



NDIA
AT THE HEART
OF THE MISSION

64TH ANNUAL
FUZE
CONFERENCE

Continued Fuze Advancements amid a Global Pandemic

May 11 – 12, 2021 | [NDIA.org/Fuze21](https://ndia.org/Fuze21)

TABLE OF CONTENTS

WHO WE ARE	2
WELCOME LETTER	3
EVENT INFORMATION	4
AGENDA	5
BIOGRAPHY	9
SPONSORS	10
EXHIBITOR	11



NDIA

WHO WE ARE

The National Defense Industrial Association is the trusted leader in defense and national security associations. As a 501(c)(3) corporate and individual membership association, NDIA engages thoughtful and innovative leaders to exchange ideas, information, and capabilities that lead to the development of the best policies, practices, products, and technologies to ensure the safety and security of our nation. NDIA's membership embodies the full spectrum of corporate, government, academic, and individual stakeholders who form a vigorous, responsive, and collaborative community in support of defense and national security. For more than 100 years, NDIA and its predecessor organizations have been at the heart of the mission by dedicating their time, expertise, and energy to ensuring our warfighters have the best training, equipment, and support. For more information, visit NDIA.org

GET INVOLVED

Learn more about NDIA's Divisions and how to join one at NDIA.org/Divisions



LEADERSHIP

Thomas Harward
Committee Chair

Nassir Alaboud
Committee Vice Chair

Perry Salyers
Committee Secretary

MUNITIONS TECHNOLOGY FUZE SECTION

WHO WE ARE

The Munitions Technology Division works to maintain the open exchange of technical information among government and industry programs and technical managers. In addition, the Division identifies changes and trends in policy, guidance, and organizational functions that affect the development, production, maintenance, and demilitarization of munitions.

The Fuze Section aims to promote an open exchange of technical information among government and industry personnel, and to identify and address changes in standards, guidance, policy, and organizational functions that impact the development, production, and performance of fuzes.

WELCOME TO THE 64TH ANNUAL FUZE CONFERENCE

On behalf of NDIA and the Fuze Conference Steering Committee, I would like to welcome you to NDIA's second virtual Fuze event: The 64th Annual Fuze Conference. This international conference brings together the work of top fuzing professionals from government, private industry, and academia, and provides an opportunity for the exchange of the latest research and development on fuzing—all with the common goal of improving

safety, capability, and reliability for our warfighters. We have a thrilling keynote scheduled and will keep the conference's signature science and technology sessions. Through the ongoing passionate work of the presenters, sponsors, exhibitor, and attendees of this conference as well as across our worldwide defense industry, new challenges will be overcome, resulting in safer, more reliable fuzes being fielded to our warfighters.

Thomas Harward

Chair, Fuze Committee, Munitions Technology Division, NDIA Engineering Fellow, Lead Technologist, and Chief Engineer, Raytheon Technologies

SCHEDULE AT A GLANCE

TUESDAY, MAY 11

General Session
10:00 am – 12:15 pm

Networking Break
12:15 – 12:35 pm

General Session
12:35 – 3:30 pm

WEDNESDAY, MAY 12

General Session
10:00 am – 12:20 pm

Networking Break
12:20 – 12:40 pm

General Session
12:40 – 3:40 pm

Ensure precision with every ignition

Explore Novacap Detonator and Pulse Energy Capacitors

With Novacap from Knowles Precision Devices, you can count on high-temperature, high-energy capacitors designed for reliability in both single- and multiple-pulse firing applications. Energy density exceeds that of conventional Class 1 materials, providing excellent short-duration pulse delivery at temperatures to 200°C. Plus, as an added safety feature, integral bleed resistors are offered in a range of values.

Applications:

- ▶ ESAD/ISD
- ▶ Down hole

Benefits:

- ▶ Sizes down to 2225
- ▶ More energy in cold-temperature detonation
- ▶ Low ESR
- ▶ Low inductance
- ▶ High-reliability pulse screening

Learn more at www.knowlesc capacitors.com

EVENT INFORMATION

SURVEY AND PARTICIPANT LIST

You will receive via email a survey and list of participants (name and organization) after the conference. Please complete the survey to make our event even more successful in the future.

