

THE ANNALS
of
PROBABILITY

AN OFFICIAL JOURNAL OF
THE INSTITUTE OF MATHEMATICAL STATISTICS

VOLUME 7

1979

CONTENTS OF VOLUME 7
SPECIAL INVITED PAPERS

DAVIS, BURGESS. Brownian motion and analytic functions	913–932
DOBRUSHIN, R. L. Gaussian and their subordinated self-similar random generalized fields	1–28
GAENSSLER, PETER AND STUTE, WINFRIED. Empirical processes: a survey of results for independent and identically distributed random vari- ables	193–243
NAGAEV, S. V. Large deviations of sums of independent random vari- ables	745–789
STUTE, WINFRIED AND GAENSSLER, PETER. Empirical processes: a survey of results for independent and identically distributed random vari- ables	193–243

ARTICLES AND SHORT COMMUNICATIONS

ALDOUS, DAVID AND PITMAN, JIM. On the zero-one law for exchangeable events	704–723
BAHADUR, R. R. AND ZABELL, S. L. Large deviations of the sample mean in general vector spaces	587–621
BERKES, ISTVÁN AND PHILIPP, WALTER. Approximation theorems for independent and weakly dependent random vectors	29–54
BERNING, JOHN A., JR. On the multivariate law of the iterated logarithm	980–988
BISMUT, JEAN-MICHEL. Temps d'arrêt optimal, quasi-temps d'arrêt et retournement du temps	933–964
BONDESSON, LENNART. A general result on infinite divisibility	965–979
BOZORGNIA, A. AND RAO, M. BHASKARA. A strong law of large numbers for subsequences of random elements in separable Banach spaces	156–158
BRAMSON, MAURY AND GRIFFEATH, DAVID. Renormalizing the 3-di- mensional voter model	418–432
BURKE, M. D., CSÖRGÖ, M., CSÖRGÖ, S. AND RÉVÉSZ, P. Approximations of the empirical process when parameters are estimated	790–810
BURKHOLDER, D. L. A sharp inequality for martingale transforms	858–863
CHEN, LOUIS H. Y. A martingale inequality for the square and maximal functions	1051–1055
CHOW, Y. S., HSIUNG, CHAO A. AND LAI, T.L. Extended renewal theory and moment convergence in Anscombe's theorem	304–318
COX, J. THEODORE. An alternate proof of a theorem of Kesten concern- ing Markov random fields	377–378
COX, J. THEODORE. Further results on one-dimensional diffusions with time parameter set $(-\infty, \infty)$	537–542
CSÖRGÖ, M. AND RÉVÉSZ, P. How big are the increments of a Wiener process?	731–737

