

## 15th AAS/AIAA Space Flight Mechanics

### Meeting

23–27 January 2005

Copper Conference Center

Copper Mountain, Colorado

*Abstract Deadline: 15 September 2004*

The fifteenth annual AAS/AIAA Space Flight Mechanics Meeting will be held at the Copper Conference Center at Copper Mountain, CO, 23–27 January 2005. This event is cosponsored by the American Astronautical Society (AAS) and AIAA. ~~The meeting is organized by the AAS Space Flight Mechanics Technical Committee and the AIAA Astrodynamics Technical Committee.~~ The conference location is situated in the middle of the Colorado Rocky mountains in the ski resort community of Copper Mountain, about 75 miles from Denver International Airport. Participants are strongly advised to make their lodging arrangements well in advance to take advantage of the incredible group rate offered by the resort. Papers are sought from all areas of astrodynamics, including but not limited to

- Orbital dynamics, perturbations and stability
- Orbit determination and tracking
- Spacecraft guidance, navigation and control
- Trajectory design and optimization
- Earth orbital and planetary mission studies
- Attitude dynamics, determination and control
- ~~Low thrust mission and trajectory design~~
- Satellite constellations and formation flying
- Dynamics and control of large space structures and tethers
- Artificial and natural space debris
- Trajectories about libration points
- Asteroid and non-Earth orbiting missions
- ~~Probability of asteroid Earth collisions~~
- Rendezvous/proximity operations missions

Updated and additional information on the conference will be posted at the AAS Space Flight Mechanics Committee Web site: [www.space-flight.org](http://www.space-flight.org).

#### Information for Authors

Papers will be accepted on the basis of extended abstracts. These abstracts should consist of

- 1) A cover page containing the paper title as well as the name, affiliation, postal address, telephone number, fax number, and e-mail address of each author. This page shall also indicate the corresponding author, who will be the point of contact for all communication from the technical chairs.
- 2) The text of the extended abstract, with a length of 500–1000 words and containing supporting tables and figures. The extended abstract shall provide a clear and concise statement of the problem addressed and the results obtained. Submissions without extended abstracts will not be considered.
- 3) A condensed version of the abstract (100 words maximum) to be included in the printed conference program.

We encourage submissions to be made by e-mail. Acceptable document formats are PDF (the preferred method), Word, or ASCII. For Word files, use only the standard installation fonts. Avoid using symbols and Greek characters in the short abstracts. All material should be sent to each of the Technical Chairs. Notification of acceptance will be sent to the authors via e-mail by 1 November 2004. Author instructions will be sent by e-mail and also placed on the Web site: [www.space-flight.org](http://www.space-flight.org). Final manuscripts are required at the time of the meeting. Authors are required to supply their session chairs with a copy of their paper and a short biography of the presenter before the meeting. A “no paper, no podium” rule will

be in effect for all presentations. Authors whose papers are not available in printed form at the time of the meeting will not be allowed to present their paper.

#### Special Sessions

~~Proposals are solicited for appropriate special sessions, such as panel discussions, invited sessions, workshops, and mini-symposia. Potential special session organizers should submit a proposal to the Technical Chairs. For a panel discussion, this proposal should include a title of the discussion, a brief description of the topics to be discussed, and a list of the speakers and their qualifications. For an invited session, workshop, or mini-symposium, the proposal should consist of the title of the session, a brief description (approximately 500 words), and the extended abstract and short summary for each talk to be included in the session.~~ The following special sessions have been suggested.

#### Open Astrodynamics

This ~~panel~~ discussion will focus on the application, development, distribution, and implementation of astrodynamics information. ~~There may be a related special session if there are enough relevant papers.~~ The overall goal is to determine what is needed to stimulate a cooperative environment in the astrodynamics community that allows organizations to efficiently share data, resources, and ideas. The potential benefits of policies and their impact to the overall astrodynamics community will be discussed. Related to this is the observational data (SSN, JPL, other) that could be shared for research activities. ~~Another example is the need for the satellite regulatory agencies to standardize an approach to avoid interferences between systems.~~ Each panel participant should bring suggestions to the table from their perspective (data owner, investigator, developer, contractor). They should identify the people in their organizations that make decisions on data sharing—or who can authorize data release. Contact: Felix Hoots, 703/506-5931 or Paul Cefola, 781/981-5723.

