

Robust Change-Point Tests for Dependent Data

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We will present recent results on the asymptotic distribution of some robust change-point tests. The tests are based on U -statistics, empirical U -processes and empirical U -quantiles. We derive the asymptotic distribution of these statistics in the case when the underlying data are weakly dependent. More precisely, we study functionals of absolutely regular processes, covering a large range of examples from time series analysis as well as from dynamical systems.

References

- [1] S. Borovkova, R. Burton and H. Dehling. Limit theorems for functionals of mixing processes with applications to U -statistics and dimension estimation. *Transactions of the American Mathematical Society* **353**, 4261–4318, 2001.
- [2] H. Dehling and R. Fried. Asymptotic Distribution of Two-Sample Empirical U -Quantiles with Applications to Robust Tests for Shifts in Location. *Journal of Multivariate Analysis* **105**, 124–140, 2012.
- [3] H. Dehling, R. Fried and M. Wendler. A Robust Method for Change Point Detection in Time Series. *Work in Progress*.
- [4] R. Fried and H. Dehling. Robust nonparametric tests for the two-sample location problem. *Statistical Methods and Applications* **20**, 409–422, 2011.