NDIA

61ST ANNUAL FUZE CONFERENCE

FUZING SOLUTIONS – A GLOBAL PERSPECTIVE

May 15 – 17, 2018

San Diego Marriott Mission Valley

San Diego, CA

NDIA.org/Fuze18

WELCOME TO THE 61ST ANNUAL FUZE CONFERENCE

On behalf of the NDIA Fuze Conference Steering Committee Members and the NDIA, I would like to welcome you to the 61st Annual NDIA Fuze Conference. This international conference brings together the work of the top professionals in the fuzing industry from government, private industry, and academia; and provides an opportunity for the exchange of the latest research and development on fuzing, with the common goal of improving safety for the warfighter. While the history of fuzing dates back several hundred years, and the advances in technology have been significant over that time, many challenges remain. Through the continuing, passionate work of the authors, presenters, sponsors, and attendees at this conference and across our worldwide defense industry, these challenges will be overcome, resulting in safer, more reliable fuzes being fielded to our warfighters.

Roy K. Streetz
Vice President Advanced Electronic Systems
Excelitas Technologies Corporation

SCHEDULE AT A GLANCE

TUESDAY, MAY 15

Registration & Opening Reception
Rio Vista Grand Foyer
4:00 – 6:00 pm

WEDNESDAY, MAY 16

Registration
Rio Vista Grand Foyer
7:00 am – 5:20 pm

Continental Breakfast
Rio Vista Grand Foyer
7:00 – 8:00 am

General Session & Keynote Speaker
Rio Vista Grand Ballroom, Salons A-E
8:00 – 8:45 am

Lunch
West Lawn
12:00 – 1:00 pm

Concurrent Sessions
Salons F - H & Salons A - D
1:00 – 5:20 pm

Grand Reception
Rio Vista Pavilion
5:30 – 7:00 pm

THURSDAY, MAY 17

Registration
Rio Vista Grand Foyer
7:00 am – 12:00 pm

Continental Breakfast
Rio Vista Grand Foyer
7:00 – 8:00 am

Concurrent Sessions
Salons F - H & Salons A - D
8:00 am – 12:00 pm

Lunch
West Lawn
12:00 – 1:00 pm

Concurrent Sessions
Salons F-H & Salons A - D
1:00 – 5:20 pm

Conference Adjourns
5:20 pm

TABLE OF CONTENTS

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 information, visit **NDIA.org**

LEADERSHIP AND COMMITTEES

Timothy Bagniefski
Munitions Division Chair

Roy Streetz
Fuze Committee Chair

Melissa Hobbs-Hendrickson
Insensitive Munitions and Energetic Materials Committee Chair

FUZE MUNITIONS

MISSION

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

EVENT INFORMATION

LOCATION

San Diego Marriott Mission Valley
8757 Rio San Diego Drive
San Diego, CA 92108

EVENT WEBSITE

NDIA.org/Fuze18

WI-FI

Network: Marriott_Conference | Password: fuze18

EVENT CONTACT

Reneé Despot
Manager, Meetings
(703) 247-2599
rdespot@ndia.org

Meredith Mangas
Associate Director, Meetings
(703) 247-9467
mmangas@ndia.org

PLANNING COMMITTEE

Roy Streetz
Event Chair

Nassir Alaboud
Ray Ash
Ed Cooper
Chris DeWitt
Mark Etheridge
Frank Fairchild
Lawrence Fan
Doug Harms
Thomas Harward
Robert Herlein
Bruce Hornberger
William Konick
Bill Kurtz
Homesh Lalbahadur
David Lawson
Homesh Lalbahadur
David Lawson
Byron Lee
Telly Manolatos
Bob Metz
Barry Neyer
Eric Roach
Perry Salyers
James Sharp
Don Shutt
Martin Tanenhaus

ATTIRE

Business casual for civilians and uniform of the day for military personnel.

ATTENDEE ROSTER, SURVEY, AND PROCEEDINGS

A list of attendees (name and organization only), presentation proceedings, and conference survey will be emailed to you after the conference. NDIA would appreciate your time in completing the survey to help make our event even more successful in the future.

SPEAKER GIFTS

In lieu of speaker gifts, a donation is being made to the Fisher House Foundation.

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.

