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| Title: | Benford's Distribution in Extrasolar World: Do the Exoplanets Follow Benford's Distribution |
| Authors: | Pandey, A.K. (/jspui/browse?type=author&value=Pandey%2C+A.K.) |
| Keywords: | Benford's Distribution Extrasolar World Exoplanets |
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| Abstract: | In many real life situations, it is observed that the first digits (i.e., 1,2,...,9) of a numerical data-set, which is expressed using decimal system, do not follow a uniform distribution. In fact, the probability of occurrence of these digits decreases in an almost exponential fashion starting from 30.1 % for 1 to 4.6 % for 9. Specifically, smaller numbers are favoured by nature in accordance with a logarithmic distribution law, which is referred to as Benford's law. The existence and applicability of this empirical law have been extensively studied by physicists, accountants, computer scientists, mathematicians, statisticians, etc., and it has been observed that a large number of data-sets related to diverse problems follow this distribution. However, except two recent works related to astronomy, applicability of Benford's law has not been tested for extrasolar objects. Motivated by this fact, this paper investigates the existence of Benford's distribution in the extrasolar world using Kepler data for exoplanets. The quantitative investigations have revealed the presence of Benford's distribution in various physical properties of these exoplanets. Further, some specific comments have been made on the possible generalizations of the obtained results, its potential applications in analysing the data-set of candidate exoplanets. |
| Description: | Only IISERM authors are available in the record. |
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