#### Novel Lunar and NEO Mission Design and Analysis

This session seeks a discussion on the following topics:

- 1) Long-duration human missions to the moon, Mars, and beyond.
- 2) Circumnavigation and rendezvous missions to comets and NEOs using single or multiple satellites.
- 3) Mission design and analysis for high risk missions with significant payoffs.

For more information, contact: Rao Vadali, 979/845-3918.

~~Additional suggestions have been proposed for Electric Propulsion and Orbit Mechanics and Education in Astrodynamics.~~

#### Breakwell Student Travel Award

The AAS Space Flight Mechanics Technical Committee also announces the John V. Breakwell Student Travel Award. This award provides a maximum of \$1000 to cover travel expenses for U.S. and Canadian students planning to attend this conference. Further details and applications may be obtained at <http://www.space-flight.org>.

#### Warning—Technology Transfer Considerations

Prospective authors are reminded that technology transfer guidelines have substantially extended the time required for the review of abstracts and completed papers by private enterprises and government agencies. These reviews can require four months or more. It is the responsibility of the authors to determine the extent of approval necessary for their papers to preclude late submissions and paper withdrawals.

All material (cover page, abstracts) should be sent to each of the Technical Chairs:

#### AAS Technical Chair

Dr. Michael Gabor  
Northrop Grumman Mission Systems  
730 Irwin Avenue, MLS CS10/STEC  
Schriever AFB, CO 80912-7200  
719/567-8185 (voice)  
E-mail: [michael.gabor@schriever.af.mil](mailto:michael.gabor@schriever.af.mil)

**AIAA Technical Chair**

Mr. Prasun Desai  
 NASA Langley Research Center  
~~8 Langley Boulevard, MS 365~~  
~~Hampton, VA 23681-2199~~  
 757/864-2986 • 757/864-8671 FAX  
 E-mail: prasun.n.desai@nasa.gov

For other questions regarding the conference, please contact the General Chairs:

**AAS General Chair**

Mr. David Vallado  
 Analytical, Graphics Inc.  
~~7150 Campus Drive, Suite 260~~  
~~Colorado Springs, CO, 80920-6522~~  
 719/573-2600 • 719/573-9079 FAX  
 E-mail: dvallado@stk.com

**AIAA General Chair**

Mr. Keith Jenkins  
~~2222 N. McQueen Road #2069~~  
~~Chandler, AZ 85225~~  
 480 226 0856 (voice)  
 E-mail: jenkinskl-pg@cox.net

**41st AIAA/ASME/SAE/ASEE Joint Propulsion****Conference & Exhibit****10–13 July 2005****Tucson Convention Center****Tucson, Arizona***Abstract Deadline: 5 November 2004***Propulsion Technology: Enabling Tomorrow's Applications**

Beginning sixty-five years ago, the Heinkel HE178, the Gloster E28/E29, and the Bell XP59 made their maiden flights within a three-year time span, and they were all powered by air breathing turbojets. Just eight years after the first jet flight, the speed of sound was broken by Chuck Yeager on 14 October 1947 in the rocket powered Bell XS-1 later re-designated the X-1. During a short span of eight years, the application of propulsion technologies for both air breathing and rocket propulsion demonstrated man's ability to fly higher and faster including breaking the sound barrier.

In the spirit of this year's theme, the application of enabling propulsion technologies will make possible significant advances in aviation such as the recent hypersonic flight of the X-43 that demonstrated positive acceleration when powered by a supersonic combustion ramjet. The future holds further advances in aviation through the application of advanced technologies for air breathing, rocket and electric propulsion with Propulsion Technology: Enabling Tomorrow's Applications.

