DEPARTAMENTO DE ANÁLISIS MATEMÁTICO Y MATEMÁTICA APLICADA

Instituto de Matemática Interdisciplinar

SEMINARIO DE MATEMÁTICA APLICADA
Prelectura Tesis Doctoral

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Nonlinear Spectral Theory and its application to Geometry and Topology

Abstract

When dealing with the existence of solutions of elliptic partial differential equations, it is useful to have a topological degree for nonlinear Fredholm operators of index zero. In defining this degree, the notion of orientability of mappings $h : X \to \Phi_0(U,V)$, where $\Phi_0(U,V)$ denotes the space of Fredholm operators of index zero between two real Banach spaces U, V, is imperative. This motivates the study of the set of homotopy clases $[X, \Phi_0(U,V)]$. In view of this, in this talk we will study the structure of $[X, \Phi_0(U,V)]$ by means of the nonlinear spectral theory and more concretely via the generalised algebraic multiplicity. Moreover, it will be seen that this analysis can be rephrased to the language of topological K-theory of vector bundles, allowing to study the orientability of vector bundles by means of infinite dimensional data.

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Place: Seminar Alberto Dou (Aula 209), Faculty of Mathematics, UCM
Online: https://meet.google.com/beh-zttw-qey