CALL FOR PAPERS

AIAA FIFTH ANNUAL STRUCTURES AND MATERIALS CONFERENCE

Interaction of Materials and Structures with the Aerospace Environment

APRIL 1–3, 1964 RIVIERA HOTEL PALM SPRINGS, CALIF.

This conference will provide a forum for presentation and discussion of significant and technological development in the field of Structures, Materials, and Structural Dynamics within the aerospace environment. Emphasis will be on the mutual interaction of these disciplines and the aerospace environment, with special attention to space flight problems.

This three-day meeting will be composed of three morning sessions and three afternoon sessions. All the sessions are planned to be *unclassified* and will cover special invited papers as well as submitted papers.

Proposals for the presentation of papers will be tentatively accepted, or rejected, based on reviews of abstracts submitted to this call for papers. It is planned to accept tentatively not more than twice the number of papers to be presented. Notification of tentative acceptance will be sent by September 14, 1963.

Abstracts of papers, containing 500–1000 words, must be submitted in *triplicate* to the technical committee representative for the pertinent topic area (as listed below) by *August 23, 1963*. Papers will be accepted tentatively or rejected on the basis of the abstract.

The first draft of tentatively accepted papers will be due before November 1, 1963, and the final manuscripts of accepted papers will be due before February 3, 1964. It is planned to have all the accepted papers printed in a bound volume to be available at the meeting.

Session Topics are:

Structures

Structural Design Criteria: Load factors, safety factors, structural reliability, environmental factors, and flight vehicles.

Structural Configuration and Optimization: Expandable and inflatable space structures, hot and cold re-entry structures, lunar structural systems. Minimum weight and maximum cost effectiveness considerations for structures in the launch, atmospheric, and space flight environments.

Protective Structures: Thermal control, thermal effects, meteoroid, and radiation protection including integration into flight vehicle structures.

Structural Testing: Scaling laws, test techniques, and test facilities for simulation of single and combined environments.

Forward abstracts to: Mr. George N. Mangurian, Manager, Applications Engineering and Planning, Northrop Space Laboratories, 1111 E. Broadway, Hawthorne, Calif.

Materials

Environment: Effects of the aerospace environment on the mechanical and physical properties of materials. Spacecraft experimental results of environmental parameters, and the consequent materials response.

Advanced Materials and Applications: Light-weight structural materials, temperature control materials, polymers and seals, insulating materials, joining and bonding, crushable and energy absorbing materials, and environmental protection.

Refractory Materials: Aerospace high-temperature materials suitable for use in electric and chemical propulsion and in spacecraft thermal radiators. Refractory materials behavior in thermal shock and thermal cycling.

Sputtering, Sublimation, and Deterioration: Experimental results of the deterioration of spacecraft materials by sputtering, sublimation, coloration, friction, cold welding, surface diffusion, etc.

Forward abstracts to: Dr. Joseph Denney, Manager, Material Sciences Department, Space Technology Laboratories, Inc., 1 Space Park, Redondo Beach, Calif.

Structural Dynamics

Environment: Effects of wind and gust profile, atmospheric conditions, space radiation, micrometeorite impingement, solar magnetic fields, aerodynamic noise or buffet, reduce g or zero g, shock vibration, and acoustic environments on the dynamics of flight vehicles.

Aerothermoelasticity and Astroelasticity: Unsteady aerodynamics, panel flutter, deflection of plates and shells, vibration modes of flight vehicles and space stations, interaction of inertia effects, gravity gradients, moving fluids, and masses, with flexibility and control characteristics of spacecraft.

Dynamic Loads: Transient response of boost vehicles at atmospheric turbulence, control motions and thrust variations, vehicle response, and dynamic loads due to docking, recovery, landing, and impact.

Shock, Vibration, and Acoustics: Theory and application of aerodynamic sound generation. Scaling and similarity law of acoustic models. Boundary layer noise turbulence and shock wave interaction. Shock and sonic fatigue analysis and testing. Random vibration and statistical correlation techniques.

Forward abstracts to: Dr. F. C. Hung, Director, Dynamic Science Department, Space and Information Division, North American Aviation, Inc., Downey, Calif.