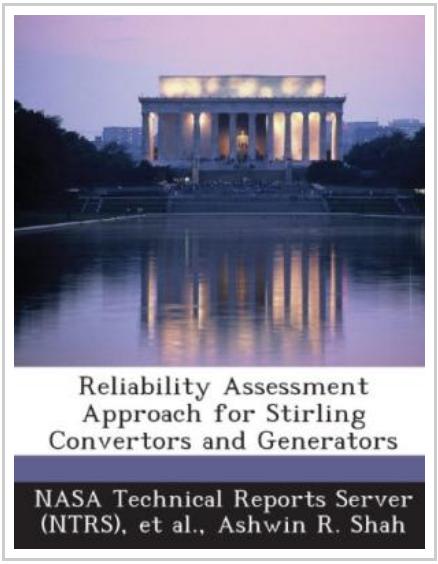

Reliability Assessment Approach for Stirling Convertors and Generators

By Ashwin R. Shah

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.Stirling power conversion is being considered for use in a Radioisotope Power System for deep-space science missions because it offers a multifold increase in the conversion efficiency of heat to electric power. Quantifying the reliability of a Radioisotope Power System that utilizes Stirling power conversion technology is important in developing and demonstrating the capability for long-term success. A description of the Stirling power convertor is provided, along with a discussion about some of the key components. Ongoing efforts to understand component life, design variables at the component and system levels, related sources, and the nature of uncertainties is discussed. The requirement for reliability also is discussed, and some of the critical areas of concern are identified. A section on the objectives of the performance model development and a computation of reliability is included to highlight the goals of this effort. Also, a viable physics-based reliability plan to model the design-level variable uncertainties at the component and system levels is outlined, and potential benefits are elucidated. The plan involves the interaction of different disciplines, maintaining the physical and probabilistic correlations at all...

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