

1146-62-364

**Huijun Yi\*** (hyi146574@troy.edu). *Assessing the lifetime performance index of products with two-parameter Rayleigh Distribution under progressively type II right censored samples.*

In practice, process capability indices (PCIs) are widely used in the field of quality control. The lifetime performance index ( $C_L$ ) is used to measure process potential and performance, where  $L$  is the lower specification limit. In this paper, we apply data transformation technology to construct a maximum likelihood estimator (MLE) of  $C_L$  under the two-parameter Rayleigh distribution based on the progressively type II right censored sample. The MLE of  $C_L$  is then utilized to develop a hypothesis testing procedure. Finally, we give the Monte Carlo power simulation to assess the behavior of the lifetime perform index.

**keywords:** Process capability index, The lifetime performance index, Progressive type II right censored sample, Maximum likelihood estimator, Two-parameter Rayleigh Distribution.

(Received January 27, 2019)