

Publications

Books

1. Modern Directional Statistics. Chapman & Hall, CRC press (2017) (coauthor: C.Ley).
2. Applied Directional Statistics: Modern Methods and Case Studies. Chapman & Hall, CRC press, in press (co-editor with C.Ley).

Preprints

1. Refining Feulgen: low-cost and accurate genome size measurements for everyone (coauthors: M. Tawfeeq, U.Swaelus, F.Rodriguez, F.Silva, L.Grumbiau and J.-F. Flot), *submitted*.
2. On m -points uniformity tests on hyperspheres (coauthors: A. Fernández-de-Marcos and E. García-Portugués), *submitted*.
3. Two-sample location problems for directions: testing and preliminary test estimation under weak identifiability (coauthor: C. Bréchet), *submitted*.
4. High-dimensional Sobolev tests on hyperspheres (coauthors: B. Ebner and E. García-Portugués), *submitted*.
5. Inference on location for noisy directional data: a Le Cam approach to quantify the value of the hyperspherical a priori information (coauthors: D. Bolon and D. Paindaveine), *submitted*.

Published or in press

6. On a class of Sobolev tests for symmetry of directions, their detection thresholds, and asymptotic powers (coauthors: E. García-Portugués and D. Paindaveine), *Journal of the American Statistical Association*, to appear (2025+).
7. Rank tests for PCA under weak identifiability (coauthors: D. Paindaveine and L. Peralvo-Maroto), *Annals of Statistics*, to appear (2025+).
8. Comparison of predictor's performance in insurance pricing: testing for Bregman dominance based on Murphy diagrams (coauthors: M. Denuit and J. Trufin), *European Actuarial Journal*, to appear (2025+).
9. On runs tests for directional data and their local and asymptotic optimality properties, *Statistica Sinica*, to appear (2025+) (coauthors: M. Boucher, C. Francq and Y. Goto).
10. On a modified Watson test, *Statistical Papers*, to appear (2025+) (coauthors: A.

- Meilan-Vila, M. Boucher and V. Meurice).
11. Nonparametric measure-transportation-based methods for directional data, *Journal of the Royal Statistical Society, Series B*, Vol.86, 1172-1196 (2024) (coauthors: M. Hallin and H. Liu).
 12. Power enhancement for dimension detection of Gaussian signals, *Statistica Sinica*, Vol. 34, 2161-2182 (2024) (coauthor: G. Bernard).
 13. Power enhancement for testing the equality of shape matrices eigenvalues under ellipticity, *In: Barigozzi et al. (eds) Recent advances in Econometrics and Statistics, Springer*, 71-86 (2024)(coauthor: G. Bernard).
 14. Testing for auto-calibration with Lorenz and Concentration curves, *Insurance: Mathematics and Economics*, Vol.117, 130-139 (2024) (coauthors: M. Denuit, J. Huyghe and J. Trufin).
 15. Nonparametric tests of independence for circular data based on trigonometric moments, *Statistica Sinica*, Vol.34, 567-588 (2024) (coauthors: E. García-Portugués, P. Lafaye de Micheaux and S. Meintanis).
 16. On testing the equality of latent roots of scatter matrices under ellipticity, *Journal of Multivariate Analysis*, Vol.199, 105232 (2024) (coauthor: G. Bernard).
 17. On some multivariate sign tests for scatter matrix eigenvalues, *Econometrics and Statistics*, Vol. 29, 252-260 (2024) (coauthor: G. Bernard).
 18. On the asymptotic behavior of the leading eigenvector of Tyler's shape estimator under weak identifiability, *In: Nordhausen, K., Yi, M. (eds), Robust and Multivariate Statistical Methods. Festschrift in honor of David Tyler. Springer*, 45-63 (2023) (coauthor: D. Paindaveine).
 19. Portmanteau tests for semiparametric nonlinear conditionally heteroscedastic time series models, *In: Y. Liu et al. (eds.), Research Papers in Statistical Inference for Time Series and Related Models, Springer*, Chap. 5 (2023) (coauthors: Ch. Francq and J-M. Zakoian).
 20. Preliminary Multiple-Test Estimation, with Applications to k -sample Covariance Estimation, *Journal of the American Statistical Association*, Vol. 117, 1904–1915 (2022) (coauthors: D. Paindaveine and J. Rasoafaraniaina).
 21. Asymptotic efficiency of some nonparametric tests for location on hyperspheres, *Statistics and Probability Letters*, Vol.188, art. 109524 (2022) (co-authors: S. Dabo and B. Thiam).
 22. On weighted sign tests for rotational symmetry on hyperspheres, in *In: SenGupta*,

A., Arnold, B.C. (eds) *Directional Statistics for Innovative Applications. Forum for Interdisciplinary Mathematics. Springer, Singapore.* (2022).

