AIAA Strategic and Tactical Missile Systems Conference

AIAA Missile Sciences Conference

Abstract Deadline
30 June 2011

SECRET/U.S. ONLY
24–26 January 2012
Naval Postgraduate School
Monterey, California

First Announcement/Call For Papers
www.aiaa.org/events/strattac
www.aiaa.org/events/missilesciences
Event Overview

Two classified AIAA conferences—the AIAA Strategic and Tactical Missile Systems Conference and AIAA Missile Sciences Conference—will combine in January 2012 to provide one major event for the missiles systems community.

The AIAA Strategic and Tactical Missile Systems Conference and the AIAA Missile Sciences Conference are long-standing AIAA conferences serving the weapons community. These conferences will be co-located as a single event for the first time in 2012 providing a forum for the exchange of information on a larger scale than was possible at separate events. The combined event will feature both programmatic and technical information while fostering a beneficial networking opportunity. Material presented and attendance allowed at the event will be at the SECRET/U.S. ONLY clearance level. All attendees and speakers must have a SECRET clearance in order to participate.

The AIAA Strategic and Tactical Missile Systems Conference offers an excellent opportunity to hear senior Department of Defense officials and other noted authorities from the strategic and tactical missiles community speak about the issues and challenges that face the United States. Past program topics have included national defense strategy, defense acquisition, missile programs, homeland security, missile defense, research and development, and the industrial base.

The AIAA Missile Sciences Conference provides a forum for the presentation and discussion of classified and unclassified technical material related to missile system and subsystem technologies. The program addresses an array of topics including Air Force and Navy strategic missiles, tactical air-to-surface, surface-to-surface, anti-air missile systems, missile defense systems, targets and countermeasures, cruise missile defense, interceptors, weapon system effectiveness, hardware-in-the-loop testing of smart weapons, mission planning, mission assurance, system safety and insensitive munitions, and innovative technologies and concepts.
Technical Topics for Call for Papers

- Air Force Strategic Missiles
- Navy Strategic Missiles
- Tactical Air-to-Surface Missiles
- Tactical Surface-to-Surface Missiles
- Tactical Anti-Air Missile Systems
- Missile Defense Systems
- Missile Defense Targets and Countermeasures
- Missile Defense Interceptor Technologies
- Weapon System Effectiveness
- Innovative Technologies and Concepts
- Hardware-in-the-Loop Testing of Smart Weapons
- Mission Planning
- Mission Assurance
- System Safety and Insensitive Munitions
- Long Range Conventional Strike
- Asymmetric Missile Defense

Air Force Strategic Missiles
Technical papers are solicited for a session focusing on the role of science and technology in modernization and sustainment of the Minuteman III weapon system and in technology development and test of a strategic convention strike capability. Challenges include lowering the future cost of ownership; increasing safety, security, and reliability; opportunities and means for common design approaches for solid rocket motors; common missile electronics functional architectures; and leveraging commercial markets for solid-state electronic guidance and control sensors to meet the unique strategic requirements.

Navy Strategic Missiles
The major challenges for Navy Strategic Weapon Systems (SWS) science and technology research and development are to lower the life cycle costs of existing or modernized systems; extend the operational service lifetimes of present operational systems; develop affordable replacement systems, subsystems, and/or components using COTS solutions wherever possible; and sustain critical skills, capabilities, and expertise in unique areas necessary for the design, development, and in-service support of current or modernized systems. Requirements for an adaptive deterrent may include the ability to threaten or destroy a wide spectrum of targets with either nuclear or conventional payloads. Technical papers are solicited for engineering, scientific, and technology developments applicable to Submarine Launched Ballistic Missile (SLBM) and Navy SWS.

Papers may address new SWS concepts, systems, subsystems, or components. Preference will be given to papers that describe results of recent experiments and demonstrations or that are supported by modeling and simulation. Generalized systems papers that do not concentrate on specific elements of engineering, science, or technology are not suited for this session.

