prove compact embedding of a subspace of the fractional Orlicz-Sobolev space $W^{s,G}(\mathbb{R}^N)$ consisting of radial functions, our target embedding spaces are of Orlicz type. Also, we prove a Lions and Lieb type results for $W^{s,G}(\mathbb{R}^N)$ that works together in a particular way to get a sequence whose the weak limit is non trivial. As an application, we study the existence of solutions to Quasilinear elliptic problems in the whole space \mathbb{R}^N involving the fractional g -Laplacian operator, where the conjugated function \tilde{G} of G doesn't satisfy the Δ_2 -condition.

*hichem.ounaies@fsm.rnu.tn