CSÖRGO, M., CSÖRGO, S., RÉVÉSZ, P. AND BURKE, M. D. Approximations of the empirical process when parameters are estimated	790–810
CSÖRGO, S., RÉVÉSZ, P., BURKE, M. D. AND CSÖRGO, M. Approximations of the empirical process when parameters are estimated	790–810
DAFFER, PETER Z. AND TAYLOR, ROBERT L. Laws of large numbers for $D[0,1]$	85–95
DAVID, H. T. AND KIM, GEUNG-HO. Large deviations of functions of Markovian transitions and mathematical programming duality ..	874–881
DAVIS, RICHARD A. Maxima and minima of stationary sequences	453–460
DAWSON, DONALD A. AND HOCHBERG, KENNETH J. The carrying dimension of a stochastic measure diffusion	693–703
DUBINS, LESTER E. AND SUDDERTH, WILLIAM D. On stationary strategies for absolutely continuous houses	461–476
DUDLEY, R. M., HOFFMANN-JØRGENSEN, J. AND SHEPP, L. A. On the lower tail of Gaussian seminorms	319–342
DURRETT, RICHARD. On the shape of a random string	1014–1027
ESARY, J. D. AND MARSHALL, A. W. Multivariate distributions with increasing hazard rate average	359–370
ETHIER, S. N. Limit theorems for absorption times of genetic models ..	622–638
FRISTEDT, BERT. Uniform local behavior of stable subordinators	1003–1013
GETOOR, R. K. Excursions of a Markov process	244–266
GETOOR, R. K. The Brownian escape process	864–867
GLAZ, JOSEPH AND NAUS, JOSEPH. Multiple coverage of the line	900–906
GLOVER, JOSEPH. Note on the Ray-Knight compactification	543–546
GRAY, ROBERT M. AND PAPANTONI-KAZAKOS, P. Robustness of estimators on stationary observations	989–1002
GRIFFEATH, DAVID. Pointwise ergodicity of the basic contact process ..	139–142
GRIFFEATH, DAVID AND BRAMSON, MAURY. Renormalizing the 3-dimensional voter model	418–432
GROENEBOOM, P., OOSTERHOFF, J. AND RUYMGAART, F. H. Large deviation theorems for empirical probability measures	553–586
GUT, ALLAN. On the integrability of $\sup S_n/n $ for subsequences	1059–1065
DE HAAN, LAURENS AND RIDDER, GEERT. Stochastic compactness of sample extremes	290–303
DE HAAN, L. AND RESNICK, S. I. Conjugate Π -variation and process inversion	1028–1035
HALEVY, AVNER AND RAO, M. BHASKARA. On an analogue of Komlós' theorem for strategies	1073–1077
HALL, PETER. On the Skorokhod representation approach to martingale invariance principles	371–376
VAN HARN, K. AND STEUTEL, F. W. Discrete analogues of self-decomposability and stability	893–899
HEBDA-GRABOWSKA, H. AND SZYNAL, D. An almost sure invariance principle for the partial sums of infima of independent random variables	1036–1045

HOCHBERG, KENNETH J. AND DAWSON, DONALD A. The carrying dimension of a stochastic measure diffusion	693-703
HOFFMANN-JØRGENSEN, J., SHEPP, L. A. AND DUDLEY, R. M. On the lower tail of Gaussian seminorms	319-342
HOLST, LARS. Asymptotic normality of sum-functions of spacings	1066-1072
HSIUNG, CHAO A., LAI, T. L. AND CHOW, Y. S. Extended renewal theory and moment convergence in Anscombe's theorem	304-318
HUDSON, WILLIAM N. AND TUCKER, HOWARD G. Asymptotic independence in the multivariate central limit theorem	662-671
ISAAC, RICHARD. Markov-dependent σ -fields and conditional expectations	1088-1091
DE JONGE, EP. Conditional expectation and ordering	179-183
DEL JUNCO, A. AND STEELE, J. MICHAEL. Hammersley's law for the van der Corput sequence: an instance of probability theory for pseudorandom numbers	267-275
KANTER, MAREK. Lower bounds for nonlinear prediction error in moving average processes	128-138
KARR, A. F. AND PITTENGER, A. O. An inverse balayage problem for Brownian motion	186-191
KAWADA, TAKAYUKI. Maximum in the Lévy-Baxter theorem for Gaussian random fields	173-178
KERTZ, ROBERT P. AND NACHMAN, DAVID C. Persistently optimal plans for nonstationary dynamic programming: the topology of weak convergence case	811-826
KIEFFER, JOHN C. Estimation of a convex real parameter of an unknown information source	882-886
KIM, GEUNG-HO AND DAVID, H. T. Large deviations of functions of Markovian transitions and mathematical programming duality ..	874-881
KNIGHT, FRANK B. Prediction processes and an autonomous germ-Markov property	385-405
KUELBS, J. AND ZINN, JOEL. Some stability results for vector valued random variables	75-84
LAI, T. L. AND WIJSMAN, R. A. First exit time of a random walk from the bounds $f(n) \pm cg(n)$, with applications	672-692
LAI, T. L., CHOW, Y. S. AND HSIUNG, CHAO A. Extended renewal theory and moment convergence in Anscombe's theorem	304-318
LANDERS, D. AND ROGGE, L. A functional relationship between the different r -means for indicator functions	166-169
LANDERS, DIETER AND ROGGE, LOTHAR. On linearity of s -predictors ..	887-892
LANGBERG, N. A. AND PROSCHAN, F. A reliability growth model involving dependent components	1082-1087
LYNCH, JAMES. Sign changes of the difference of convex functions and their application to large deviation rates	96-108
MAJØR, P. An improvement of Strassen's invariance principle	55-61
MARSHALL, ALBERT W. AND SHAKED, MOSHE. Multivariate shock	