AGENDA

TUESDAY, MAY 15

4:00 – 6:00 pm

REGISTRATION
RIO VISTA GRAND FOYER

Sponsored By L3 Defense Electronic Systems

4:00 – 6:00 pm

OPENING RECEPTION
RIO VISTA GRAND FOYER

Sponsored By L3 Defense Electronic Systems

WEDNESDAY, MAY 16

7:00 am – 5:20 pm

REGISTRATION
RIO VISTA GRAND FOYER

Sponsored By L3 Defense Electronic Systems

7:00 – 8:00 am

CONTINENTAL BREAKFAST
RIO VISTA GRAND FOYER

Sponsored By PCB Piezotronics, Inc.

SESSION 1 – WELCOME, ADMIN REMARKS & KEYNOTE ADDRESS
RIO VISTA GRAND BALLROOM, SALONS A - E

8:00 – 8:05 am

INTRODUCTION & ADMIN REMARKS
RIO VISTA GRAND BALLROOM, SALONS A - E

Roy Streetz
NDIA Fuze Committee Chair, Excelitas Technologies Corp.

8:05 – 8:15 am

NDIA OPENING REMARKS
RIO VISTA GRAND BALLROOM, SALONS A - E

CAPT Frank Michael, USN (Ret)
Senior Vice President, Programs and Membership, NDIA

8:15 – 8:45 am

KEYNOTE ADDRESS
RIO VISTA GRAND BALLROOM, SALONS A - E

SESSION 2 – U.S. GOVERNMENT SCIENCE, TECHNOLOGY & ACQUISITION

RIO VISTA GRAND BALLROOM, SALONS A - E

Don Shutt
Orbital ATK, Session Chair

Roy Streetz
Excelitas Technologies Corp., Session Assistant

8:45 – 9:10 am

ARMY S&T STRATEGY

RIO VISTA GRAND BALLROOM, SALONS A - E

Shannon Haataja
U.S. Army RDECOM AMRDEC

9:10 – 9:30 am

ARMY S&T STRATEGY

RIO VISTA GRAND BALLROOM, SALONS A - E

Charles Robinson
Mechanical Engineer, U.S. Army RDECOM AMRDEC

9:30 – 10:00 am

NAVY S&T STRATEGY

RIO VISTA GRAND BALLROOM, SALONS A - E

Brandon Stewart
Safe/Arm Development Branch Head, USN NAWCWD China Lake

10:00 – 10:30 am

NETWORKING BREAK

RIO VISTA GRAND FOYER

Sponsored By Pacific Scientific Energetic Materials Company

10:30 – 11:00 am

AIR FORCE S&T STRATEGY

RIO VISTA GRAND BALLROOM, SALONS A - E

George Jolly
Technical Advisor, Air Force Research Library/RWMF

11:00 – 11:20 am

OSD PERSPECTIVE/FUZE IPT

RIO VISTA GRAND BALLROOM, SALONS A - E

Lawrence Fan
JFTP Manager, Naval Surface Warfare Center - Indian Head Division

11:20 – 11:50 am

JOINT FUZE TECHNOLOGY PROGRAM (JFTP)

RIO VISTA GRAND BALLROOM, SALONS A - E

Lawrence Fan
JFTP Manager, Naval Surface Warfare Center - Indian Head Division

12:00 – 1:00 pm

LUNCH

WEST LAWN

Sponsored By Excelitas Technologies Corp.

