

# A Fourier analysis approach to elliptic equations with critical potentials and nonlinear derivative terms<sup>1</sup>

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## Resumo/Abstract:

We study nonhomogeneous elliptic problems considering a general linear elliptic operator with singular critical potentials and nonlinearities depending on multiplier operators that can be derivatives (even fractional) and singular integral operators. The general elliptic operator can contain derivatives of high-order and fractional type like polyharmonic operators and fractional Laplacian. We obtain results about existence and qualitative properties in a space whose norm is based on the Fourier transform. Our approach is of non-variational type and consists in a contraction argument in a critical space for the studied elliptic PDEs. Examples of applications are given.

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