models for distributions with increasing hazard rate average	343–358
MARSHALL, A. W. AND ESARY, J. D. Multivariate distributions with increasing hazard rate average	359–370
MCDONALD, DAVID. A local limit theorem for large deviations of sums of independent, nonidentically distributed random variables	526–531
MILLER, H. D. Infinite divisibility in stochastic processes	406–417
MITTAL, YASHASWINI. A new mixing condition for stationary Gaussian processes	724–730
MOUNTFORD, DAVID. An inequality in p -functions	184–185
NACHMAN, DAVID C. AND KERTZ, ROBERT P. Persistently optimal plans for nonstationary dynamic programming: the topology of weak convergence case	811–826
NAUS, JOSEPH AND GLAZ, JOSEPH. Multiple coverage of the line	900–906
NUMMELIN, E. Strong ratio limit theorems for ϕ -recurrent Markov chains	639–650
O'CONNOR, THOMAS A. Infinitely divisible distributions with unimodal Lévy spectral functions	494–499
OOSTERHOFF, J., RUYMGAART, F. H. AND GROENEBOOM, P. Large deviation theorems for empirical probability measures	553–586
PAPANTONI-KAZAKOS, P. AND GRAY, ROBERT M. Robustness of estimators on stationary observations	989–1002
PFANZAGL, J. Conditional distributions as derivatives	1046–1050
PHILIPP, WALTER AND BERKES, ISTVÁN. Approximation theorems for independent and weakly dependent random vectors	29–54
PITMAN, JIM AND ALDOUS, DAVID. On the zero-one law for exchangeable events	704–723
PITT, LOREN D. AND TRAN, LANH TAT. Local sample path properties of Gaussian fields	477–493
PITTENGER, A. O. Note on a square function inequality	907–908
PITTENGER, A. O. AND KARR, A. F. An inverse balayage problem for Brownian motion	186–191
PROSCHAN, F. AND LANGBERG, N. A. A reliability growth model involving dependent components	1082–1087
PROTTER, PHILIP. A comparison of stochastic integrals	276–289
PROTTER, P. AND SHARPE, M. J. Martingales with given absolute value	1056–1058
RAMACHANDRAN, D. Existence of independent complements in regular conditional probability spaces	433–443
RAMACHANDRAN, D. Perfect mixtures of perfect measures	444–452
RAO, M. BHASKARA AND BOZORGNIA, A. A strong law of large numbers for subsequences of random elements in separable Banach spaces	156–158
RAO, M. BHASKARA AND HALEVY, AVNER. On an analogue of Komlós' theorem for strategies	1073–1077
RESNICK, S. I. AND DE HAAN, L. Conjugate Π -variation and process inversion	1028–1035
RÉVÉSZ, P. AND CSÖRGÖ, M. How big are the increments of a Wiener process?	731–737

