

Mathematik

## Gastvortrag

Dienstag, 16. Jänner 2024 Uhrzeit: 10.00 Uhr Seminarraum I

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## Nonlocal Brezis-Nirenberg type problems

## Abstract:

In this talk we deal with some nonlocal critical growth elliptic problem driven by the fractional Laplacian, with particular emphasis on equations in presence of jumping nonlinearities. Using variational and topological methods, we prove the existence of a nontrivial solution for the problem under consideration.

These existence results can be seen as the nonlocal counterpart of the ones obtained in the context of the Laplacian equations. In the nonlocal framework the arguments used in the classical setting have to be refined. Indeed the presence of the fractional Laplacian operator gives rise to some additional difficulties, that we are able to overcome proving new regularity results for weak solutions of nonlocal problems, which are of independent interest.

This is a joint paper with Giovanni Molica Bisci, Kanishka Perera and Caterina Sportelli.