EVENT CONTACTS

Alissa Meehan
Meeting Planner
(703) 247-2540
ameehan@NDIA.org

Jacqueline Dupre
Coordinator, Divisions
(703) 247-2575
jdupre@NDIA.org

Andrew Peters
Meeting Manager
(703) 247-2572
apeters@NDIA.org

Carizza Rosales
Program Manager, Divisions
(703) 247-2599
crosales@NDIA.org

HARASSMENT STATEMENT

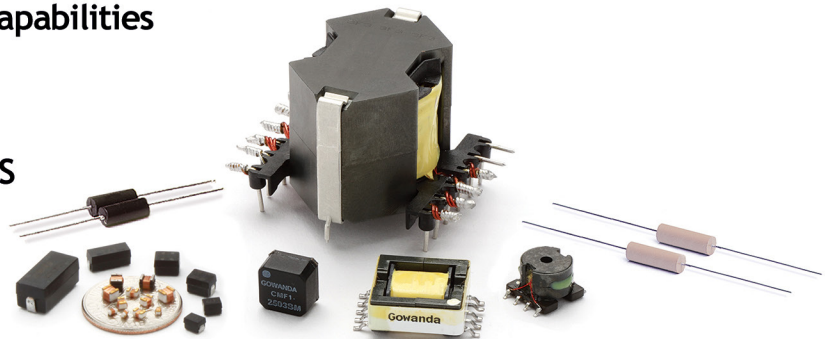
NDIA is committed to providing a professional environment free from physical, psychological and verbal harassment. NDIA will not tolerate harassment of any kind, including but not limited to harassment based on ethnicity, religion, disability, physical appearance, gender, or sexual orientation. This policy applies to all participants and attendees at NDIA conferences, meetings and events. Harassment includes offensive gestures and verbal comments, deliberate intimidation, stalking, following, inappropriate photography and recording, sustained disruption of talks or other events, inappropriate physical contact, and unwelcome attention. Participants requested to cease harassing behavior are expected to comply immediately, and failure will serve as grounds for revoking access to the NDIA event.



ELECTRONICS

Hi-Rel QPL Inductors & Magnetics

- Extensive HV Transformer Capabilities
- Small SMT Form Factors
- Charge Times as Low as 10nS
- Voltage Ratings to 5kV
- Full In-House Qualification Lab



+1-716-532-2234 • www.gowanda.com • sales@gowanda.com

AGENDA

TUESDAY, MAY 11

10:00 – 10:05 am
All times listed in EDT

OPENING AND ADMINISTRATIVE REMARKS

Thomas Harward
Engineering Fellow, Lead Technologist, and Chief Engineer, Raytheon Technologies

10:05 – 10:15 am

NDIA OPENING REMARKS

MG James Boozer, USA (Ret)
Executive Vice President, National Defense Industrial Association

10:15 – 10:45 am

KEYNOTE SPEAKER

Charles “Chuck” A. Kelly
Senior Munitions Analyst and Portfolio Manager, Office of the Secretary of Defense

10:50 – 11:15 am

U.S. ARMY AVIATION & MISSILE CENTER S&T STRATEGY

Mark Etheridge
Electronics Engineer, Fuzing & Ignition Systems, Aviation & Missile Center,
U.S. Army Combat Capabilities Development Command

11:20 – 11:45 am

U.S. NAVY S&T STRATEGY

John D. Hughes
Electronics Engineer, Weapons Division, Naval Air Warfare Center

11:50 am – 12:15 pm

U.S. AIR FORCE S&T STRATEGY

George Jolly
Technical Advisor, Air Force Research Laboratory

12:15 – 12:35 pm

NETWORKING BREAK

12:35 – 12:55 pm

DESIGN OF A TEST METHODOLOGY TO SIMULATE RAIN ENVIRONMENTS

Richard Johnson
Mechanical Engineer, Armaments Center, U.S. Army Combat Capabilities Development Command