23. Testing uniformity on high-dimensional spheres: the non-null behaviour of the Bingham test, *Annales de l'Institut Henri Poincaré (P&S)*, Vol. 58, 567-602 (2022) (coauthors: C. Cutting and D. Paindaveine).
24. Testing for positive expectation dependence with application to model comparison, *Insurance: Mathematics and Economics*, Vol. 101, 163-172 (2021) (coauthors: M. Denuit and J. Trufin).
25. Directional Statistics: Theory, *Wiley Statsref: Statistics reference online* (2021).
26. Preliminary test estimation in ULAN models, *Scandinavian Journal of Statistics*, Vol. 48, 689-707 (2021) (coauthors: D. Paindaveine and J. Rasoafaraniaina).
27. Optimal tests for circular reflective symmetry about an unknown central direction, *Statistical Papers*, Vol. 62, 1651-1674 (2021) (coauthors: J. Ameijeiras-Alonso, C. Ley, A. Pewsey).
28. On optimal tests for rotational symmetry against new classes of hyperspherical distributions, *Journal of the American Statistical Association*, Vol. 115, 1873-1887 (2020) (coauthors: E. García-Portugués and D. Paindaveine).
29. Sign tests for weak principal directions, *Bernoulli*, Vol. 26, 2987-3016 (2020) (coauthors: D. Paindaveine and J. Remy).
30. Inference for spherical location under high concentration, *Annals of Statistics*, Vol. 48, 2982-2998 (2020) (coauthor: D. Paindaveine).
31. On new Sobolev tests of uniformity on the circle with extension to the sphere, *Bernoulli*, Vol. 26, 2226-2252 (2020) (coauthors: S.R. Jammalamadaka and S. Meintanis).
32. Detecting the direction of a signal on high-dimensional spheres: non-null and Le Cam optimality results, *Probability Theory and Related Fields*, Vol. 176, 1165-1216 (2020) (coauthor: D. Paindaveine).
33. On the power of axial tests of uniformity, *Electronic Journal of Statistics*, Vol. 14, 2123-2154 (2020) (coauthors: C. Cutting and D. Paindaveine).
34. Testing for principal component directions under weak identifiability, *Annals of Statistics*, Vol. 48, 324-345 (2020) (coauthors: D. Paindaveine and J. Remy).
35. Le Cam maximin tests for symmetry of circular data based on the characteristic function, *Statistica Sinica*, Vol. 29, 1301-1320 (2019) (coauthor: S. Meintanis).
36. On the efficiency of some rank-based test for the homogeneity of concentrations,

- Journal of Statistical Planning and Inference*, Vol. 191, 101–109 (2017).
37. Testing uniformity on high-dimensional spheres against contiguous rotationally symmetric alternatives, *Annals of Statistics*, Vol. 45, 1024–1058 (2017) (coauthors: C. Cutting and D. Paindaveine).
 38. Skew-rotationally-symmetric distributions on the unit sphere and related efficient inferential procedures, *Journal of Multivariate Analysis*, Vol. 159, 67–81 (2017) (coauthor: C. Ley).
 39. Inference on the mode of weak directional signals: a Le Cam perspective on hypothesis testing near singularities, *Annals of Statistics*, Vol. 45, 800–832 (2017) (coauthor: D. Paindaveine).
 40. On the estimation of the density of a directional data stream, *Scandinavian Journal of Statistics*, Vol. 44, 249–267 (2017) (coauthors: A. Amiri and B. Thiam).
 41. Preliminary test estimation for multi-sample principal components, *Econometrics and Statistics*, Vol. 2, 106–116 (2017) (coauthors: D. Paindaveine and J. Rasoafaraniaina).
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 48. Local powers of optimal one- and multi-sample tests for the concentration of Fisher-von Mises-Langevin distributions. *International Statistical Review*, Vol. 82, 440–456 (2014) (coauthor: C. Ley).
 49. Efficient R-estimation of principal and common principal components. *Journal of the American Statistical Association*, Vol. 109, 1071–1083 (2014) (coauthors: M. Hallin

and D. Paindaveine).

50. Simple, asymptotically distribution-free, optimal tests for reflective symmetry about a known circular median. *Statistica Sinica*, Vol. 24, 1319-1340 (2014) (coauthor: C. Ley).
51. A new concept of quantiles for directional data and the angular Mahalanobis depth. *Electronic Journal of Statistics*, Vol. 8, 795-816 (2014) (coauthors: C. Ley and C. Sabbah).
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58. Rank-based tests for elliptical graphical modeling. *Journal de la Société Française de Statistique*, Vol. 153, 82-100 (2012) (coauthor: D. Paindaveine).
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61. Testing for common principal components under heterokurticity. *Journal of Nonparametric Statistics*, Vol. 22, 879-895 (2010) (coauthors: M. Hallin and D. Paindaveine).
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