CONCURRENT BREAKOUT SESSIONS

SESSION 3A – OPEN SESSIONS

RIO VISTA GRAND BALLROOM, SALONS F - H

Homesh Lalbahadur
U.S. Army ARDEC
Session Chair

Bob Metz
PCB Piezotronics, Inc.
Session Assistant

SESSION 3B – CLOSED SESSIONS

RIO VISTA GRAND BALLROOM, SALONS A - D

Robert Hertlein
L3 Defense Electronic Systems
Session Chair

James Sharp
Naval Surface Warfare Center - Dahlgren Division
Session Assistant

1:00 – 1:20 pm

Non-Contact Monitoring of a Setback Zig-Zag Switch
20386

Mike Campbell
L3 Defense Electronic Systems

Overview of ARDEC Fuzing Efforts to Meet DoD Cluster Munition Policy
20326

Sandy Risha
ARDEC Fuze Division

1:20 – 1:40 pm

Design Guidelines for Implementing a Low Voltage Distributed Fuzing System
20411

Mark Etheridge
U.S. Army AMRDEC

High Reliability DPICM Replacement (HRDR)
20433

Kevin Cochran
Naval Surface Warfare Center - Indian Head Division

1:40 – 2:00 pm

New Generation Naval Fuze FREMEN – Efficiency Against New Threats
20355

Max Perrin
JUNGHANS Defence

Proximity Sensor for High Reliability DPICM Replacement
20428

Patrick DeLuca
U.S. Army ARDEC

2:00 – 2:20 pm

Small Thermal Battery for High Spin Environments
20464

Chase Whitman
EnerSys Advanced Systems

Target Detection Data Collect Results for the HRDR Program
20352

Hung-Sheng Chern
L3 Defense Electronic Systems

2:20 – 2:40 pm

Flow Curve and Failure Conditions for a MEMS-Scale Electrodeposited Nickel Alloy
20296

John Geaney
ARDEC Fuze Division

A Novel Approach to Defeat High Speed Surface Targets Using the MK 419 Multi-Function Fuze
20429

Jason Koonts
Naval Surface Warfare Center - Dahlgren Division

Jim Ring
Orbital ATK

2:40 – 3:00 pm

Dynamic High g-Shock Fuze Testing with Support of a Reverse Ballistic Gun and Sled Track
20319

Christian Euba
TDW / MBDA

FMU-139 D/B Fuze Development
20437

Wayne Steege
Orbital ATK

3:00 – 3:20 pm

NETWORKING BREAK
RIO VISTA GRAND FOYER

Sponsored By Pacific Scientific Energetic Materials Company

CONCURRENT BREAKOUT SESSIONS

Continued

SESSION 3A - OPEN SESSIONS
RIO VISTA GRAND BALLROOM, SALONS F - H

Homesh Lalbahadur
U.S. Army ARDEC
Session Chair

Bob Metz
PCB Piezotronics, Inc.
Session Assistant

SESSION 3B - CLOSED SESSIONS
RIO VISTA GRAND BALLROOM, SALONS A - D

Robert Hertlein
L3 Defense Electronic Systems
Session Chair

James Sharp
Naval Surface Warfare Center - Dahlgren Division
Session Assistant

3:20 – 3:40 pm

PBXN-5 Mechanical Characterization and Proposed Constitutive Model
20383

Dr. Dan Peairs
L3 Defense Electronic Systems

Using Modeled Impact Response of 3-D Printed Materials for High-G Survivability
20445

Ezra Chen
Naval Surface Warfare Center - Indian Head Division

3:40 – 4:00 pm

Low G MEMS Inertia Switches for Fuzing Applications
20430

Todd Christenson
HT MicroAnalytical, Inc.

Smart Embedded Fuzing with Layer Counting Ability
20349

Curtis McKinion
Air Force Research Laboratory

4:00 – 4:20 pm

Mechanical Aspect of Fuze MEMS G-Switch Encapsulation
20345

Jintae Kim
U.S. Army ARDEC

Miniature Low-Cost Standoff Sensor
20379

William Elkins
Kaman Fuzing & Precision Products

4:20 – 4:40 pm

DoD MEMS Fuze Explosive Train Evaluation and Enhancement
20440

Taylor Young
Naval Surface Warfare Center - Indian Head Division

Layer Detection for Embedded G-Switch
20418

Joshua Dye
Sandia National Laboratories

4:40 – 5:00 pm

Embedded High G Shock Sensor Behavior Analysis for Severe Perforation Tests
20370

Sérey Chhim
CEA

Environmental Safety Pressure Switch
20375

Jason Cahayla
U.S. Army ARDEC

5:00 – 5:20 pm

Advances in Neutron Radiography using a High-Flux, Compact, Thermal Neutron Generator
20348

Katie Rittenhouse
Phoenix, LLC

Session 3B Complete

5:30 – 7:00 pm

GRAND RECEPTION
RIO VISTA PAVILION

Sponsored By Orbital ATK

THURSDAY, MAY 17

7:00 am – 12:00 pm

REGISTRATION
RIO VISTA GRAND FOYER

Sponsored By L3 Defense Electronic Systems

7:00 – 8:00 am

CONTINENTAL BREAKFAST
RIO VISTA GRAND FOYER

CONCURRENT BREAKOUT SESSIONS

SESSION 4A – OPEN SESSIONS
RIO VISTA GRAND BALLROOM, SALONS F - H

Nassir Alaboud
Lockheed Martin
Session Chair

Lawrence Fan
Naval Surface Warfare Center - Indian Head Division
Session Assistant