Tactical Air-to-Surface Missiles
Papers are solicited on advances in the research, development, test, and evaluation of Joint, Army, Navy, and Air Force tactical air-to-surface missiles. Papers may address components or systems.
Tactical Surface-to-Surface Missiles

Papers are solicited for a joint, inter-service session on tactical surface-to-surface missile systems, including ground-, ship-, and submarine-launched tactical strike and land combat weapons ranging from guided projectiles to cruise missiles. This session is intended to bring together technology developers and customers of all types to share not only new technology developments and results from analysis, simulation, and testing, but also operational lessons learned. Papers may address systems, subsystems, components, software, or algorithms.

Tactical Anti-Air Missile Systems

Papers are solicited on technical issues in the field of tactical anti-air (air-to-air or surface-to-air) missile system capabilities, particular interest are advanced technologies for new and existing systems to produce tactical anti-air missile systems that are more capable, reliable, lower cost, and easier to use, maintain, transport, and deploy. Papers may address one or more of the following: component or system design and development, analysis and evaluation, simulation, and testing.

Missile Defense Systems

Technical papers are solicited on advances applicable to missile defense systems. Papers are desired that summarize progress on missile defense programs and/or missile defense subsystems or technologies that increase the effectiveness of missile defenses. Papers addressing the new Ascent Phase region of the BMDS are especially encouraged to submit papers discussing integration and CONOPS. Papers that address the engineering and development (to include T&E) process for a system or subsystem are also desired. The engineering and development process includes the identification of and tracing of requirements to system components, the assessment and mitigation of risks, the use of Modeling and Simulation (M&S) and ground testing to reduce risks, and finally, live flight testing to demonstrate system performance and validation of M&S.

Missile Defense Targets and Countermeasures

Technical papers are solicited for a session addressing missile targets and countermeasures required to support elements of the BMDS. Technical papers should address design, prototyping, development, product improvement, and testing of targets and countermeasures that provide threat-realistic challenges to the evolving layered missile defense system.

Missile Defense Interceptor Technologies

Technical papers are solicited on the innovative and advanced technologies applicable to missile defense interceptors. Innovative designs and technologies that offer significant performance enhancements or significant cost reductions over baseline missile interceptor systems or subsystems are encouraged. Emphasis is on creative application and integration of concepts that incorporate either all new technologies or a mix of old and new technologies in innovative combinations that may offer large performance payoffs. It is desired that the paper be data rich and be technical in nature rather than provide programmatic summaries.
Weapon System Effectiveness

The effectiveness of a weapon system and its elements is determined by the interplay of all system components, as well as by nonperformance parameters such as funding limitations and operational policy. System effectiveness optimization requires consideration and tradeoff among all these variables. Technical papers are solicited for a session focusing on advancements in technologies for predicting, measuring, evaluating, and improving weapon system effectiveness. Papers may address one or more of the following: concept development, analysis and evaluation, simulation, and testing.

Innovative Technologies and Concepts

Papers are solicited that describe the development or application of innovative technologies and systems concepts for advanced missiles and unmanned air vehicles. Innovative missile technologies and concepts relevant to missiles for tactical and strategic strike, air and missile defense, air superiority and advanced target applications are of interest.

Hardware-in-the-Loop Testing of Smart Weapons

This session will address the broad spectrum of hardware-in-the-loop (HWIL) testing of smart weapons with emphasis on the integration of new test technologies and the associated methodologies pertinent to HWIL simulation.

Mission Planning

Effective use of modern precision-guided weapons requires timely use of sensor information, accurate and flexible mission planning, and responsive strike coordination. Papers are solicited on technical accomplishments that provide more automated and simplified—but still accurate and timely—planning for missiles.

Mission Assurance

The term “mission assurance” has been used in industry to describe a no-doubts approach to missile development and deployment. It combines the disciplined application of system engineering, risk management, quality, and management principles, as well as independent assessment at key program gates in order to maximize the probability of success during the development and deployment. Within the industry, mission assurance approaches vary, but focus on the same result: customer success. Mission assurance is a common thread that ties together different disciplines into a common philosophy utilized throughout the development, manufacturing, and deployment of missile systems.

System Safety and Insensitive Munitions

Papers are solicited in the areas of missile systems safety and insensitive munitions.
**Long Range Conventional Strike**

Papers are solicited for a technical session on technology, science, and missile system integration as applied to long range conventional strike and prompt global strike. This session is intended to bring together technology developers, systems architects, and customers to share not only new technology developments and results from analysis, simulation, and testing, but also operational requirements and lessons learned. Papers may address systems, subsystems, components, software, or algorithms.

