

A collage of military imagery in a dark, olive-green color scheme. At the top, a stealth bomber flies against a starry sky. Below it, a tank is visible. In the middle, a helicopter is shown. On the right, silhouettes of soldiers are depicted, one with a raised fist. At the bottom, a large ship with the number '1000' on its side is visible.

9-12 MARCH

LAKE BUENA VISTA, FL

2026

NFCS

National Fire Control Symposium

CALL FOR ABSTRACTS

Abstracts Due: 14 October 2025

TRANSFORMATION IN CONTACT: "THINK BIG, START SMALL, GO FAST"

YOU'RE INVITED!

ABSTRACTS DUE: 14 OCTOBER 2025

Visit: <https://www.usasymposium.com/nfcs/cfa.php>

2026 NFCS
National Fire Control Symposium

9 - 12 March 2026
Lake Buena Vista, FL

We invite you to participate in the National Fire Control Symposium (NFCS) which will take place 9 - 12 March 2026 in Lake Buena Vista, FL!

The NFCS, heralded as the premiere forum for discussing the entire kill web, has served the Integrated Fire Control - Community of Interest (IFC-COI) for over three decades. Due to its restricted and no-foreign format, the NFCS is in a unique position to cultivate lasting relationships between the forward operators, service communities, warfare centers, laboratories, and our industry partners.

Initially launched in 1992 by the Air Force, and subsequently supported by the Army, Navy, Marines, and the Missile Defense Agency, the NFCS is now an industry sponsored event. The 2026 event features the U.S. Army as the lead technical advisor. The NFCS has been successful in engaging the multi-services, industry, and academia in synergistic relationships and discussions. With continued emphasis on budgets, the government has an increasing reliance on cooperative research efforts. The size and focus of the NFCS promotes a greater number of productive contacts and collaborative relationships, provides an overview of a larger number of external research efforts, and provides U.S. researchers with a deeper understanding of the state-of-the-art and the warfighter's perspective. The net result is the potential reduction in duplication of work completed by academia, industry, and the services, as well as the promotion of scientific advancements resulting from joint efforts that could save the DoD valuable time and financial resources, while defining innovative solutions to technology challenges.

Along with concurrent technical sessions offered throughout the week, attendees can attend a flag level Plenary Session, special topic presentations, a technical poster session, exhibit show, and many networking and collaboration functions. All submissions must align with at least one of the topic descriptions that can be found on the following pages and should support the 2026 theme *Transformation in Contact: "Think Big, Start Small, Go Fast."* (*Quote attributed to Gen. James E. Rainey, Military Review, Army University Press). Both near term and far term capabilities will be considered, but the theme emphasizes NFCS's desire for capability focused discussions with specific thought on how technology can/will integrate with the warfighting force.

NOMINATIONS FOR THE DAVID M. ALTWEGG LIFETIME ACHIEVEMENT AWARD

We are currently accepting nominations for the David M. Altwegg Lifetime Achievement Award. This award recognizes and honors an individual from Government, Industry, or Academia, who has made significant contributions to the Fire Control community, thus strengthening national defense and benefiting the warfighter over a period of time greater than 20 years. For more information on this award and to access the submission form, visit <https://www.usasymposium.com/nfcs/awardprogram.php>.

KEY DATES TO REMEMBER

- 14 October 2025** – Abstracts & Outlines Due
- 24 October 2025** – David M. Altwegg Lifetime Achievement Award Nominations Due
- Mid to Late November 2025** - Acceptance Notifications will be Sent
- 10 December 2025** - Early-Bird Registration Pricing Ends
- 6 February 2026** – Final Presentations & Posters Due
- 11 February 2026** – Optional Papers Due for Proceedings
- 9 - 12 March 2026** – Symposium

ABSTRACT SUBMISSION

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We look forward to receiving your abstract(s) for the 2026 NFCS. This event is conducted at the SECRET//NOFORN level. Attendance is limited to U.S. citizens with a final SECRET clearance. Final presentations should not be more restrictive than Distribution D and SECRET//NOFORN. This Symposium is not open to the general public.

