



24 - 27 April 2023 \* LAKE BUENA VISTA, FL

2023

# NFCGS

National Fire Control Symposium  
*Multi-Domain Kill Web Solutions in an Era of Strategic Competition*

# Call for Abstracts

Abstracts Due: 1 November 2022



# YOU ARE INVITED!

We invite you to participate in the 29th National Fire Control Symposium (NFCS) which will take place at the Shades of Green, in Lake Buena Vista, FL, 24 - 27 April 2023. 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 nearly 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, and Marines, the NFCS is now an industry sponsored event. The 2023 event features the U.S. Army as the lead technical advisor. The event has been successful in engaging the multi-services, industry, and academia in synergistic relationships and discussions. With continued reduction in 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 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, and many networking and collaboration functions. The topics chosen will support the 2023 theme "*Multi-Domain Kill Web Solutions in an Era of Strategic Competition*" which is critical to ensuring U.S. advantage over peer adversaries.

Topic areas in the 2023 Call for Abstracts are focused on phases of the Kill Web versus specific functional areas as in the past. All abstracts must fit in one or more of these. Descriptions can be found on the next pages.



We encourage you to engage in this event and look forward to seeing you at the Shades of Green in April 2023!

## KEY DATES TO REMEMBER

- 31 October 2022 – David M. Altwegg Life Achievement Award Nominations Due
- 1 November 2022 – Abstracts & Outlines Due
- 27 March 2023 – Final Presentations & Posters Due
- 3 April 2023 – Optional Papers Due for Proceedings
- 24 - 27 April 2023 – Symposium

# TECHNICAL TOPIC AREAS

## **KILL WEB PHASE 1 PREPARE & CONFIGURE**

This kill web phase requires that platforms and operators have the necessary tools and training to prepare, configure, and employ the platform's systems to successfully complete the kill web. Successful execution of distributed IFC 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 training, system optimization, and mission planning at multiple levels, and during active operations as a function of battle management, to include dynamic re-planning. Successful preparation requires accurate modeling and simulation (M&S) representations of red and blue capabilities and limitations, relevant decision aids, understanding of force employment concepts, and thorough knowledge of system functions and constraints in relevant operational environments. Increasing warfighting complexity demands specialized tactical training, improved decision speed, and dynamic resource allocation. This need is central to operations in all services, at all levels of war, and in all domains.

## **KILL WEB PHASE 2 SURVEIL**

This kill web phase requires that systems have the ability to persistently search a volume that is expected to contain threats, and to collect, integrate, correlate, and disseminate surveillance information (manually or automatically) to subsequent phases of the kill web. Successful execution of distributed IFC requires delivery of precision effects with advanced networking, integrated sensor approaches, and multi-node collaboration/decision support tools. Many 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 are imperative to provide warfighters with timely, decision quality and actionable combat data at the tactical edge. This pertains to current and proposed systems and technologies that address these challenges and improve the integration of multi-domain command & control (C2) and intelligence, surveillance, and reconnaissance (ISR) capabilities.

## **KILL WEB PHASE 3 DETECT**

This kill web phase requires that a system detects targets at sufficient range to support mission objectives, in a manner that enables track initiation. Successful execution of distributed IFC requires accurate, timely, and persistent situational awareness (SA) and the means to effectively communicate SA to assets in theater. Space systems provide indispensable capability in contested environments where these assets may provide the only visibility into denied territory. Global, theater, regional, and area detection must be supported by robust and overlapping sensor capabilities to permit efficient handover of detections for tracking and engagement.

## **KILL WEB PHASE 4 TRACK**

This kill web phase requires that sensors and systems provide timely information of sufficient quality to engage at ranges relevant to support mission objectives. Successful execution of distributed IFC requires the ability to maintain track integrity, and manage a track picture to support force interoperability and common field of view. Multi-sensor (electro-optical, infrared, radio frequency, offboard) data fusion supports robust and accurate track management while suppressing/mitigating effects of deception and electronic attack. Sensor fusion at the data, feature, and decision levels enable optimal fire control solutions.

# TECHNICAL TOPICS AREAS

## **KILL WEB PHASE 5 IDENTIFY**

This kill web phase requires that the system accurately identify targets at sufficient range to employ weapon(s)/effects in support of mission objectives. Successful execution of distributed IFC requires the development and deployment of a reliable and accurate Combat Identification (CID) capability. CID enables the warfighter to locate and identify critical targets with high precision, permits use of long-range weapons, prevents fratricide, enhances battlefield situational awareness, reduces leakage and waste, and reduces exposure of blue forces to enemy fire. This topic will explore innovative architectural, algorithmic, 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. CID addresses all functional elements of cooperative and non-cooperative techniques while suppressing/mitigating effects of deception and electronic attack.

