



SEMINÁRIO DE EQUAÇÕES DIFERENCIAIS

A Brézis-Nirenberg type problem driven by mixed local-nonlocal operators

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16:00 horas

Sala 321 do IMECC

Resumo: In this talk, we present some multiplicity results, in the spirit of the celebrated paper by Brézis and Nirenberg [1], for a perturbed critical problem driven by a mixed local and nonlocal quasilinear operator. More precisely, we face our problem in the cases of sublinear, linear and super-linear perturbations. For this, we first retrace the historical path, starting from [1], and we make comparisons with the classical local situation and with the nonlocal fractional situation. We conclude the talk presenting some interesting open questions, which can be topics for PhD theses and postdoctoral programs. The results discussed in this talk are obtained in collaboration with J.V. da Silva and V.A.B. Vitoria in the paper [2].

References

- [1] H. BREZIS, L. NIRENBERG, *Positive solutions of nonlinear elliptic equations involving critical Sobolev exponents*, Comm. Pure Appl. Math. **36**, no. 4, 437-477 (1983).
- [2] J.V. DA SILVA, A. FISCELLA AND V.A.B. VILORIA, *Mixed local-nonlocal quasilinear problems with critical nonlinearities*, J. Differential Equations **408**, 494–536 (2024).