Analysis Seminar

Indefinite Elliptic Problems on $\mathbb{R}^N$ Autonomous at Infinity

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Time: 10:00 am

Abstract. We present some recent results on solving an indefinite Schrödinger Equation autonomous at infinity, by identifying the relation between the arrangement of the spectrum of the concerned operator and the behavior of the nonlinearity at zero and at infinity. The main novelty is how to set a linking structure that overcome the lack of compactness, depending on the growth of the nonlinear term and making use of information about the autonomous problem at infinity. Here no monotonicity assumption is required on the nonlinearity, which may be sign-changing as well as the potential. Furthermore, depending on the nonlinearity, the limit of the potential at infinity may be non-positive, so that zero may be an interior point in the essential spectrum of the Schrödinger operator. These are works in collaboration with Mayra Soares from UnB.

References

[1] Maia L. and Soares M.; *An indefinite elliptic problem on $\mathbb{R}^N$ autonomous at infinity: the crossing effect of the spectrum and the nonlinearity*. Calculus of Variations and Partial Differential Equations, v. 59, p. 01, 2020.

[2] Maia L. and Soares M.;*An Abstract Linking Theorem Applied to Indefinite Problems Via Spectral Properties*. Advanced Nonlinear Studies, v. 19, p. 545-567, 2019.