



## Tests of Exponentiality: New Test and Comparative Study

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**Abstract:** A new divergences are defined by using Tsallis divergence and a measure of discrepancy between equilibriums associated with two distributions is proposed. Then utilizing the progressively Type-II censored sample, we construct goodness of fit tests for exponentiality based on the estimation of proposed divergences. To investigate the performance of the mentioned tests, Monte Carlo simulations are performed. The powers of the proposed tests are then compared with other existing tests. Finally, an example is used of the proposed tests.

**Keywords:** Cumulative residual Tsallis divergence, Monte Carlo simulation, Progressively Type-II censored sample.

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