

# On Accuracy of Approximation of Transformed Chi-Squared Distributions by the Normal Law

Gerd Christoph

*Faculty of Mathematics / IMST  
Otto-von-Guericke-University of Magdeburg  
PF 4120, 39016 Magdeburg, Germany  
Email: gerd.christoph@ovgu.de*

**Key words:** chi-squared distribution, approximation by normal law, computable error bounds

Consider a normalized chi-squared random variable with  $n$  degrees of freedom. Using Edgeworth-Chebyshev expansions of different order we obtain some computable error bounds of order  $O(1/n)$ . Such results may be applied to likelihood ratio statistics.