SESSION 4B – CLOSED SESSIONS
RIO VISTA GRAND BALLROOM, SALONS A - D

Bob Metz
PCB Piezotronics, Inc.
Session Chair

Mark Etheridge
U.S. Army AMRDEC
Session Assistant

8:00 – 8:20 am

Unmanned Systems Safety Precepts
20283

Jeffrey Fornoff
U.S. Army TACOM-ARDEC

Distributed Embedded Fuzing System (DEFS) R&D for Next Generation Weapons
20347

Daniel Kang
Air Force Research Laboratory

8:20 – 8:40 am

Modular Smart Airburst Fuzing Solution for Shoulder-Launched Systems
20368

Wolfgang Karl-Heinz von Entress-Fuersteneck
Junghans Microtec GmbH

The Influence of Explosive Fill Dynamics on Embedded Smart Fuzing for Hard Target Munitions
20360

Philip Marquardt
Applied Research Associates, Inc.

8:40 – 9:00 am

Observations and Solutions of High Voltage Issues for Electronic Safe and Arm Devices
20366

Murat Yazici
Roketsan Missile Industries, Inc.

Embedded Fuze Environment Requirements for Large Penetrating Weapons
20372

Ericka Amborn
Applied Research Associates, Inc.

9:00 – 9:20 am

The Use of Software Quality Assurance Towards the Development of VHDL-Based Safety Critical Hardware
20365

David Geremia
Orbital ATK

Mechanical Testing of Powered and Instrumented Embedded Fuzes
20341

Hayley Chow
University of Dayton Research Institute

9:20 – 9:40 am

State of the Art Fuze Batteries and Their Performance
20455

Roland Hein
Diehl & Eagle Picher GmbH

JFTP Project 14-G-005, Hardened Selectable Multipoint Fuzing (HSMF)
20424

Michael Connolly
U.S. Army AMRDEC

9:40 – 10:00 am

Dynamic Characterization of Shock Mitigating Materials for Electronics Assemblies Subjected to High Acceleration
20434

Dr. Vasant Joshi
Naval Surface Warfare Center - Indian Head Division

Optimized Potting Solutions for High G Electronics: Optimization Methodology
20346

Dr. Aisha Haynes
U.S. Army ARDEC

10:00 – 10:20 am

NETWORKING BREAK
RIO VISTA GRAND FOYER

Sponsored By Kaman Fuzing & Precision Products

CONCURRENT BREAKOUT SESSIONS

Continued

SESSION 4A - OPEN SESSIONS
RIO VISTA GRAND BALLROOM, SALONS F - H

Nassir Alaboud
Lockheed Martin
Session Chair

Lawrence Fan
Naval Surface Warfare Center - Indian Head Division
Session Assistant

SESSION 4B - CLOSED SESSIONS
RIO VISTA GRAND BALLROOM, SALONS A - D

Bob Metz
PCB Piezotronics, Inc.
Session Chair

Mark Etheridge
U.S. Army AMRDEC
Session Assistant

10:20 – 10:40 am

From Vacuum Tubes to SoCs: 80 Years of Electronic Fuzing - a Global Perspective Essential for the Future?
20215

Harald Wich
NGF Next Generation Fuze

Imaging Fuze Experimentation: 3D Imaging Results Against Complex Targets
20327

Dr. Matthew Burfeindt
Air Force Research Laboratory

10:40 – 11:00 am

Applied Tests Simulating the Impact Shock on an Operating ESAD inside a Missile/Smart Munition
20367

Cemil Gökçe
Roketsan Missile Industries, Inc.

Experimental Validation of Fast Synthetic Scene Generation Software for Fuze Sensor Development
20329

Dr. Matthew Burfeindt
Air Force Research Laboratory

11:00 – 11:20 am

Development of Low Energy Electric Initiator
20303

Berkay Akyapi
ASELSAN Inc.

