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Non-parametric method for testing an exponential sample for purity under condition of small statistics

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In many innovative physical experiments such as, e.g., the synthesis of super heavy elements the statistics of the observed data is small and there is not enough of the a priori information about the parameters of their distribution function. In such a situation the first step of the analysis - answering the question: is the observed data a decay of a single source or a mixture of sources including the background and the noise, requires use of methods little sensitive to the volume of the data analyzed and the a priori information about the parameters. The paper proposes such a non-parametric method: testing the ratio of the sample median and the sample mean.

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