



March 11 – 13, 2008  
The Aerospace Corporation  
Building A-1, Room 1062  
El Segundo, Calif.

## Session I: Technology Roadmaps

NASA/Goddard Thermal Control Technology Roadmap – 2008  
*T. Swanson and D. Butler, NASA/Goddard Space Flight Center*

JPL Advanced Thermal Control Technology Roadmap – 2008  
*G. Birur, Jet Propulsion Laboratory*

Air Force Research Laboratory, Space Vehicles Directorate, Thermal Control Technology Roadmap – 2008  
*A. Williams, Air Force Research Laboratory*

## Session II: Advanced Space Hardware, Materials and Design Technologies

Ball Aerospace Hybrid Space Cryocoolers  
*D. Glaister, W. Gully, P. Hendershott and E. Marquardt, Ball Aerospace & Technologies Corp.*

Demonstration of a Two-Stage Turbo-Brayton Cryocooler for Space Applications  
*M. Zagarola and J. Breedlove, Creare Inc.; T. Chiang and B. Dull, Raytheon Space & Airborne Systems*

Design and Implementation of the MSL Cruise Propulsion Tank Heaters  
*R. Krylo, R. Mikhaylov, G. Cucullu, and B. Watkins, Jet Propulsion Laboratory*

Aluminum Encapsulated APG High Conductivity Thermal Doubler  
*S. Kugler, Northrop Grumman Space Technology*

Encapsulated APG Flexible Thermal Conductor  
*M. Montesano, k Technology Corporation*

JWST ISIM Harness Thermal Evaluation  
*M. Kobel, S. Glazer and J. Tuttle, NASA/Goddard Space Flight Center; M. Martins, Edge Space Systems; S. Ruppel, SGT*

Thermal Interface Comparisons Under Flight-Like Conditions  
*J. Rodriguez-Ruiz, M. Garrison, NASA/Goddard Space Flight Center*

Mars Science Laboratory Rover Actuator Thermal Design  
*K. Novak and S. Hendricks, Jet Propulsion Laboratory; C. Lee and C. Orrala, Applied Sciences Laboratory, Inc.*

## Session III: Two-Phase Thermal Technology

Intermediate Temperature Heat Pipe and Loop Heat Pipe Fluids  
*W. Anderson, R. Bonner, P. Dussinger, J. Hartenstine, D. Sarraf, Advanced Cooling Technologies; and I. Locci, NASA/Glenn Research Center*

Thermal-Vacuum Test Data for JEM/MAXI Loop Heat Pipe System with Two Radiators  
*D. Khrustalev, P. Cologer and R. Snyder, ATK Space; S. Ueno, NASDA Tsukuba Space Center*



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### **Session III: Two-Phase Thermal Technology (continued)**

LHP Secondary Wicks: Design, Analysis, and Test

*D. Wolf, ATK Space*

Variable Conductance Heat Pipes for Radioisotope Stirling Systems

*W. Anderson and C. Tarau, Advanced Cooling Technologies*

Test Results for a High Power Thermal Management System

*K. Wrenn and D. Wolf, ATK Space Division*

Thermal Performance Test of a Loop Heat Pipe Evaporator with Offset Compensation Chamber

*W. Cho, A. Phillips, Thermacore International*

Pressure Controlled Heat Pipe for Precise Temperature Control

*D. Sarraf, S. Tamanna and P. Dussinger, Advanced Cooling Technologies*

### **Session IV: Advanced Analysis and Design**

A Smart Thermal Block Diagram Tool

*G. Tsuyuki, R. Miyake, R. Manvi and K. Dodge, Jet Propulsion Laboratory*

Temperature Mapping Between Thermal and Structural Analysis Models for Thermal Deflection Studies

*C. Poplawsky, Maya Simulation Technologies*

Development of a Circuit Board Design-to-Thermal Model Direct Translation Process

*M. Vallejo, Ball Aerospace & Technologies Corp.*

Adapting Spacecraft Thermal Control Architecture to Responsive Missions

*Q. Young, B. Stucker and T. Gillespie, Utah State University; A. Williams, Air Force Research Laboratory*

Thermal Design Parameter Analysis of Operationally Responsive Space (ORS) Satellites

*D. Hengeveld, J. Braun and E. Groll, Purdue University; A. Williams, Air Force Research Laboratory*

Concurrent Design Powered by Integrated STOP Environment

*M. Panthaki, Comet Solutions*

Multi-Physics Simulations Using Cielo Code

*M. Chainyk, Jet Propulsion Laboratory*

A Simple Text File for Curing Rainbow Blindness

*R. Krylo, M. Tomlin, and M. Seager, Jet Propulsion Laboratory*

Satellite Modular and Reconfigurable Thermal System (SMARTS)

*D. Bugby, ATK Space; W. Zimbeck, Technology Assessment & Transfer; E. Kroliczek, B&K Engineering*



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#### **Session IV: Advanced Analysis and Design (continued)**

Aquarius Reflector: Surface Temperature Monitoring Test and Analysis

*J. Abbott, JLA Technologies; R. Becker, Jet Propulsion Laboratory; S. Lee, Applied Sciences Laboratory*

#### **Session V: Surface Design and Characteristics**

Variable Emittance Electrochromic Devices for Satellite Thermal Control

*H. Demiryont and K. Shannon III, Eclipse Energy Systems, Inc.; A. Williams, Air Force Research Laboratory*

Aerogel Enhanced Thermal Management Systems for Satellites

*S. White, G. Gould, R. Trifu and J. Clark, Aspen Aerogels*

A Smart Variable Emittance Radiator

*D. Nikanpour and X. Jiang, Canadian Space Agency; M. Soltani, INRS*

Analysis of Thermal Control Coatings on MISSE for Aerospace Applications

*M. Kenny and R. McNulty, Alion Science & Technology; M. Finckenor, NASA/Marshall Space Flight Center*