**Asymmetric Missile Defense**

Over the last several years, the subject of defense against asymmetric threats has received increased visibility and attention within the DoD and the Administration. Our potential adversaries continually demonstrate that they have the capability to launch short- and medium-range ballistic missiles and cruise missiles. Military and government defense analysts are increasingly concerned about the possibility of an asymmetric missile threat against the United States homeland where terrorists would move short-range ballistic missiles or cruise missiles closer to the United States on sea-based platforms.

Contributing to the concern is the fact that our adversaries may not have the same sensitivities and limitations as the United States in using their missiles. Their military and political objectives may be entirely different; these missiles could be used as a terrorist or political weapon without regard to military objectives or collateral damage. These missiles could be launched from a variety of different offshore platforms or basing systems that would give citizens in coastal cities little or no warning prior to impact.

Technical papers are solicited to address all aspects of the asymmetric threat, mission, and kill chain. Emphasis on selection of papers will be given to integrated defense concepts, technology innovation, concepts for positive hostile ID of cruise missiles, and technology alternatives.

**For Additional Information**

Refer questions for all technical topics to:

**Darren Hayashi**
Raytheon Missile Systems
Tucson, AZ
Phone: 520.794.5432
E-mail: dkhayashi@raytheon.com
Abstract Submittal Guidelines

Abstracts for this conference must be UNCLASSIFIED. The abstract should address technical progress on one or more of the technical topics identified in this Call for Papers. Papers that outline future plans or review major development programs are not desired at this conference. Instead, papers that present technical results are encouraged. Each abstract should represent an equivalent of approximately 500 words with figures equal to approximately 75 words. All authors must first receive publication approval from their companies and/or sponsoring agencies before submitting their abstracts.

Since the conference will be conducted in a SECRET/U.S. ONLY environment, authors are strongly encouraged to develop CLASSIFIED papers (up to the level of SECRET/U.S. ONLY) to promote understanding and active discussion across topic areas. Please indicate the intended classification level of your paper in the abstract. Papers and presentations may not include classified RD, COMSEC, or NATO information.


Abstract Submittal Procedures

Abstract submissions will be accepted electronically through the AIAA Web site at www.aiaa.org/events/missilesciences or www.aiaa.org/events/strattac. Once you have entered the conference Web site, on the right-hand side, click “Submit a Paper” and follow the instructions listed on the screen to follow. The deadline for receipt of draft manuscripts and abstracts via electronic submission is 30 June 2011. Authors will be notified of paper acceptance via e-mail by 18 August 2011. Instructions for preparation of final manuscripts will be provided for accepted papers. It is the responsibility of those authors whose papers or presentations are accepted to ensure that a representative attends the conference to present the paper. Sponsor and/or employer approval of each paper is the responsibility of the author(s). Government review, if required, is the responsibility of the author(s). Authors should determine the extent of approval necessary early in the paper presentation process to preclude paper withdrawals or late submissions.

Click to download the electronic submission process and requirements such as the “No Paper, No Podium” Policy; Final Manuscript Guidelines and Technology Transfer Consideration can be found at www.aiaa.org/events/strattac or www.aiaa.org/events/missilesciences.

Refer questions for all technical topics to:
Darren Hayashi
Raytheon Missile Systems
Tucson, AZ
Phone: 520.794.5432
E-mail: dkhayashi@raytheon.com

Important Dates

Web Site Open for Abstract Submittal 2 May 2011
Abstract Deadline 30 June 2011
Author Notification 18 August 2011
Final Manuscript Deadline 3 January 2012
AIAA is the world’s largest technical society dedicated to the global aerospace profession. With more than 35,000 individual members worldwide, and 90 corporate members, AIAA brings together industry, academia, and government to advance engineering and science in aviation, space, and defense.

American Institute of Aeronautics and Astronautics
1801 Alexander Bell Drive
Suite 500
Reston, VA 20191-4344
703.264.7500 or 800.639.AIAA (2422)
Fax: 703.264.7657
custserv@aiaa.org
www.aiaa.org