

NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U.S. space program, to encourage their commercial application. Copies are available to the public at 15 cents each from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

New Technique for Determination of Cross-Power Spectral Density with Damped Oscillators

A new technique for computation of cross-power spectral density has been developed and programmed. In addition, a technique for discrimination between periodic and random signals has been developed which does not depend on either the spectral density or the amplitude distribution of the signal. Computations have been performed for a variety of signals with known characteristics with very satisfactory results.

This development is applicable to analysis of any stationary random process. It has been used in the analysis of unsteady pressures in separated flow (cross flow around a circular cylinder). The technique can be used in the following areas:

1. Aerospace
 - a. Unsteady transonic flow
 - b. turbulent flow (i.e., clear air turbulence)
 - c. flight test structural dynamics data
2. Transportation
 - a. Roadbed roughness data
 - b. wave height data to characterize sea states
 - c. structural dynamic data.

Note:

Additional details are contained in: *A New Technique for Determination of Cross-Power Spectral Density with Damped Oscillators*, by Wayne E. Simon and Louise A. Walker, Informal Report No. 18, Martin Marietta Corporation, July 1967.

Copies of this report are available from:
Technology Utilization Officer,
Marshall Space Flight Center
Huntsville, Alabama 35812
Reference: B67-10602

Patent status:

No patent action is contemplated by NASA.

Source: W. E. Simon and L. A. Walker
of Martin Marietta Corporation
under contract to
Marshall Space Flight Center

(MFS-14022)

Category 02



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Development of a New Fuel System for the Space Shuttle

The development of a new fuel system for the Space Shuttle is a major task of the NASA Langley Research Center. The new system is designed to provide a more efficient and reliable method of fuel delivery to the engines. It will be used in the Space Shuttle Orbiter and External Tank. The new system is a liquid-fueled system, and it is designed to provide a more efficient and reliable method of fuel delivery to the engines. It will be used in the Space Shuttle Orbiter and External Tank. The new system is a liquid-fueled system, and it is designed to provide a more efficient and reliable method of fuel delivery to the engines. It will be used in the Space Shuttle Orbiter and External Tank.

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