



Multi-D Cfd Modeling of a Free-Piston Stirling Convertor at NASA Glenn

By Scott D. Wilson

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in. A high efficiency Stirling Radioisotope Generator (SRG) is being developed for possible use in long duration space science missions. NASA's advanced technology goals for next generation Stirling convertors include increasing the Carnot efficiency and percent of Carnot efficiency. To help achieve these goals, a multidimensional Computational Fluid Dynamics (CFD) code is being developed to numerically model unsteady fluid flow and heat transfer phenomena of the oscillating working gas inside Stirling convertors. Simulations of the Stirling convertors for the SRG will help characterize the thermodynamic losses resulting from fluid flow and heat transfer between the working gas and solid walls. The current CFD simulation represents approximated 2-dimensional convertor geometry. The simulation solves the Navier Stokes equations for an ideal helium gas oscillating at low speeds. The current simulation results are discussed. This item ships from La Vergne, TN. Paperback.

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