ABSTRACT & SUBMISSION REQUIREMENT CHECKLIST

IMPORTANT: Speed up your organizational release process of your abstract by letting your approvers know that abstracts will not be published on the web, nor will they be distributed beyond the technical selection committee.

- ☐ **Abstracts must be unclassified.** If appropriate, be sure to have your derivative classifier do a sanity check on your unclassified abstract prior to submitting it.
- ☐ Abstracts **must** carry a distribution level of A, C, or D. If your presentation material is not derived from work done under DoD funding or oversight, please use your organization's equivalent to the distribution level below.
 - A = Approved for public release, distribution unlimited
 - C = U.S. Government Agencies and their contractors only
 - D = DoD and U.S. DoD contractors only
- ☐ When you upload your abstract, please **do not** password protect your file. The submission site is cleared for CUI and has end-to-end encryption with a security scan upon upload. If you submit a file that is password protected, **it will not upload** and your form will not submit.
- ☐ Abstracts should be no more than 400 words long.
- ☐ Abstracts **must** include the title of your abstract, a full distribution statement in the body of your submission, and proper CUI markings and control blocks as applicable. These do not count towards the 400 word limit.
- ☐ Abstracts **must** contain an unclassified outline containing the key points of your presentation (this does not count against the 400 word limit).
- ☐ Abstracts should clearly express: 1) objective, 2) relevance to the proposed kill web elements, 3) scope, and 4) conclusions of your presentation.
- ☐ Abstracts **must** be relevant to one or more of the topics described on the following pages.
- ☐ Abstracts should clearly demonstrate relevance to the Symposium theme, **Transformation in Contact: "Think Big, Start Small, Go Fast."**
- ☐ Abstracts that do not support the theme or at least one of the topics, or do not provide technical (vs. marketing) content, may be rejected.
- ☐ Please do not submit an abstract unless you have a clearance at the secret level or higher, or have a colleague with this clearance level that can present your material for you.
- ☐ If you find it impossible to submit a worthwhile abstract at the unclassified level at distribution levels A, C, or D, please contact Michelle Williams at mkw@blue52productions.com for potential alternative options.

Note: Presentations that contain content that is more restrictive than unclassified, are clearly associated with the topics, and are relevant to the warfighter needs will have the highest probability of selection.

ABSTRACT TEMPLATE AVAILABLE!

We recommend using our abstract template for the most accurate submission.

Visit <https://www.usasymposium.com/nfcs/cfaForm.php> for a downloadable copy of our abstract template form.

NOTIFICATION & PRESENTATION INFORMATION

You will be contacted regarding the status of your acceptance by **mid to late November**. Abstract titles will be included in the program, therefore they must be cleared for public release. You will have a chance to submit a Distribution A title after notification of selection. Abstracts will be selected for oral presentation, alternate oral presentation, or poster presentation. An alternate oral presentation is a presentation in stand-by mode until an oral presentation slot becomes available, and alternates should also plan to present their material as a poster presentation. Poster presentations are an important facet of the NFCS and provide dedicated one-on-one exchanges between the presenter and the attendees. Oral presentations slots are limited to 20 minutes which includes time for questions and transition to the next speaker. **Please note that selection and presentation of an abstract, whether oral or poster, does not waive any applicable registration fees.** Please do not wait for notification of acceptance to submit a travel approval request within your organization. Start that process now!

YOUR ABSTRACT SHOULD BE RELEVANT TO ONE OR MORE OF THE TWENTY TOPICS LISTED ON THE FOLLOWING PAGES.

Topic 1: Advanced Technologies

Emerging concepts and technologies will be part of the warfighter's future arsenal and fire control capabilities. These are the "seed corn" for advanced fire control sensors and systems and the technology game changers that will give tomorrow's military forces break-through capabilities and overwhelming advantages in future conflicts within both the conventional and unconventional (asymmetric) environments. This topic addresses:

- » Emerging techniques employing automation and/or collaboration for searching, identifying, tracking, and engaging fixed and mobile targets (e.g. machine learning/AI, multi-static/multi-INT search track and ID, collaborative weapon concepts);
- » Human/automation integration concepts;
- » Multi-function systems;
- » Advanced radar, passive RF, and Electronic Warfare (EW) concepts (e.g. adaptive digital beamforming, direction finding, wide-band array concepts, etc.);
- » Power-efficient neuromorphic computing approaches (hardware and software), including traditional electronic and photonic-based systems;
- » Air-to-Air (A-A) & Air-to-Ground (A-G) tactical laser radar approaches/concepts;
- » Advanced Infrared concepts, including Search and Track (IRST) and weapon seeker concepts (e.g. passive ranging and enhanced clutter suppression);
- » Kinetic and non-kinetic effect mechanisms;
- » "Free Space Optics" use for real-time tactical data exchanges;
- » Novel communication techniques (to include data link architectures);
- » Data exploitation algorithms/ techniques; and
- » Quantum technologies.

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Topic 2: Application of AI/ML and Autonomy in Fire Control Systems

Rapid advances in autonomy, machine learning, and artificial intelligence research will shape the future of warfighting and change how the Joint Force operates. The expected payoffs are numerous and include 1) accelerated pace of operations, 2) removing human operators from dangerous environments, and 3) optimizing use of limited resources. To take advantage of these potentially novel and disruptive technologies, we must address the challenges of rapid, robust sensing and decision making in a highly-varying environment. This topic will include, but is not limited to the following:

- » Acceleration of kill chain processing, decisions, and actions;
- » Integration/multi-mission networked teaming of manned/unmanned-autonomous capabilities to expand the reach of the kinetic/non-kinetic kill chain;
- » Sensor fusion;
- » Data requirements for enabling autonomy (including a-priori training and real-time operations);
- » Effects management;
- » Architectures for enabling and incorporating autonomy;
- » Manned/unmanned or crewed/uncrewed teaming and human-supervised autonomy;
- » Supporting next generation all domain battle management systems;
- » Processing, hardware, and datalink challenges;
- » Edge analytics and tactical decision making;
- » Artificial intelligence and machine learning as related to autonomy and fire control;
- » Optimal decisions for dynamic kill-chain execution;
- » Operational application of large language models;
- » Testing, test results, and lessons learned; and
- » Robust solutions for critical applications.

Topic 3: Combat ID

Development and deployment of a reliable and accurate Combat Identification (CID) capability for warfighters is critical to the success of fire control for future military operations. CID enables the warfighter to locate and identify critical targets with high precision, permits use of long-range weapons, aids in fratricide reduction, enhances battlefield situational awareness, reduces leakage and waste, and reduces exposure of U.S. Forces to enemy fire. This topic will explore the innovative algorithmic, architectural, hardware, software, and system integration solutions, as well as near-term operational lessons learned, the decisions and processes involved in CID, and current/emerging CID requirements for all services. Combat ID invites abstracts addressing all functional elements of cooperative and non-cooperative CID for air-to surface, air-to-air, surface-to-air, ballistic missile defense, and surface-to-surface engagements, including:

- » Multi-spectral systems;
- » Active and passive ID technologies;
- » Monostatic and bistatic techniques;
- » Autonomous and aided;
- » Long-range approaches;
- » Search and track;
- » Signal and data processing;
- » Segmentation;
- » Feature extraction;
- » Discrimination;
- » Disaggregated concepts;
- » Cross-domain data correlation; and
- » Network enabled and distributed CID.

Topic 4: Directed Energy

Directed Energy (DE) technology has reached the stage where services are maturing the doctrine and tactics associated with the integration of DE weaponry into the operational capability of our military. It has long been seen as a “weapon of the future,” but the technology has advanced, and continues to advance so rapidly that the operational realities need to be addressed. DE enables the inherent ability for quick, highly accurate engagement of threats with little or no collateral damage for hardkill and non-lethal solutions. The very nature of the weapon that allows for the highly accurate engagement also presents a new challenge to traditional methods of fire control. The symposium would welcome all DE related abstracts addressing, but not limited to:

- » The recommended mix and integration of DE and kinetic systems;
- » DE system overviews and CONOPS;
- » Command and control challenges and recommended solutions;
- » Rules of engagement for employing DE weapons;
- » Optimal employment environments for DE;
- » Testing, test results, and lessons learned; and
- » Technology advances in power reduction and range extension.

