A JOURNEY THROUGH FUNCTIONAL DATA ANALYSIS: FUNCTIONAL REGRESSION AND FUNCTIONAL TIME SERIES

SPEAKER: Javier Álvarez Liébana (Universidad de Oviedo)

DATE: Tuesday, 7th May 2019 - 11:00

VENUE: Audiovisuales Room, ICMAT

ORGANISER: ICMAT-SPOR

ABSTRACT: It is well-known that functional data analysis (FDA) is playing a key role in high-dimensional statistics, where measures are being gathered with an increasing frequency. The recent technological developments have led to the formulation of alternative methodologies for dealing with these problems. Since a finite discretization will be required, in some cases, Multivariate Data Analysis (MVA) techniques have been adapted to the Functional Data Analysis (FDA) context, but ill-posed problems arise. This fact has raised the formulation of a formally mathematical framework. When high-dimensional data are analysed from a functional perspective, i.e., infinite-dimensional random elements are considered in their statistical analysis, more complex challenges arise from this richest source of information.

This talk is aimed at introducing FDA context, focusing on functional regression models (with functional response) and functional time series, showing how data with an autoregressive structure can be predicted by using an autoregressive process of order one. To provide to the listener a comprehensive idea about the great potential of these frameworks, we also address the main estimation and prediction results existing in the current literature.