



DEPARTAMENTO DE
ANÁLISIS MATEMÁTICO Y
MATEMÁTICA APLICADA



Facultad de Ciencias
MATEMÁTICAS



Instituto de
Matemática
Interdisciplinar

SEMINARIO DE ANÁLISIS MATEMÁTICO Y MATEMÁTICA APLICADA

Iván Caamaño
UCM

PRELECTURA DE TESIS DOCTORAL: Sobolev spaces of vector-valued and metric-valued mappings

We address a range of problems concerning different classes of functions defined on either Euclidean domains or metric measure spaces, which take values in vector or metric spaces. The tackled issues revolve around two primary aspects: First, investigating the diverse properties of differentiability exhibited by the considered Lipschitz or Sobolev functions, with a suitable notion of regularity for metric-valued functions, by employing the notion of metric differentiability. Namely, we characterize a Rademacher-type result for Lipschitz maps between a metric measure space and a metric space in terms of the rectifiability of the domain and study vector-valued Sobolev spaces in Euclidean domains, comparing the classical Sobolev space and the Sobolev-Reshetnyak space, and give characterizations of the later using metric and weak* derivatives. Secondly, we provide a comprehensive description of spaces comprising vector-valued functions of bounded variation in metric measure spaces, and examining the regularity properties of such mappings when the target space is a metric space, through an analysis of their points of non-approximate continuity.

Organized by: Departamento de Análisis Matemático y Matemática Aplicada and Instituto de Matemática Interdisciplinar (IMI)

Date: Tuesday, June 4 2024, 13:00h
Place: Seminario Alberto Dou (Room 209)
Facultad de CC. Matemáticas, UCM