Topic 5: Electronic Warfare

Electronic Warfare (EW) is the warfighting capability to gain decisive military advantage in the electromagnetic spectrum (EMS) to enable increased freedom of action across all military mission areas. EW is comprised of Electronic Attack (EA), Electronic Protection (EP), and Electronic Warfare Support (ES). EA targets and jams enemy sensors, weapons, and communications systems (i.e. softkill). EP techniques and capabilities protect U.S. sensors, weapons, and communications systems against enemy attacks and intrusions. ES measures, detects, locates, and identifies enemy threat emissions and helps enhance overall battlespace situational awareness.

Effective EW is becoming increasingly important in order to effectively counter dense, coordinated enemy air and missile raids. EW systems and capabilities (including ES and EA) have an increasingly important role in fire control because of their affordability, re-use alternatives, and reduced collateral damage. Concepts of Operations (CONOPS) must consider the coordinated application of kinetic and non-kinetic (EW) effects applied across multiple warfighting domains (e.g. cyber, space, air, land, and sea).

This topic invites abstracts addressing all aspects of EW considered in the context of fire control and electronic fires effects, including but not limited to:

- » Recent developments in RF or EO/IR targeting systems to mitigate enemy countermeasures and reduce the effectiveness of enemy systems;
- » Integration of EA and ES capabilities and mission technology drivers;
- » Cognitive EW systems;
- » Integration, coordination, and resource management of hardkill and softkill weapons and capabilities to increase the effectiveness of integrated fires;
- » CONOPS/technologies for fire control in denied (GPS) or communications-denied environments;
- » Open architecture and Service Oriented Architecture (SOA) concepts for electronic warfare;
- » Maneuverability (spectral and physical agility);
- » Rapid reprogramming to support dynamic EW;
- » Spectrum management for effective sensor or communications operations in jamming environments; and
- » Results from field tests, experiments, or deployments.

REMINDER

Submitting an abstract does not automatically register you for the event!
To register, please visit <https://www.usasymposium.com/nfcs/registration.php>

Topic 6: Enabling Joint Fire Control: Warfighter Challenges & Operational Lessons Learned

Integrated fire control kill-chains utilizing multi-mission sensors and weapons platforms are a crucial capability to enhance U.S. and Joint Forces effectiveness in all theaters. The operational arena consists of an expansive, dynamic security environment, rapidly evolving threats, and the global significance of maintaining stability and security in key regions across the full spectrum of operations. This topic will look to gain insight on those key challenges facing warfighters and the operational security concerns posed by regional peer or near peer competitors, current day pacing threats and associated rapid evolution, the need to preserve access in all shared domains, the effect on operations/employment, and joint, allied, and nation tactics, and techniques and procedures (TTPs) associated with multi-domain/cross domain fires. Warfighter discussions of lessons learned from these operational experiences provide invaluable insight for engineers, scientists, researchers, and product developers. Submissions by those actively engaged in field operations are encouraged to provide operational context and capability needs related to integrated kinetic and non-kinetic kill chain with topics such as:

- » Service/warfighting component missions, priorities and challenges;
- » Operational/tactical implications associated with bilateral defense treaty alliances;
- » Capability gaps associated with interoperability, joint IAMD/BMD fires in air, surface, and subsurface domains;
- » Lessons learned from operational employment, exercises, experiments, and wargames associated with joint and allied/partners (software; hardware; TTPs; CONOPs);
- » Multi-service TTPs for kinetic/non-kinetic engagements to counter advanced threats, along with integration of engagement capabilities across services;
- » Integrated kill chains utilizing multi-mission sensors, platforms and multi-mission Systems-of-Systems (SoS) for planning, track management, and engagement; and
- » Addressing near and far term technologies that counter hypersonic, ballistic, and air-breathing missiles and asymmetric threats.

Topic 7: Fire Control Platform Capabilities

Fire control performance is directly dependent on a number of factors, from environmental impacts to the performance of platform-specific systems and sub-systems, including hardware and software. This topic focuses on fire control solutions from a platform perspective, in the space, air, land, and maritime (both surface and sub-surface) domains. Discussion and analysis of the impact of the design and configuration of the platform on fire control system performance is invited. In addition to considering offensive fire control performance, this topic also addresses defensive capabilities that enable the fire control system to perform in highly contested environments. Other areas included in this topic are:

- » System performance predictions, including consideration of environmental impacts;
- » Live fire test results;
- » Lessons learned on weapon, sensor, platform integration issues (interoperability);
- » Platform fire control tactics, techniques, and procedures;
- » Ongoing and planned platform fire control upgrades; and
- » Integrated, multi-platform fire control solutions.

