

# COLLOQUIUM

## Functional Singular Spectrum Analysis

Dr. Mehdi Maadooliat  
Marquette University

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Place: Zoom  
Time: 3:00pm

### Abstract:

In this talk, we introduce a new extension of the Singular Spectrum Analysis (SSA) called functional SSA to analyze functional time series. The new methodology is developed by integrating ideas from functional data analysis and univariate SSA. We explore the advantages of the functional SSA in terms of simulation results and two real data applications. We compare the proposed approach with Multivariate SSA (MSSA) and dynamic Functional Principal Component Analysis (dFPCA). The results suggest that further improvement to MSSA is possible, and the new method provides an attractive alternative to the dFPCA approach that is used for analyzing correlated functions. We implement the proposed technique to an application of remote sensing data and a call center dataset. We have also developed an efficient and user-friendly R package and a shiny web application to allow interactive exploration of the results.