## **KILL WEB PHASE 6 ENGAGE**

This kill web phase requires successful engagement scheduling and coordination to enable weapon employment. This requires sufficiency of communication between the control platform and supported weapons, and timely and accurate exchange of post-launch data. It also includes illumination and post-launch operations that support target defeat and sufficient weapon lethality at combat relevant range. Successful execution of distributed IFC requires one or more engagement alternatives that satisfy mission objectives in both benign and degraded environments. IFC 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 can include analysis of the impact of the design and configuration of platforms, sensors, and kinetic and non-kinetic weapons and effectors on fire control system performance. 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.

## **KILL WEB PHASE 7 ASSESS & DEFEND**

This kill web phase requires accurate and timely assessment that supports re-engagement and concurrent surveillance, detection, and tracking of additional threats. Successful execution of distributed IFC requires timely and accurate battle damage and kill assessment. This permits sensor and weapon resource re-allocation, limits over-expenditure of weapons, and ensures any required re-engagement occurs in a timeline that supports optimal weapon-target pairing for threats of varying range and speed.



## OTHER KEY WAYS TO ENGAGE

### Sponsor

NFCS is made possible in large part by our industry sponsors. Thanks to all who contribute each year and make this event a success. Each sponsorship package comes with many great amenities designed to promote your important role in this community. If you'd like more information on sponsorship opportunities with NFCS, please visit <https://www.usasymposium.com/nfcs/sponsorship.php> or contact Amy Voisard at [avoisard@blue52productions.com](mailto:avoisard@blue52productions.com).

### Exhibit

NFCS has limited space for exhibits and demos. Sign up now to reserve your space for this great networking & marketing opportunity. To reserve a space, visit: <https://www.usasymposium.com/nfcs/exhibits.php>.

### Nominate Someone 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>.

## Important Notices

### Travel Restrictions & Approval

For those working for government agencies, you are encouraged to submit your travel requests now. Many agencies have a delayed travel approval process and the sooner you start the process, the better. Contact us if you need any additional information or justification.

### Event Information Security

This Symposium is restricted to U.S. CITIZENS ONLY and limited to those with a final SECRET clearance (no Interim clearances). This Symposium is not open to the general public.

### COVID-19

Our top priority remains the health and safety of all participants of the NFCS. We will continue to monitor COVID-19 via the Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), federal, state, and local governments. Any impacts to NFCS will be communicated via the website and email.

# ABSTRACT SUBMISSION

## Abstract Due Date: **1 November 2022** To submit your abstract, visit <https://www.usasymposium.com/nfcs/cfa.php>

We look forward to receiving your abstract(s) for the 2023 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.

### ABSTRACT & SUBMISSION REQUIREMENT CHECKLIST

- Abstracts must be unclassified.
- Abstracts must carry a distribution level of A, C, or D.
  - A = Approved for public release, distribution unlimited
  - C = U.S. Government Agencies and their contractors only
  - D = DoD and U.S. DoD contractors only
- If appropriate, be sure to have your derivative classifier do a sanity check on your unclassified abstract prior to submitting it.
- If your abstract contains CUI, please include the proper CUI markings and the CUI indicator block.
- Submissions more restrictive than Distribution A should be password protected with passwords being sent to Sherry Johnson at [sjohnson@blue52productions.com](mailto:sjohnson@blue52productions.com). More detailed instructions for password protecting and submitting your abstracts can be found on the submission page online.
- Abstracts should be relevant to one or more of the phases described on the previous pages.
- Abstracts should clearly demonstrate relevance to the Symposium theme, *"Multi-Domain Kill Web Solutions in an Era of Strategic Competition."*
- Abstracts should be no more than 400 words long.
- Abstracts should include the title of your abstract, a full distribution statement in the body of your submission, and proper CUI markings and control blocks. These do not count towards your 400 words.
- Abstracts must contain an unclassified outline containing the key points of your presentation (this does not count against the 400 word count).
- Abstracts should clearly express: 1) objective, 2) relevance to the proposed kill web phases, 3) scope, and 4) conclusions of your presentation.
- Abstracts that do not support the theme or at least one of the kill web phases, or do not provide technical (vs. marketing) content, may be rejected.
- If you find it impossible to submit a worthwhile abstract at the unclassified level, please contact Michelle Williams at [mkw@blue52productions.com](mailto:mkw@blue52productions.com) for potential alternative options.

Note: Presentations that will have content beyond the unclassified level, are clearly associated with the proposed kill web phases, and are relevant to the warfighter needs will have the highest probability of selection.

### NOTIFICATION & PRESENTATION INFORMATION

You will be contacted regarding the status of your acceptance by early December. Abstract titles will be included on the website and 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 and this 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.