

JANNAF NDES, RNTS, AND S&MBS Meet in New Orleans

Nearly 200 individuals attended the 14th Nondestructive Evaluation Subcommittee, 23rd Rocket Nozzle Technology Subcommittee, and 36th Structures & Mechanical Behavior Subcommittee joint meeting, held at the Wyndham New Orleans Hotel at Canal Place from 30 March through 1 April 2004. Seventy-nine technical papers were presented in 12 sessions. The meeting officially kicked off with the third consecutive industry legacy session sponsored by the program committees of the three JANNAF subcommittees. The legacy session series are designed to educate a new generation of technologists with experience and lessons learned from senior and retiring engineers and scientists from the propulsion industry. Presentations in the legacy session included (1) “Constituents for Rocket Motor Components—an Unfolding” by H. O. Davis; (2) “Finite Element Analysis Developments” by Dr. Eric Becker; (3) “Realtime Radioscopy of Energetics During Test” by D. Jon Rogerson; and (4) “Carbon-Carbon Development History” by Jim Warren.

In addition to the traditional paper sessions, NDES held two panel meetings and roundtable discussions on current subcommittee tasks. The Manufacturing & Inspection Technology (M&IT) panel is leading the creation of a JANNAF NDE Handbook that will be published on CD-ROM within the next 18 months. The initial foundation for the handbook will be a methodology and guide for the creation of an NDE master plan. The Service Life panel is continuing to coordinate with the Structures & Mechanical Behavior Subcommittee to define critical flaws in solid propulsion structures and to incorporate design for inspection techniques and philosophy in system development. The subcommittee is actively pursuing the establishment of an NDES properties database for filled polymeric materials like propellants and insulators. An NDE tutorial is planned for the next subcommittee meeting. With the conclusion of this 14th NDES meeting, Mr. James “Charlie” Beyer of the Army’s Redstone Technical Test Center (RTTC) completed an eventful three-year stint as subcommittee chairman. Mr. Donald L. Wickham of Hill AFB Utah is the new subcommittee chairman.

The RNTS technical program included presentation of 36 technical papers in six sessions covering thrust management and thrust vector control; nozzle design, test and evaluation; advanced materials and processing; structural analysis and modeling; and low cost, lightweight nozzles and materials. Two additional presentations were included in the Joint Subcommittee Legacy Session.

The Rocket Nozzle Technology Subcommittee also sponsored a workshop on Advanced Materials as part of the subcommittee meeting. The aims of the workshop were to identify new materials needed for future missile propulsion system, to quantify the need for these materials, and to identify and determine the adequacy of ongoing and planned programs addressing these material needs. Presentations addressing these objectives were given by propulsion industry and DoD representatives. A report will be prepared summarizing the findings of the workshop.

Meetings of three RNTS technical panels were also held during the week. The Nozzle Design, Test and Evaluation panel discussed the need to have future legacy sessions focus on lessons learned, and the need for a handbook containing nozzle material properties. Future panel activities will address these needs. The Nozzle Analysis and Modeling panel reviewed a list of modeling issues, and discussed a collaborative approach to addressing them. The Nozzle Control Systems panel agreed to perform a survey of motion control work being conducted outside of the aerospace community (e.g., automotive and robotics industries) to determine if technology exists that could be adapted to nozzle control systems.

The S&MBS technical program contained 35 papers in 5 sessions, 2 of which dealing with service life and aging, and sensor technology were joint sessions with the NDES. Professor Eric Becker, University of Texas, Austin, contributed to the legacy session with a presentation on the development of the Finite Element Method of analysis in the propulsion industry, emphasizing the contributions of the Applied Mechanics Division of the Rohm & Haas Corporation, Huntsville, AL, during the 1960's and 1970's.

Dr. Becker also chaired an S&MBS sponsored plenary session on "The Role of Academic Research in Propellant Mechanics – Past and Future." Speakers included Professor Richard J. Farris, University of Massachusetts, Amherst, MA; Dr. J. Edmund Fitzgerald, retired (former Associate Dean for Research and Head of the School of Civil Engineering, Georgia Institute of Technology, Atlanta, GA); Professor Frank Kelley, University of Akron, Akron OH; and Dr. Max L. Williams, retired (former Dean of the Colleges of Engineering, University of Utah, Salt Lake City and the University of Pittsburg, Pittsburg, PA.)

The S&MBS announced plans for a workshop on health management in the October/November time period. The workshop is being jointly sponsored by the Modeling and Simulation Subcommittee.

CPIA will publish the meeting proceedings, including legacy session presentations, on CD-ROM in May. For ordering information, contact CPIA customer service at 410-992-7304 ext. 211 or 202.

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