

Abstracts Due: 20 December 2021

Call for Abstracts

14 - 17 February 22

LAKE BUENA VISTA, FL

2022

CONFES

National Fire Control Symposium

ADVANCING THE DISTRIBUTED KILL CHAIN

YOU ARE INVITED!

We invite you to participate in the 28th National Fire Control Symposium (NFCS) which will take place at the Shades of Green, in Lake Buena Vista, FL, 14 - 17 February 2022. The NFCS, heralded as the premiere forum for discussing the entire kill chain, 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 2022 event features the U.S. Navy 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 2022 theme "Advancing the Distributed Kill Chain" which is critical to ensuring U.S. advantage over peer adversaries.

NFCS covers not only what is currently possible, but what we hope to achieve. The DDG 1000 on the cover represents just that. It is the Navy's newest surface combatant and will operate as an enabler in the acceleration of new warfighting capabilities and rapid development and validation of operational tactics, techniques and procedures. The ship utilizes several advanced technologies and is capable of generating enough electrical power to operate directed energy and rail gun weapon systems as they become available. There are plans to include DDG1000 in the execution of distributed integrated fires in the future. As you consider your abstract submissions, keep in mind both research and technology that is currently available, and what we hope to achieve in the near and long term.

Topic areas in the 2022 Call For Abstracts are focused on phases of the Kill Chain 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 February 2022!

TECHNICAL TOPIC AREAS

KILL CHAIN PHASE 1 PREPARE & CONFIGURE

This kill chain 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 chain. 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 CHAIN PHASE 2 SURVEIL

This kill chain 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 chain. 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 CHAIN PHASE 3 DETECT

This kill chain 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 CHAIN PHASE 4 TRACK

This kill chain 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 CHAIN PHASE 5
IDENTIFY**

This kill chain 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 CHAIN PHASE 6
ENGAGE**

This kill chain 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 CHAIN PHASE 7
ASSESS & DEFEND**

This kill chain 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.

KEY DATES TO REMEMBER

- 3 September 2021 – David M. Altwegg Life Achievement Award Nominations Due
- 20 December 2021 – Abstracts & Outlines Due
- 12 January 2022 – Final Presentations & Posters Due
- 28 January 2022 – Optional Papers Due for Proceedings
- 14 - 17 February 2022 – Symposium

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.

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 access to the submission form, visit <https://www.usasymposium.com/nfcs/awardprogram.php>.

Important Notices

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.

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. PERSONS ONLY, and those with a final SECRET Clearance (no Interim clearances). This Symposium is not open to the general public.

Abstract Due Date: 20 December 2021

To submit your abstract, visit <https://www.usasymposium.com/nfcs/cfa.php>

We look forward to receiving your abstract(s) for the 2022 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.

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.
- Submissions more restrictive than Distribution A should be password protected with passwords being sent to Sherry Johnson at 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, "*Advancing the Distributed Kill Chain*."
- Abstracts should be no more than 400 words long.
- Abstracts should include the title of your abstract and a full distribution statement in the body of your submission. This does 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 chain phases, 3) scope, and 4) conclusions of your presentation.
- Abstracts that do not support the theme or at least one of the kill chain 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 for potential alternative options.

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

NOTIFICATION & PRESENTATION INFORMATION

Within a couple weeks of submission, you will be contacted regarding the status of your acceptance. 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.