



# On Asymptotically Distribution Free Tests with Parametric Hypothesis for Ergodic Diffusion Processes

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We consider the problem of the construction of the asymptotically distribution free test by the observations of ergodic diffusion process. It is supposed that under the basic hypothesis the trend coefficient depends on the finite dimensional parameter and we study the Cramer-von Mises type statistics. The underlying statistics depends on the deviation of the local time estimator from the invariant density with parameter replaced by the maximum likelihood estimator. We propose a linear transformation which yields the convergence of the test statistics to the integral of Wiener process. Therefore the test based on this statistics is asymptotically distribution free.

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