

Fractional elliptic systems with critical nonlinearities

Patrizia Pucci¹

¹*Università di Perugia, Italy*

Corresponding/Presenting author: patrizia.pucci@unipg.it

Talk Abstract

Elliptic systems arise in biological applications (e.g. population dynamics) or physical applications (e.g. models of a nuclear reactor) and have been drawn a lot of attention. In the nonlocal case, there are not so many papers on weakly coupled systems in \mathbb{R}^N . In this talk we present some recent existence, uniqueness and multiplicity results for positive solutions of a class of weakly coupled nonlocal systems of equations in \mathbb{R}^N , which are new also in the local case. Moreover, we also provide a global compactness result, which gives a complete description of the Palais-Smale sequences of the treated systems. To the best of our knowledge, this decomposition has been studied only for systems of equations in bounded domains.

Keywords: Nonlocal systems, uniqueness, ground state solutions, Palais-Smale decompositions, energy estimates, positive solutions, min–max methods.

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