

Topological Data Analysis of Nonlinear Time Series Dynamics

Organizador: Wolfram Erlhagen, Centre of Mathematics, University of Minho.

Descrição da proposta de sessão paralela:

In this parallel session, novel mathematical techniques for the analysis of nonlinear dynamics in time series through topological data analysis (TDA) will be presented. The presentations will include a general description of the fundamental principles of TDA in time series, a case study on the extraction of topological descriptors for the analysis of the non-linear gait dynamics and the connection between the topology and geometry of the time series as a tool to group the series based on its characteristics. These presentations aim to introduce the scientific community new approaches to extract information from data that reveal a temporal dependency.

Orador 1- Flora Ferreira, Centre of Mathematics, University of Minho.

Título: *An overview of topological data analysis for time series*

Orador 2- Jhonathan Barrios, Centre of Mathematics, University of Minho.

Título: *Topological Descriptors of Gait Nonlinear Dynamics*

Orador 3 - Filipa Santana, Department of Mathematics and CIDMA, University of Aveiro

Título: *Combining geometric, topological metrics with information about structural changes in time series clustering*