

## **Identification of Realistic Noise Models in Aeroacoustical Signal Processing**

Real measurements are always endowed with interfering noise. This is particularly true with aeroacoustical data, which are captured under strong and high velocity flows. The usual approach in signal processing is to address noise as an additive component with a “scalar” covariance matrix. This might be good enough in high signal-to-noise ratios, but finds limitations otherwise. This presentation will revise the standard and almost ubiquitous noise model used in signal processing and will demonstrate the benefit of properly denoising the data before processing. First, theoretical conditions will be given for the identifiability of non-scalar covariance matrices. Next, efficient MCMC algorithms will be introduced to estimate unknown noise covariance matrices in the realistic situation where rough phenomenological noise models are available. The approach will be illustrated on the removal of turbulent layer noise in aeronautical signal processing.