

Contents

Permutation and bootstrap statistics under infinite variance	1
István Berkes, Lajos Horváth, and Johannes Schauer	
1 Introduction	1
2 Some general sampling theorems	2
3 Application to change point detection	10
References	19
Max-Stable Processes: Representations, Ergodic Properties and Statistical Applications	21
Stilian A. Stoev	
1 Introduction	21
2 Representations of Max-Stable Processes	24
3 Ergodic Properties of Stationary Max-stable Processes	29
4 Examples and Statistical Applications	32
4.1 Ergodic Properties of Some Max-Stable Processes	32
4.2 Estimation of the Extremal Index	35
References	40
Best attainable rates of convergence for the estimation of the memory parameter	43
Philippe Soulier	
1 Introduction	43
2 Lower bound	45
3 Upper bound	47
4 Bandwidth selection	49
5 Technical results	51
References	56
Harmonic analysis tools for statistical inference in the spectral domain ..	59
Florin Avram, Nikolai Leonenko, and Ludmila Sakhno	
1 Introduction	59
2 Motivation	61

3	Main result	64
4	Applications and discussion	67
	References	70

On the impact of the number of vanishing moments on the dependence structures of compound Poisson motion and fractional Brownian motion in multifractal time 71

Béatrice Vedel, Herwig Wendt, Patrice Abry, and Stéphane Jaffard

1	Motivation	72
2	Infinitely divisible processes	74
	2.1 Infinitely divisible cascade	74
	2.2 Infinitely divisible motion	76
	2.3 Fractional Brownian motion in multifractal time	78
3	Multiresolution quantities and scaling parameter estimation	78
	3.1 Multiresolution quantities	78
	3.2 Scaling parameter estimation procedures	80
4	Dependence structures of the multiresolution coefficients: analytical study	80
	4.1 Correlation structures for increment and wavelet coefficients	81
	4.2 Higher order correlations for increments	83
	4.3 Role of the order of the increments	85
5	Dependence structures of the multiresolution coefficients: Conjectures and numerical studies	85
	5.1 Conjectures	85
	5.2 Numerical simulations	86
6	Discussions and conclusions on the role of the number of vanishing moments:	89
7	Proofs	90
	7.1 A key lemma	90
	7.2 Proof of Theorem 4.1	91
	7.3 Proof of Theorem 4.2	93
	7.4 Proof of Proposition 0.6	94
	7.5 Proof of Proposition 0.7	95
	7.6 Proof of Proposition 0.8	99
	References	99

Multifractal scenarios for products of geometric Ornstein-Uhlenbeck type processes 103

Vo V. Anh, Nikolai N. Leonenko, and Narn-Rueih Shieh

1	Introduction	103
2	Multifractal products of stochastic processes	104
3	Geometric Ornstein-Uhlenbeck processes	108
4	Multifractal Ornstein-Uhlenbeck processes	113
	4.1 Log-tempered stable scenario	113
	4.2 Log-normal tempered stable scenario	116

References	120
A new look at measuring dependence	123
Wei Biao Wu and Jan Mielniczuk	
1 Introduction	123
2 Bivariate dependence	125
2.1 Global dependence measures	126
2.2 Local dependence measures	130
3 Connections with reliability theory	133
4 Multivariate dependence	135
5 Moment inequalities and limit theorems	137
References	139
Robust regression with infinite moving average errors	143
Patrick J. Farrell and Mohamedou Ould-Haye	
1 Introduction	143
2 S-estimators	144
3 S-estimators' Asymptotic Behavior	145
3.1 Weak Convergence of estimators	146
4 Proof of Proposition 1	150
5 Discussion	156
References	156
A note on the monitoring of changes in linear models with dependent errors	159
Alexander Schmitz and Josef G. Steinebach	
1 Introduction	159
2 The testing procedure	160
3 Examples	163
3.1 Linear models with NED regressors	163
3.2 Linear models with asymptotically M -dependent errors ..	164
3.3 Monitoring strongly mixing AR models	165
4 Proofs	167
References	173
Testing for homogeneity of variance in the wavelet domain.	175
Olaf Kouamo, Eric Moulines, and Francois Roueff	
1 Introduction	176
2 The wavelet transform of K -th order difference stationary processes	178
3 Asymptotic distribution of the W2-CUSUM statistics	180
3.1 The single-scale case	180
3.2 The multiple-scale case	187
4 Test statistics	190
5 Power of the W2-CUSUM statistics	192
5.1 Power of the test in single scale case	192
5.2 Power of the test in multiple scales case	196

6 Some examples 198

References 204