RÉVÉSZ, P., BURKE, M. D., CSÖRGÖ, M. AND CSÖRGÖ, S. Approximations of the empirical process when parameters are estimated	790–810
RIDDER, GEERT AND DE HAAN, LAURENS. Stochastic compactness of sample extremes	290–303
ROGGE, L. AND LANDERS, D. A functional relationship between the different r -means for indicator functions	166–169
ROGGE, LOTHAR AND LANDERS, DIETER. On linearity of s -predictors . .	887–892
ROSENBLATT, M. Some remarks on a mixing condition	170–172
RÖSLER, UWE. The tail σ -field of time-homogeneous one-dimensional diffusion processes	847–857
ROSS, SHELDON M. Multivalued state component systems	379–383
RUYMGAART, F. H., GROENEBOOM, P. AND OOSTERHOFF, J. Large deviation theorems for empirical probability measures	553–586
SALEHI, H. Algorithms for linear interpolator and interpolation error for minimal stationary stochastic processes	840–846
SHAFFER, GLENN. Allocations of probability	827–839
SHAKED, MOSHE AND MARSHALL, ALBERT W. Multivariate shock models for distributions with increasing hazard rate average	343–358
SHARPE, M. J. AND PROTTER, P. Martingales with given absolute value	1056–1058
SHEPP, L. A., DUDLEY, R. M. AND HOFFMANN-JØRGENSEN, J. On the lower tail of Gaussian seminorms	319–342
SHORACK, GALEN, R. Extension of the Darling and Erdős theorem on the maximum of normalized sums	1092–1096
SIEGEL, ANDREW F. Asymptotic coverage distributions on the circle . .	651–661
STECK, GEORGE P. Lower bounds for the multivariate normal Mills' ratio	547–551
STEELE, J. MICHAEL AND DEL JUNCO, A. Hammersley's law for the van der Corput sequence: an instance of probability theory for pseudorandom numbers	267–275
STEUTEL, F. W. AND VAN HARN, K. Discrete analogues of self-decomposability and stability	893–899
SUDDERTH, WILLIAM D. AND DUBINS, LESTER E. On stationary strategies for absolutely continuous houses	461–476
SZYNAL, D. AND HEBDA-GRABOWSKA, H. An almost sure invariance principle for the partial sums of infima of independent random variables	1036–1045
TAYLOR, ROBERT L. AND DAFFER, PETER Z. Laws of large numbers for $D[0,1]$	85–95
TAYLOR, R. L. AND WEI, DUAN. Laws of large numbers for tight random elements in normed linear spaces	150–155
TEICHER, HENRY. Rapidly growing random walks and an associated stopping time	1078–1081
TRAN, LANH TAT. The range of Lévy's N -parameter Brownian motion in d -space	532–536
TRAN, LANH TAT AND PITT, LOREN D. Local sample path properties of	

Gaussian fields	477–493
TUCKER, HOWARD G. AND HUDSON, WILLIAM N. Asymptotic independence in the multivariate central limit theorem	662–671
VENEZIANO, DANIELE. Envelopes of vector random processes and their crossing rates	62–74
VERVAAT, WIM. A relation between Brownian bridge and Brownian excursion	143–149
WANG, ALBERT T. Time-dependent functions of Brownian motion that are Markovian	515–525
WEI, DUAN AND TAYLOR, R. L. Laws of large numbers for tight random elements in normed linear spaces	150–155
WESTCOTT, MARK. On the tail behaviour of record-time distributions in a random record process	868–873
WIJSMAN, R. A. AND LAI, T. L. First exit time of a random walk from the bounds $f(n) \pm cg(n)$, with applications	672–692
WILMESMEIER, JAMES M. AND WRIGHT, F. T. The almost sure stability of quadratic forms	738–743
WONG, SHERMAN. A central limit theorem for piecewise monotonic mappings of the unit interval	500–514
WRIGHT, F. T. A strong law for variables indexed by a partially ordered set with applications to isotone regression	109–127
WRIGHT, F. T. AND WILMESMEIER, JAMES M. The almost sure stability of quadratic forms	738–743
ZABELL, SANDY. Continuous versions of regular conditional distributions	159–165
ZABELL, S. L. AND BAHADUR, R. R. Large deviations of the sample mean in general vector spaces	587–621
ZINN, JOEL AND KUELBS, J. Some stability results for vector valued random variables	75–84

NOTES

DUDLEY, R. M. Corrections to “Central limit theorems for empirical measures”	909–911
KARR, ALAN F. Correlation to “Lévy random measures”	1098
ROSENBLATT, MURRAY. Correction to “Some remarks on a mixing condition”	1097