WHY SUBMIT AN ABSTRACT?

- » Gain Exposure
- » Share Your Research
- » Network with Peers and Experts
- » Contribute to the Advancement of the Field

Topic 8: Hypersonics/Conventional Prompt Strike & Hypersonic Threat Defense

The ability to provide a conventional precision strike on time-sensitive and critical targets is of extreme importance to the DoD including capabilities and the technologies and testing associated with hypersonic velocities and advanced flight dynamics. Adversarial hypersonic cruise and glide threat vehicles present unique challenges to our defenses including very high speeds, high-G maneuvers, low detectability, exo- and endo-atmospheric flight, difficult endgame dynamics, and demanding reaction times. This session will address ways to reduce latencies in all aspects of the kill chain. We will examine technologies, capabilities, and experimentation to defeat these threats with both hardkill and softkill techniques. Areas of interest include:

- » Compressing the kill chain to reduce our adversaries' decision time;
- » Thermal protection;
- » Navigation and guidance;
- » Flight vehicle integration;
- » Offensive hypersonic strike;
- » Defense of hypersonic threats;
- » Detection of hypersonics;
- » Testing, test results, and lessons learned; and
- » Other topics specific to achieving hypersonic velocities and placing the weapon on target.

Topic 9: Joint Integrated Air & Missile Defense

Joint integrated air & missile defense, supporting both Homeland Defense and forward deployed operational forces, continues to evolve from organic sensor-shooter systems to networked sensing, decision tools, and weapon elements that can support integrated fire control. These capabilities can expand the defended battlespace. Further, they can accommodate multiple engagement conditions by improving defense capability against a full spectrum of threats to include cruise missiles, ballistic missiles, fixed-wing and rotary-wing manned aircraft, individual and swarming unmanned vehicles (UAV), rockets, artillery and mortars, and extend the radar horizon limitations. This topic invites abstracts addressing any aspect of these areas including but not necessarily limited to:

- » Integrated Air & Missile Defense (IAMD) system architectures;
- » Critical integrated fire control enablers including coherent air picture, timely and assured CID, and threat discrimination;
- » Integrated cruise and ballistic missile defense;
- » IAMD operations planning, command, and control challenges and solutions;
- » Engagement of low velocity, small cross section threats such as UAV's;
- » Weapon system resource balancing in integrated systems;
- » Counter Rocket Artillery and Mortar (CRAM) capabilities for fixed sites and/or maneuver forces;
- » Joint, multi-mission IAMD (collaborative) planning;
- » Multi-mission operations;
- » Raid engagement;
- » Command and control systems;
- » Networks and information management systems;
- » Sensing and weapons management coordination;
- » Target evaluation and weapon assignment;
- » Consequence management – determining where to engage a target relative to potential collateral damage;
- » Integrated fire control testing and resulting lessons learned; and
- » IAMD training.

Topic 10: Live, Virtual, & Constructive Modeling & Simulation, Test, Training, & Wargaming

Live, Virtual, and Constructive (LVC) Modeling & Simulation (M&S) in tactical scenarios plays an increasingly important role in the development, assessment, and organizational training of integrated fire control capabilities. As the number, diversity, and complexity of interconnected fire control systems grow, field testing the resulting "integrated" capability becomes increasingly expensive and logistically demanding, requiring the coordination of assets from across the services. These same considerations pose significant limitations on the accomplishment of training objectives once systems are successfully fielded. Abstracts covering any technical aspect of LVC testing, M&S, or wargaming and training exercises are encouraged. Of particular interest are abstracts discussing:

- » Existing test, modeling, simulation, and wargaming capabilities, lessons learned, trade-offs, and limitations of different distributed simulation methodologies;
- » Technologies for analyzing and visualizing large sets of simulation output data;
- » Efficient computer processing architectures and unique verification and validation challenges;
- » Applications of Artificial Intelligence (AI)/Machine Learning (ML) to modeling, simulation, and wargaming;
- » Live fire target and test development;
- » Post test reconstruction and analysis;
- » Modeling and simulation that address the cyber threat (analysis, effects, etc.); and
- » Leveraging LVC environments to mature AI/ML in warfighting mission areas.