1:00 – 1:20 pm

WIRELESS POWER TRANSMISSION AND COMMUNICATION FOR REMOTE FUZING

Thomas Hartmann
Research & Development Engineer, Sandia National Laboratories

Ian Sobering
Senior Member, Technical Staff, Sandia National Laboratories

1:25 – 1:45 pm

OPTICALLY CHARGING AND COMMUNICATING WITH AN ELECTRONIC ASSEMBLY

Mark Onuigbo

Senior Member, Technical Staff, Sandia National Laboratories

Thomas Hartmann

Research & Development Engineer, Sandia National Laboratories

1:50 – 2:10 pm

HIGH SHOCK MODELING OF FUZE COMPONENTS

Chris Cao

Mechanical Engineer, Naval Surface Warfare Center – Indian Head Division

2:15 – 2:35 pm

BINARY TRIAL AND STATISTICAL ANALYSIS METHODS FOR ELECTRO-EXPLOSIVE DEVICE CHARACTERIZATION

Ashley de Lotz

Senior Initiation Systems Engineer, Defence Ordnance Safety Group

Michael Hicks

Statistical & Mechanical Modelling & Simulation Specialist, Defence Ordnance Safety Group

2:40 – 3:00 pm

DETONATION TRANSFER RELIABILITY – AXIAL AND ANGULAR ALIGNMENT EVALUATIONS USING A NEYER STATISTICAL SENSITIVITY APPROACH

David Pray

Energetic Components Engineer, Excelitas Technologies

3:05 – 3:25 pm

EXPLODING FOIL INITIATOR DEVELOPMENT

David Pray

Energetic Components Engineer, Excelitas Technologies

3:25 – 3:30 pm

CLOSING REMARKS

Thomas Harward

Engineering Fellow, Lead Technologist, and Chief Engineer, Raytheon Technologies



JOIN THE CONVERSATION

 @NDIAToday

 @NDIAMembership

 NDIA.org/LinkedIn

 @NDIAToday

 @NDIAToday

WEDNESDAY, MAY 12

- 10:00 – 10:05 am** **OPENING AND ADMINISTRATIVE REMARKS**
Thomas Harward
Engineering Fellow, Lead Technologist, and Chief Engineer, Raytheon Technologies
- 10:05 – 10:30 am** **U.S. ARMY ARMAMENTS CENTER S&T STRATEGY**
Robert Alston
Electronics Engineer, Fuze Division, Armaments Center, U.S. Army Combat Capabilities Development Command
- 10:35 – 11:00 am** **SANDIA NATIONAL LABORATORIES CAPABILITIES AND MISSION**
Shane Curtis
Senior Staff Member, Sandia National Laboratories
- 11:05 – 11:30 am** **DOD JOINT FUZE TECHNOLOGY PROGRAM**
Lawrence Fan
Fuze Program Manager, Explosive Ordnance Disposal Technology Division,
Naval Surface Warfare Center – Indian Head Division
- 11:35 – 11:55 am** **SENSING FOR SMALL UNMANNED SYSTEMS**
Caitlyn May
Sensing for Small Unmanned Systems, Naval Sea Systems Command,
Naval Surface Warfare Center – Indian Head Division
- 12:00 – 12:20 pm** **NOVEL 2ND ENVIRONMENT SENSOR FOR NEXT-GENERATION WEAPONS**
Matthew Grubbs
Design Engineer, L3Harris, Fuzing and Ordnance Systems, Inc.
- 12:20 – 12:40 pm** **NETWORKING BREAK**
- 12:40 – 1:00 pm** **LOW VOLTAGE POLYMER MULTI-LAYER CAPACITOR
DEVELOPMENT AND CHARACTERIZATION**
Joshua Dye
Electrical Engineer, Sandia National Laboratories
- 1:05 – 1:25 pm** **NEW FUZING SOLUTIONS FOR IMPROVED SAFETY AND
OPERATIONAL CAPABILITIES**
Max Perrin
Chief Technical Officer, JUNGHANS Defence

1:30 – 1:50 pm

CANNON CALIBER FUZE SETTER OVERVIEW

Tyler Wilson

Electronics Engineer, U.S. Army

1:55 – 2:15 pm

HIGH VOLTAGE FIRESET COMPONENT BEHAVIOR AT ELEVATED TEMPERATURES

Chris Cao

Mechanical Engineer, Naval Surface Warfare Center – Indian Head Division

2:20 – 2:40 pm

EFFECTS OF ORIENTATION & BOUNDARY CONDITION ON ENCAPSULATED ELECTRONICS

Caleb White

Research & Development Mechanical Engineer, Sandia National Laboratories

2:45 – 3:05 pm

CONFORMAL ANTENNA DESIGN FOR PROXIMITY FUZES

Dr. Simsek Demir

Chief Executive Officer, PRF Research and Development, Inc.

