RÉSUMÉS
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I. T. Simon, *A remark on the $\mathcal{L}_1$-norm of Brownian motion.* The Laplace transform of the integral of the absolute value of a real Brownian motion has been computed in 1945 by M. Kac, with the help of a long and subtle asymptotic analysis on Bessel functions. Up to now, there does not seem to exist a shorter proof of this well-known computation. In this semi-historical note we observe that Kac's argument could have been greatly simplified back then, had he used the eigenfunction expansion associated to a real Schrödinger operator with linear potential, evaluated in 1944 (and in the same linguistic part of the world) by R.-P. Bell.

II. Ch. Bouveyron, J. Jacques, *Model-based clustering of time series in group-specific functional subspaces.* This work develops a general procedure for clustering functional data which adapts the efficient clustering method HDDC, originally proposed in the multivariate context. The resulting clustering method, called funHDDC, is based on a functional latent mixture model which fits the functional data in group-specific functional subspaces. By constraining model parameters within and between groups, a family of parsimonious models is exhibited which allow to fit onto various situations. An estimation procedure based on the EM algorithm is proposed for estimating both the model parameters and the group-specific functional subspaces. Experiments on real-world datasets show that the proposed approach performs better or similarly than classical clustering methods while providing useful interpretations of the groups.

III. J. Jacques, *Pratique de l'analyse de sensibilité : comment évaluer l'impact des entrées aléatoires sur la sortie d'un modèle mathématique.* L'analyse de sensibilité globale (AS) permet d'analyser un modèle mathématique en étudiant l'impact de la variabilité des facteurs d'entrée du modèle sur la variable de sortie. Déterminant les entrées responsables de cette variabilité à l'aide d'indices de sensibilité, l'AS permet de prendre les mesures nécessaires pour diminuer la variance de la sortie si celle-ci est synonyme d'imprécision, ou encore d'alléger le modèle en fixant les entrées dont la variabilité n'influe pas la variable de sortie. Nous présentons dans ce document les principaux indices de sensibilité, basés sur l'hypothèse d'indépendance des variables d'entrée, leurs estimations, puis abordons le cas des modèles à entrées non indépendantes. Deux applications numériques illustrent l'inteprétation des indices de sensibilité dans le cas de modèle à entrées indépendantes et dépendantes.

IV. C. Biernacki, G. Castellan, *A data-driven bound on variances for avoiding degeneracy in univariate Gaussian mixtures.* In the case of univariate Gaussian mixtures, unbounded likelihood is an important theoretical and practi-

cal problem. Using the weak information that the latent sample size of each component has to be greater than the space dimension, we derive a simple non-asymptotic stochastic lower bound on variances. We prove also that maximizing the likelihood under this data-driven constraint leads to consistent estimates.

V. F. Graiche, D. Merabet, D. Hamadouche, *Testing epidemic change in the variance.* In this paper, we propose statistics of type DI based on independent not identically distributed or α-mixing random variables. We obtain their limit distributions under the null hypothesis and we present an application for testing epidemic change in the variance for each case.

VI. Y. Taleb, F. Achemine, D. Hamadouche, A. Aissani, *Asymptotic study of a busy period in a retrial queue.* In this work, we propose two approaches to study the convergence in distribution of the busy period of the M/G/1 retrial queue. The first approach rely on the modeling of Artaléjo and Falin (1996) and an invariance principle for independent randomes variables. In the second one, we use the evolution of the system in terms of idle periods and busy periods of the server and we conclude too with an Hölderian invariance principle.

VII. J. Jacques, C. Preda, *Model-based clustering of functional data.* Model-based clustering for functional data is considered. An alternative to model-based clustering using the functional principal components is proposed by approximating the density of functional random variables. The EM algorithm is used for parameter estimation and the maximum a posteriori rule provides the clusters. Simulation study and real data application illustrate the interest of the proposed methodology.

VIII. J. Markevičiūtė, A. Račkauskas, Ch. Suquet, *Functional limit theorems for sums of nearly non stationary processes.* We study some Hölderian functional central limit theorems for the polygonal line partial sums process build on a first order autoregressive process $y_{n,k} = \phi_n y_{n,k-1} + \epsilon_k$ with ϕ_n converging to 1 and i.i.d. centered square integrable innovations. In the case where $\phi_n = \mathrm{e}^{\gamma/n}$ with is a negative constant γ, the limiting process is an integrated Ornstein-Uhlenbeck process. In the case where $\phi_n = 1 - \gamma_n/n$, where γ_n goes to infinity slower than n, we discuss the convergence in Hölder topology to Brownian motion in terms of the rate of γ_n and of the integrability of the ϵ_k's.

IX. A. Račkauskas, Ch. Suquet, *On the distribution of sequential Hölder norms of the Brownian motion.* The distributions of Hölder norms of Brownian motion and of Brownian bridge are limiting distributions (under the null hypothesis) of some statistics based on uniform increments of partial sums process allowing to detect some short "epidemic" changes in a sample. Unfortunately the exact distribution of these norms is not known. For practical reasons it is then convenient to use dyadic increment statistics whose limiting distribution is the one of sequential Hölder norms of the Brownian bridge. The aim of this paper is to study the practical computations of such distributions.

X. D. Coupier, D. Dereudre, *Continuum Percolation for Quermass Model.* The continuum percolation for Markov (or Gibbs) germ-grain models is investigated. The grains are assumed circular with random radii on a compact support. The morphological interaction is the so-called Quermass interaction defined by a linear combination of the classical Minkowski functionals (area, perimeter and Euler-Poincaré characteristic). We show that the percolation occurs for any coefficient of this linear combination and for a large enough activity parameter. An application to the phase transition of the multi-type Quermass model is given.