Topic 11: Mission Planning & Battle Management for Integrated Fire Control

Successful execution of multi-mission Integrated Fire Control (IFC) effects requires preparation to ensure optimization of battlespace, maximization of effect, and appropriate allocation of platform, sensor, and weapon resources. This preparation occurs both pre-mission as a function of Mission Planning at multiple levels, and during active operations as a function of Battle Management, to include dynamic re-planning. Successful Mission Planning and Battle Management require accurate representations of red and blue capabilities, understanding of force employment concepts, and thorough knowledge of system functions and constraints in relevant operational environments. The increasing complexity and size of the operational environment, advanced technologies, and adversary capabilities demand improved decision speed, dynamic resource allocation, and seamless handoff of functions between disparate nodes across the operational theater. This need is central to operations in all services, at all levels of war, and in all domains. This topic invites abstracts addressing any aspect of these areas including:

- » Threat-centric planning processes;
- » Operator/System interfaces to support decision space and timely course of action development;
- » Visualization support for force laydown, unit stationing, and resource utilization;
- » Multi-sensor data fusion and provision of a common tactical picture in support of mission planning and battle management;
- » Unit, force, and joint resource management (platforms, sensors, weapons, and communications) to support efficient effects chain success;
- » Support for distributed operations;
- » Red and blue modeling and simulation products to support mission planning;
- » Technologies, architectures & algorithms to facilitate long range and beyond-line-of-sight target engagement;
- » Doctrine and training development and implementation to support mission planning; and
- » Technology advancements that support effective mission planning, automated battle management, and multi-unit/force/joint employment.

Topic 12: Multi-Domain Command and Control & Intelligence, Surveillance & Reconnaissance

Multi-Domain Command and Control (MDC2) & Intelligence, Surveillance & Reconnaissance (ISR) is critical to the warfighter's ability to deliver precision effects through the integration across domains with advanced networking, integrated sensor approaches, and multi-node collaboration/decision support tools. Abundant challenges exist to enable tasking, collection, processing, exploitation, dissemination, and management of the extensive and diverse set of data sources to rapidly orient to evolving threats. These core capabilities and mission needs are imperative to provide warfighters with timely, decision quality and actionable combat data at the tactical edge. Abstracts are sought for current and proposed systems and technologies that address these challenges and improve the integration of multi-domain C2 and ISR capabilities. Examples of topics include, but are not limited to the following:

- » Mission management, and netted capabilities (terrestrial, airborne and space based);
- » Coordination and tasking across sensors owned and operated by different services/agencies;
- » Enabling technology/sensors (EO/IR, LADAR/LIDAR multi-spectral, RF, EW, etc.) and associated tactical decision aids;
- » Executing multi-domain C2 and ISR in the contested environment;
- » Tasking, Collection, Processing, Exploitation and Dissemination (TCPED) architectures to enable battlespace awareness, assured C2, and integrated fires; and
- » System-of-systems approach to network kinetic/non-kinetic fires across multiple domains, platforms, and services/mission partners.

Topic 13: Networked & Distributed Warfare

Engagements against targets in contested environments require rapid execution of networked and distributed warfare in the face of ever more complex and difficult combat environments: (1) mobile and extended range target engagements to compress decision times; (2) advanced sensors provide high volumes of raw data that must be processed to extract target information; (3) expectations of precision targeting at long ranges extend kill chain execution times; and (4) coordinated actions by distributed forces require reliable data exchanges for command and control. Integrated systems can leverage networked, distributed, or shared information to achieve greater overall capability, with the potential to substantially improve joint and coalition operations. This session will consider approaches to extending and accelerating all elements of distributed kill chains for air-to-surface, air-to-air, surface-to-air, surface-to-surface, and subsurface-to-surface engagements. In addition, this topic will explore innovative algorithmic, architectural, hardware, software, and system integration solutions; near-term operational lessons learned; unique kinetic and non-kinetic engagement capabilities enabled by agile and extendable networked systems; decisions and processes involved in target selection; and current and emerging fire control requirements in the age of distributed warfare. Topics include but are not limited to:

- » Use of artificial intelligence and machine learning in kill chain execution and engagement management;
- » Multi-target tracking and geolocation for rapid target location;
- » Sensor, weapon and platform netting to integrate lethal and non-lethal effects;
- » Composite track management;
- » Rules of engagement;
- » Integration of heterogeneous systems;
- » Closing-the-loop with battle damage assessment;
- » Improvements to reduce decision time lines;
- » Integrated fire control mission expansion;
- » Pushing engagement decisions forward to the platform;
- » Current issues with multi-generational/allied networks and platforms;
- » Agile communications and resilient network control of manned/unmanned platforms;
- » Multi-domain information fusion and integration (real and non-real time) and associated multi-level security challenges; and
- » Integrated and cooperative weapon and fire control systems, distributed weapons, integration of kinetic/non-kinetic effects and sensor coordination across disparate networks.

Topic 14: Rapid Transition of New Technology to the Warfighter

DoD continues to transform into a lighter, highly flexible, and more effective fighting force. Changes on the battlefield accelerate the need for speed and efficiency in meeting warfighter needs. In a fiscally constrained environment, new capability development often requires being reliant on mature and adaptable technology with short acquisition schedules. This topic will focus on supporting fire control in the following areas:

- » New, innovative, and potentially disruptive technologies at significant maturity levels;
- » Rapid fielding of capabilities;
- » Open systems architectures;
- » Testing, test results, and lessons learned;
- » Quick response technology bridging the acquisition gap; and
- » Enabling architectures for rapid and cost-effective expansion of integrated fire control capabilities.

Topic 15: Sensor Resource Management/Sensor & Data Fusion

As our fire control systems become more complicated utilizing multi-sensor inputs (EO, IR, RF, offboard), there needs to be a capability to fuse sensor data, as well as integrate and manage onboard and dispersed sensors to quickly reach optimal fire control solutions. This topic includes sensor fusion at the data, feature, and decision levels. Additionally, abstracts will be accepted that address Sensor Resource Management (SRM) technologies that incorporate SRM as a top-tier system-of-systems function with real-time (or near real-time) interfaces to battle management and planning, command, and control such as:

- » Single platform SRM;
- » Multi-domain, multi-platform SRM;
- » Own force monitoring;
- » Synchronization and coordination across the classical functions of electronic warfare, radar, communications;
- » Minimization of co-site interference and friendly jamming;
- » SRM architectures: centralized, distributed, or hierarchical; and
- » Algorithms and processes to generate optimal allocations of sensor resources.

Topic 16: Space Systems as a Force Enhancer

Space systems impact the warfighters' effectiveness and provide indispensable strategic, operational, and tactical capability. This is especially true in contested environments where space assets may provide the only visibility deep in denied territory. The need for accurate and timely fire control requires situational awareness that, in turn, requires persistent intelligence, surveillance & reconnaissance, and connectivity in the tactical theater, specifically in active combat locations. This topic seeks abstracts that address:

- » Use of space in the kill chain;
- » Current, planned, or future activities that use space systems to improve fire control (e.g., space-based and space-enabled persistent surveillance and reconnaissance systems, SATCOM links, positioning, navigation and timing systems, strike platforms that use space assets, sensor platforms, and geo-registration);
- » Robust rapid cross force coalition space-based communication critical to accurate fire control; and
- » Vulnerabilities of space-based assets and associated downlinks.

