Johnson, Oliver; **Barron, Andrew**

Fisher information inequalities and the central limit theorem. (English) Zbl 1047.62005

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Summary: We give conditions for an $O(1/n)$ rate of convergence of the Fisher information and relative entropy in the Central Limit Theorem. We use the theory of projections in L^2 spaces and Poincaré inequalities, to provide a better understanding of the decrease in Fisher information implied by results of *A.R. Barron* [Ann. Probab 14, 336–342 (1986; Zbl 0599.60024)] and *L.D. Brown* [Statistics and Probability. Essays in Honor of C.R. Rao, 141–148 (1982; Zbl 0484.60019)]. We show that if the standardized Fisher information ever becomes finite then it converges to zero.

MSC:

62B10 Statistical aspects of information-theoretic topics
62F05 Asymptotic properties of parametric tests
94A17 Measures of information, entropy

Keywords:

normal convergence; entropy; Fisher information; Poincaré inequalities; rates of convergence

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