**Conference Executive Chair**

Jon Jones, VP, Missile Systems  
 Raytheon Missile Systems  
 Bldg. 807, M/S J7  
 P.O. Box 11337  
 Tucson, AZ 85734-1337  
 520/794-3000

**Conference Executive Co-chair**

Jerry Brown, VP, Engineering  
 Raytheon Missile Systems  
 Bldg. 807, M/S A7  
 P.O. Box 11337  
 Tucson, AZ 85734-1337  
 520/794-5236 • 520/794-3702 FAX  
 E-mail: gebrown@raytheon.com

**Conference General Chair**

James Pene, Director, Systems Engineering  
 Raytheon Missile Systems  
 Bldg. 805, M/S D3  
 P.O. Box 11337  
 Tucson, AZ 85734-1337  
 520/794-8326 • 520/794-8625 FAX  
 E-mail: jmpene@raytheon.com

**Conference General Co-Chair**

Gary Burke, Director, Mechanical Engineering  
 Raytheon Missile Systems  
 Bldg. 805, M/S C4  
 P.O. Box 11337  
 Tucson, AZ 85734-1337  
 520/794-4227 • 520/794-5378 FAX  
 E-mail: gwburke@raytheon.com

**Conference Technical Chair**

Don Uhlir, Director, Advanced Air Frames  
 Raytheon Missile Systems  
 Bldg. M09, M/S 6  
 P.O. Box 11337  
 Tucson, AZ 85734-1337  
 520/545-9634 • 520/545-9678 FAX  
 E-mail: dauhlir@raytheon.com

**Conference Technical Co-chair**

Chuck Stevens, Engineering Fellow  
 Raytheon Missile Systems  
 Bldg. 805/C4  
 P.O. Box 11337  
 Tucson, AZ 85734-1337  
 520/794-9989 • 520/794-5378

**ASME Technical Program Chair**

Dr. Bruce Steinetz  
 NASA Glenn Research Center MS 23-3  
 21000 Brookpark Rd.  
 Cleveland, OH 44135  
 216/433-3302 • 937/656-5531 FAX  
 E-mail: bruce.m.steinetz@grc.nasa.gov

**SAE Technical Program Chair**

Ramon Chase  
 ANSER  
 2900 South Quincy Street  
 Arlington, VA 22206-2265  
 703/416-3290 • 703/416-3329 FAX  
 E-mail: ray.chase@anser.org

**ASEE Technical Program Chair**

Robert A. Frederick, Jr.  
 UAH Propulsion Research Center  
 University of Alabama in Huntsville  
 5000 Technology Drive, TH S231  
 Huntsville, AL 35899  
 256/824-7203 • 256/824-7205 FAX  
 E-mail: frederic@eb.uah.edu

**Abstract Submittal Requirements**

Abstract submissions for the conference will be accepted electronically through AIAA's Web site at: [www.aiaa.org](http://www.aiaa.org). This Web site will be open for abstract submittal starting **1 August 2004**. Authors will choose this conference from a menu of available AIAA meetings. Each author will then be prompted to provide his or her address, corresponding author information, citation information, AV requirements, and biographical information. Finally authors will be prompted to upload their abstracts in any one of five formats: MS Word, WordPerfect, Text, RTF, or PDF. The system will accept abstracts for this conference until 5 November 2004.

Authors having trouble submitting abstracts electronically or those with questions should e-mail AIAA Technical Support at: [paper\\_tech\\_support@aiaa.org](mailto:paper_tech_support@aiaa.org). Paper\_tech\_support@aiaa.org will not upload your paper for you. To submit to a conference, please follow the steps for abstract submittal listed below.

Abstracts and papers must be approved through the ITAR process. Authors are encouraged to contact their company's ITAR point of contact to start the approval process early thus ensuring timely approval and submittal of the paper.

Authors will be notified of paper acceptance by 11 February 2005. Manuscripts are due **15 April 2005** for AIAA printing and online publication. If the 15 April 2005 deadline is not met, authors of accepted papers must provide a complete manuscript