Topic 17: Unmanned/Uncrewed & Autonomous Systems (Sensors, Weapons & Platforms, including Counter UxS)

Unmanned/uncrewed systems continue to expand their presence on the battlefield from strategic High Altitude Long Endurance (HALE) systems conducting strategic surveillance, down to small hand launched systems. Today many unmanned/uncrewed systems serve to carry Intelligence, Surveillance, and Reconnaissance (ISR) sensors or communications relay payloads, while a number of platforms are being weaponized. Unmanned/Uncrewed systems of all types will continue to be an integral part of modern-day combat fire control. This topic invites abstracts that focus on any fire control related aspect of these platforms (whether in the air, on the ground, on the surface, or underwater) and will include, but are not limited to such key topics as:

- » Capabilities and characteristics of the unmanned/uncrewed platforms themselves;
- » Fire control systems utilized to counter UxS threats;
- » Current/planned sensor and weapon payloads;
- » Networks/architectures/data links for passing sensor data to ground stations and/or to other platforms as part of network-centric operations;
- » Proposed new CONOPS leveraging unmanned/uncrewed systems capabilities;
- » Integrated manned/crewed and unmanned/uncrewed operations;
- » Tools for timely exploitation/dissemination of data coming back from unmanned/uncrewed systems;
- » Application and use of low-cost attritable platforms;
- » Results of actual field tests/experiments/deployments involving them; and
- » Kill chain for use with unmanned/uncrewed platforms operating autonomously or in support of manned/crewed platforms to support precision weaponry.

Topic 18: Weapons, Munitions & Engagement Alternatives

There are many options available for weapon engagement that are enabled by the future of netted systems and the increasing array of available weapons. The ability to engage targets globally is still a high priority that brings its own set of challenges. This topic will focus on one or more of the following areas:

- » The cognitive aspects of target engagement as a function of the growing number of engagement options (ensuring the most effective munition is chosen to support operational plans);
- » Ways to achieve desired effects on global targets to include hypervelocity, multi-attack, and kinetic/directed energy weapon options;
- » How to deal with operation constraints such as minimizing collateral damage;
- » Precision targeting techniques;
- » Understanding systems-of-systems of weapons within fire control;
- » Use of autonomy for engagement control;
- » Next generation weapon systems development (such as electric weapons, lasers, hypervelocity projectiles, hypersonic weapons, etc.); and
- » Integration of new weapon systems and netted weapons.

Topic 19: Threat Assessment, Representation, and Analysis

Effective Fire Control starts with understanding the Threat. Rapidly advancing threat capability stresses all phases of the kill web, driving the need for advancement in testing and training, sensor technology and CONOPs, weapon system doctrine, engagement, and assessment. In this era of Great Power Competition with Peer adversaries, staying ahead of the threat is critical to successful fire control execution. From threat assessment, starting with the intelligence community, to the development of accurate threat representations to support weapon system development, testing, and training, through post-engagement analysis, the need to understand the threat is ever-present. Abstracts covering any technical aspect of threat assessment, representation, and analysis are encouraged. Of particular interest are abstracts discussing:

- » Observations, collected data, and reconstruction of foreign test events;
- » Intelligence assessment and representation development;
- » Threat Model Development – simulation and live fire representation; and
- » Post Engagement Threat assessment and analysis.

Topic 20: Golden Dome for America/Next Generation Missile Defense

Golden Dome for America is a Next Generation Homeland Defense program focused on innovative missile defense technologies (system-level, component level, and upgrades), architectures, concepts, and Concept of Operations (CONOPS) to detect and defeat the threat of attack by ballistic, hypersonic, and cruise missiles, and other advanced aerial attacks. This next-generation missile defense shield will deter and defend U.S. citizens and critical infrastructure against any foreign aerial attack on the Homeland and guarantee its secure second-strike capability. Abstracts of interest include new system-level capabilities, component concepts, upgrades to existing capabilities, or new CONOPS across the kill web.

- » Defense of the United States against ballistic, hypersonic, advanced cruise missiles, and other next-generation aerial attacks from peer, near-peer, and rogue adversaries;
- » Acceleration of the deployment of the Hypersonic and Ballistic Tracking Space Sensor (HBTSS) layer;
- » Proliferated space-based interceptors capable of boost-phase intercept;
- » Underlayer and terminal-phase intercept capabilities postured to defeat a countervalue attack;
- » Custody layer of the Proliferated Warfighter Space Architecture (PWSA);
- » Capabilities to defeat missile attacks prior to launch and in the boost phase; and
- » Non-kinetic capabilities to augment the kinetic defeat of ballistic, hypersonic, advanced cruise missiles, and other next-generation aerial attacks.

We hope you can join us!

