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**Title:** Change point detection and identification for high dimensional dependent data

**Abstract:** High-dimensional functional data appear in practice when a dense number of repeated measurements are taken on a large number of variables for a relatively small number of experimental units. The spatial-temporal dependence and high-dimensional nature of the data structure make statistical analysis and computation a challenge. This talk will introduce computationally efficient procedures to detect and identify change points among covariance matrices from high-dimensional functional data. The change point detection procedure is presented in the form of a hypothesis test, and the asymptotic distributions of the proposed test statistics are established under an asymptotic framework with "large $p$, large $T$ and small $n$", where $p$ is data dimension, $T$ is the number of repeated measurements and $n$ is the sample size. We also propose change-point estimators for both single and multiple change points. These estimators are proven to be consistent under a mild set of conditions. The rate of convergence of the estimator depends on the data dimension, sample size, number of repeated measurements, and signal-to-noise ratio. Computation efficiency is carefully studied to address the challenges due to the large number of repeated measurements and high-dimensionality. Simulation results demonstrate that the size of the detection procedure is well controlled at the nominal level, and the locations of multiple change points can accurately be identified. We apply the proposed approach to find event boundaries in a continuous movie by identifying change points among functional connectivity using functional MRI data.