

# Change-point detection in functional observations

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A widely used approach to test for a change in the mean of functional data are CUSUM-procedures which rely on functional limit theorems. These procedures are based on projections of the infinite dimensional functional observations on the finite dimensional subspace(s) spanned by  $p \geq 1$  leading (empirical) functional principal components. We will consider a corresponding CUSUM-procedure which relies on a Darling-Erdős-type limit theorem and show that the statistic is asymptotically Gumbel-distributed under the null hypothesis and that the test is consistent under the alternatives of either an abrupt or a gradual change in the mean. The finite sample behaviour of the test will be examined in a small simulation study.