3:10 – 3:30 pm

SOFTWARE DEFINED RADIO FOR MEDIUM CALIBER APPLICATIONS

Viktor Bana

Electronics Engineer, Armaments Center, U.S. Army Combat Capabilities Development Command

3:30 – 3:40 pm

CLOSING REMARKS

Thomas Harward

Engineering Fellow, Lead Technologist, and Chief Engineer, Raytheon Technologies

NDIA has a policy of strict compliance with federal and state antitrust laws. The antitrust laws prohibit competitors from engaging in actions that could result in an unreasonable restraint of trade. Consequently, NDIA members must avoid discussing certain topics when they are together at formal association membership, board, committee, and other meetings and in informal contacts with other industry members: prices, fees, rates, profit margins, or other terms or conditions of sale (including allowances, credit terms, and warranties); allocation of markets or customers or division of territories; or refusals to deal with or boycotts of suppliers, customers or other third parties, or topics that may lead participants not to deal with a particular supplier, customer or third party.

BIOGRAPHY



CHARLES "CHUCK" A. KELLY

Senior Munitions Analyst and Portfolio Manager
Office of the Secretary of Defense

Chuck Kelly is a weapon systems acquisition manager with over thirty-six

years of experience in the Department of Defense (DoD) including military service and civil service in acquisition management. He is the Acting Director for Surface Warfare in Platform and Weapon Portfolio Management within the Office of Acquisition and Sustainment. In this position, he manages all capability portfolios within Land and Naval Warfare. He is the lead for the DoD Munitions Requirement process that produces the inventory requirements for all DoD munitions across the Military Services and the United States Special Operations Command. He also serves as the DoD Fuze Integrated Product Team Tri-Chair and an Executive Committee member of the Joint Ordnance Commanders Group.

Prior to service in the Office of the Secretary of Defense, in 2003, as a United States Marine Corps aviator, LtCol Kelly served as the Joint Staff's Force Application Land/Special Operations Forces Section Branch Chief. LtCol Kelly held numerous leadership, staff and operational billets, as the: Operations Officer and Officer in Charge of the 4th Marine Aircraft Wing, Marine Aviation Support Detachment; Air Launched Strike Weapons Requirements Officer in the Office of the Chief of Naval Operations, Air Warfare Directorate; Squadron Training Officer and Flight Instructor at the Marine Corps' Fighter Attack Squadron (VMFAT 101); and deployed as a Forward Air Controller with the Marine Corps 3rd Battalion 2nd Marines in Operation Desert Shield/Desert Storm.

Mr. Kelly holds a Bachelor of Science degree with Iona College in New Rochelle, New York and is Defense Acquisition University certified Level III in Program Management. He was also certified as a Marine Corps instructor in the areas of Air Combat, Weapons and Tactics, and Night Tactics being a graduate of both the Navy Weapons Fighter School and the Marine Corps Weapons and Tactics Instructor Course.

Mr. Kelly's achievements include a Navy and Marine Corps Achievement Medal, two Navy and Marine Corps Commendation Medals, a Meritorious Service Medal, a Defense Meritorious Service Medal, an Office of the Secretary of Defense Award for Excellence and two Office of the Secretary of Defense Medals for Exceptional Civilian Service.



NDIA Connect

AN ONLINE COMMUNITY FOR DEFENSE PROFESSIONALS

NDIA Connect is a members-only benefit that's bustling with information, conversation, and activity stimulated by defense professionals from industry, government, and academia. Log in today to explore the platform's various functionalities and contribute to our collective mission in support of the warfighter. From anywhere and at any time, use NDIA Connect to network with colleagues, collaborate on projects, and stay connected.

Connect.NDIA.org



THANK YOU TO OUR SPONSORS



L3Harris Technologies is an agile global aerospace and defense technology innovator, delivering end-to-end solutions that meet customers' mission-critical needs. The company provides advanced defense and commercial technologies across air, land, sea, space and cyber domains. L3Harris has approximately \$18 billion in annual revenue and 48,000 employees, with customers in more than 100 countries.

Defense Electronic Systems (DES), a division of L3Harris, provides precision electronic components, subsystems, and systems for the DOD and international allies. DES specializes in the design and manufacture of fuze solutions, ignition safety devices, proximity sensors, inertial measurement and GPS navigation systems, aerospace status indicators, intelligence management systems, and radar-based threat detection technologies.

