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ON TESTS FOR THE MEAN DIRECTION OF THE LANGEVIN DISTRIBUTION

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Abstract. The asymptotic expansions of the distribution of a sum of independent random vectors with Langevin distribution are given. The power functions of the likelihood ratio criterion, Watson statistic, Rao statistic and the modified Wald statistic for testing the hypothesis of the mean direction are obtained asymptotically and a numerical comparison is made.

Key words and phrases: Asymptotic expansion, central limit theorem, Langevin distribution, likelihood ratio criterion, Watson statistic, Rao statistic, modified Wald statistic.