

- BREIMAN, L. (1968). *Probability*. Addison-Wesley, Reading, Mass.
- CHEN, L. H. Y. (1975a). Poisson approximation for dependent trials. *Ann. Probab.* **3** 534–545.
- CHEN, L. H. Y. (1975b). An approximation theorem for sums of certain randomly selected indicators. *Z. Wahrsch. Verw. Gebiete* **33** 69–74.
- CHEN, L. H. Y. (1978). Two central limit problems for dependent random variables. *Z. Wahrsch. Verw. Gebiete* **43** 223–243.
- CHEN, L. H. Y. and HO, S. T. (1978). An L_p bound for the remainder in a combinatorial central limit theorem. *Ann. Probab.* **6** 231–249.
- DIACONIS, P. and MOSTELLER, F. (1989). Methods for studying coincidences. *J. Amer. Statist. Assoc.* **84** 853–861.
- ERICKSON, R. V. (1974). L_1 bounds for asymptotic normality of m -dependent sums using Stein's technique. *Ann. Probab.* **2** 522–529.
- FICKETT, J. W. and BURKS, C. (1988). Development of a database for nucleotide sequences. In *Mathematical Methods for DNA Sequences* (M. S. Waterman, ed.) 1–44. CRC Press, Boca Raton, Fla.
- HALL, P. (1980). Estimating probabilities for normal extremes. *Adv. in Appl. Probab.* **12** 491–500.
- HALL, P. (1988). *Introduction to the Theory of Coverage Processes*. Wiley, New York.
- HECKMAN, N. (1988). Bump hunting in regression analysis. Preprint.
- HOLST, L. (1986). On birthday, collectors', occupancy and other classical urn problems. *Internat. Statist. Rev.* **54** 15–27.
- HOLST, L. and JANSON, S. (1990). Poisson approximation using the Stein–Chen method and coupling: Number of exceedances of Gaussian random variables. *Ann. Probab.* **18** 713–723.
- HUDSON, H. M. (1978). A natural identity for exponential families with applications in multiparameter estimation. *Ann. Statist.* **6** 473–484.
- JANSON, S. (1986). Birthday problems, randomly colored graphs, and Poisson limits of dissociated variables. Tech. report 1986 **16**. Dept. Math., Uppsala Univ.
- KARLIN, S. (1982). Some results on optimal partitioning of variance and monotonicity with truncation level. In *Statistics and Probability: Essays in Honor of C. R. Rao* (P. Kallianpur, R. Krishnaiah and J. K. Ghosh, eds.) 375–382. North-Holland, Amsterdam.
- KARLIN, S., GHANDOUR, G., OST, F., TAVARÉ, S. and KORN, L. J. (1983). New approaches for computer analysis of nucleic acid sequences. *Proc. Nat. Acad. Sci. U.S.A.* **80** 5660–5664.
- KARLIN, S. and OST, F. (1987). Counts of long aligned word matches among random letter sequences. *Adv. in Appl. Probab.* **19** 293–351.
- LEADBETTER, M. R., LINDGREN, G. and ROOTZÉN, H. (1983). *Extremes and Related Properties of Random Sequences and Processes*. Springer, New York.
- MOLER, C., ULLMAN, M., LITTLE, J. and BANGERT, S. (1987). *Pro-MATLAB User's Manual*. The Math Works, Sherborn, Mass.
- OHYAMA, K., FUKUZAWA, H. and KOHCHI, T. ET AL. (1986). Chloroplast gene organization deduced from complete sequence of liverwort *Marchantia polymorpha* chloroplast DNA. *Nature* **322** 572–574.
- OLKIN, I. and MARSHALL, A. (1979). *Inequalities: Theory of Majorization and Its Applications*. Academic, New York.
- RIORDAN, J. (1978). *An Introduction to Combinatorial Analysis*. Princeton Univ. Press.
- ROOTZÉN, H. (1983). The rate of convergence of extremes of stationary normal sequences. *Adv. in Appl. Probab.* **15** 54–80.
- ROSENBLATT, M. (1974). *Random Processes*. Springer, New York.
- SAMPFORD, M. R. (1953). Some inequalities on Mill's ratio and related functions. *Ann. Math. Statist.* **24** 130–132.
- SERFLING, R. J. (1975). A general Poisson approximation theorem. *Ann. Probab.* **3** 726–731.
- STEIN, C. M. (1956). Inadmissibility of the usual estimator for the mean of a multivariate normal distribution. *Proc. Third Berkeley Symp. Math. Statist. Probab.* **1** 197–206. Univ. California Press, Berkeley, Calif.
- STEIN, C. M. (1972). A bound for the error in the normal approximation to the distribution of a sum of dependent random variables. *Proc. Sixth Berkeley Symp. Math. Statist. Probab.* **2** 583–602. Univ. California Press, Berkeley, Calif.
- STEIN, C. M. (1981). Estimation of the mean of a multivariate normal distribution. *Ann. Statist.* **9** 1135–1151.
- STEIN, C. M. (1986). *Approximate Computations of Expectations*. IMS, Hayward, Calif.
- STEIN, C. M. (1987). The number of monochromatic edges in a graph with randomly colored vertices. Unpublished manuscript.
- TAKÁCS, L. (1988). On the limit distribution of the number of cycles in a random graph. *J. Appl. Prob.* **26** 359–376.
- TAVARÉ, S. and GIDDINGS, B. W. (1989). Some statistical aspects of the primary structure of nucleotide sequences. In *Mathematical Methods for DNA Sequences* (M. S. Waterman, ed.) 117–132. CRC Press, Boca Raton, Fla.
- WATSON, G. S. (1954). Extreme values in samples from m -dependent stationary stochastic sequences. *Ann. Math. Statist.* **25** 798–800.
- WILF, H. S. (1983). Three problems in combinatorial asymptotics. *J. Combin. Theory Ser. A* **35** 199–207.

Comment

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This beautiful exposition leaves little room for quibbles. Still, if forced to raise some issue, I suspect my

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best shot is to point out that, despite its power, the Chen–Stein method is not omnipotent. In fact, there are simple problems where one might suspect that a Poisson law lurks below the surface, yet the hooks provided by the Chen–Stein method leave us without a catch.

Consider a simple random walk $S_n = X_1 + X_2 + \dots + X_n$ in \mathbf{R}^2 where the X_i are iid. To make life as