Headquartered near Cincinnati, Ohio, DES' primary manufacturing facility was specifically designed and constructed for the manufacture of fuzing and ordnance systems and precision electronic components. With additional locations in Anaheim, CA, Budd Lake, NJ, Orlando, FL, and San Diego, CA, DES has strategically positioned its resources, including program management, engineering, and quality assurance, at each site to ensure complete adherence to programmatic and technical requirements.

DES is a partner you can count on to deliver quality products and solve your toughest technical challenges. To learn more, please visit www.L3Harris.com or call 513-943-2000.



Worldwide Risk Management, Inc. specializes in helping companies of all sizes maintain and satisfy the stringent requirements of conducting business internationally. We assist companies from all parts of the world in developing insurance and risk management programs that will suit most any situation.

We can customize an insurance program that is right for you and your business. Whether you need Defense Base Act (DBA) Coverage, Foreign Liability, Defense Contractors Insurance, Foreign Workers Compensation, or Medical Evacuation Coverage, our experienced agents will find a way to ensure you have the coverage you need to successfully run your business no matter where you are in the world.



Excelitas Technologies is a technology leader in delivering high-performance, market-driven photonic innovations to meet the lighting, optronic, detection and optical technology needs of customers worldwide. Serving a vast array of applications across automotive, consumer products, defense and aerospace, industrial, medical, safety and security, and sciences sectors, Excelitas Technologies stands committed to promoting our customers' success.

Engage - At Excelitas, we engage with our customers in collaborative engineer-to-engineer relationships. Our photonic solutions teams are involved early in our customers' design cycles, helping them to accelerate time to market and secure unique technological differentiators and ensure barriers to entry for their competitors.

Enable - With our extensive integration expertise and diverse photonics technology portfolio, we enable a broad range of innovations and applications including clinical diagnostics, autonomous vehicles, surgical visualization, X-ray security screening, smart home systems, additive manufacturing, IOT products, scientific discovery, semiconductor equipment, medical device assembly, defense and aerospace applications.

Excel - Our customized, market-driven solutions for each of our OEM customers' unique system requirements — coupled with a focus on excellence in all aspects of product performance, quality, reliability, delivery and service — enable our customers to excel in their end-markets and applications.

EXHIBITOR



Novacap, a Knowles Precision Devices Brand, features high temperature, high energy capacitors designed for reliable operation under single or multiple pulse firing applications. Energy density exceeds that of conventional Class 1 materials, providing excellent short duration pulse delivery at temperatures to 200°C. Integral bleed resistors are offered in a range of values.

Capacitors are 100% tested to application tailored, Novacap high reliability screening and evaluated at operational extremes consistent with munitions and oil field exploration/seismic detonation conditions. Other applications include power supply filtering, energy storage and coupling/decoupling. Custom size, voltages and capacitance ratings are available in single, series and series/parallel arrangements.

A division of Knowles Corporation, Knowles Precision Devices is a leading global innovator and manufacturer of high performance solutions. We focus on production of a wide variety of highly engineered Capacitors, EMI and Microwave to Millimeter Wave components for use in critical military, medical, industrial, electric vehicle, and 5G market segments. From 8,000 feet below the earth's surface to orbiting 254 miles above on the ISS, we take on the complex challenges that come with High Reliability, High Temperature, High Performance, High Energy and High Frequency solutions. Our Heritage Brands include Compex, Diablo TF, DLI, Johanson, Novacap, Syfer and Voltronics.

EMERGING TECH HORIZONS

A National Security Podcast with Dr. Mark Lewis

This brand-new podcast invites you to listen in on conversations with Dr. Mark Lewis, the Executive Director of NDIA's Emerging Technologies Institute, as he welcomes a diverse slate of national security leaders from government, industry, and academia to discuss the defense technologies of today and tomorrow. Each episode takes a deep dive as the experts share their personal views on future technology topics, providing listeners with unique perspectives on the latest in emerging technologies and how they relate to national security. Listen to Emerging Tech Horizons where you find all your favorite podcasts.

New Episodes Bimonthly | NDIAETI.org/Podcast

ETI NDIA EMERGING TECHNOLOGIES INSTITUTE