Programmable Multi-Shot Munition Fuze
20350

Lei Zheng
U.S. Army ARDEC

11:20 – 11:40 am

Laser Ignition
20446

Stephen Redington
U.S. Army ARDEC

Adapting a Common Safety Architecture and Modular ESAD Design
20432

Sarah Steffen
Orbital ATK

11:40 am – 12:00 pm

Rosenthal Model and the Thermal Time Constants of EEDs
20436

Benjamin Lang
Fraunhofer Ernst-Mach-Institut (EMI)

40mm C-UAS Grenade Fuzing Technology for Today and Tomorrow's Threats
20444

Tim Hoang
Naval Surface Warfare Center - Indian Head Division

12:00 – 1:00 pm

LUNCH
WEST LAWN

CONCURRENT BREAKOUT SESSIONS

SESSION 5A – OPEN SESSIONS
RIO VISTA GRAND BALLROOM, SALONS F - H

Perry Salyers
L3 Defense Electronic Systems
Session Chair

David Lawson
L3 Defense Electronic Systems
Session Assistant

SESSION 5B – CLOSED SESSIONS
RIO VISTA GRAND BALLROOM, SALONS A - D

Byron Lee
Orbital ATK
Session Chair

Frank Fairchild
Air Force Research Library
Session Assistant

1:00 – 1:20 pm

Green Stab Sensitive Energetic Research
20351

Charles Romaniello III
Picatinny Arsenal

Tailored EFIs for Enhanced Safety & Performance
20387

Dr. Nate Sanchez
Los Alamos National Laboratory

1:20 – 1:40 pm

Test Method to Evaluate High-g Component Susceptibility
20384

Nathan Millard
L3 Defense Electronic Systems

An Overview to Qualification of a Direct Header Deposition (DHD) Slapper Detonator
20380

Jerome Norris
Sandia National Laboratories

1:40 – 2:00 pm

Reactive Materials for Electrical Initiators
20313

Yao Wang
Institute of Chemical Materials

Muzzle Velocity Correction for Medium Caliber Munitions
20356

Alexander Neeb
U.S. Army Fuze Division

2:00 – 2:20 pm

A New High-Overload Loading Technology Based on Structural Vibration under Periodic Impact of Elastic
20302

Wanjun Wang
Institute of Chemical Materials

Harvesting Energy from Angular Acceleration
20358

Alexander Neeb
U.S. Army Fuze Division

2:20 – 2:40 pm

Statistics for One Shot Devices

Dr. Barry Neyer
Excelitas Technologies Corp.

Defining Structural Dynamic Environments for Penetrator Fuzes
20361

Alma Oliphant
Applied Research Associates, Inc.

2:40 – 3:00 pm

Statistics for One Shot Devices

Dr. Barry Neyer
Excelitas Technologies Corp.

Development of Setback Locks for High Reliability
20297

John Geaney
ARDEC Fuze Division

3:00 – 3:20 pm

NETWORKING BREAK
RIO VISTA GRAND FOYER

Sponsored By Kaman Fuzing & Precision Products

CONCURRENT BREAKOUT SESSIONS

Continued

SESSION 5A – OPEN SESSIONS
RIO VISTA GRAND BALLROOM, SALONS F - H

Perry Salyers
L3 Defense Electronic Systems
Session Chair

David Lawson
L3 Defense Electronic Systems
Session Assistant

SESSION 5B – CLOSED SESSIONS
RIO VISTA GRAND BALLROOM, SALONS A - D

Byron Lee
Orbital ATK
Session Chair

Frank Fairchild
Air Force Research Library
Session Assistant

3:20 – 3:40 pm	**Statistics for One Shot Devices** **Dr. Barry Neyer** Excelitas Technologies Corp.	**Development of a Fuze_Safety and Arming Device for the ALaMO 57mm Projectile** 20381 **Marc Worthington** L3 Defense Electronic Systems
3:40 – 4:00 pm	**Statistics for One Shot Devices** **Dr. Barry Neyer** Excelitas Technologies Corp.	**Material Compatibility of Fuze Components** 20317 **Jason Sweterlitsch** U.S. Army ARDEC
4:00 – 4:20 pm	**Statistics for One Shot Devices** **Dr. Barry Neyer** Excelitas Technologies Corp.	**Using Finite Element Models to Evaluate Component Functional Risk in High-G Environments** 20373 **Frank Marso** Applied Research Associates, Inc.
4:20 – 4:40 pm	**Statistics for One Shot Devices** **Dr. Barry Neyer** Excelitas Technologies Corp.	**Gun Hardened Command Armed MEMS Fuze** 20438 **Dr. Daniel Jean** Naval Surface Warfare Center - Indian Head Division
4:40 – 5:00 pm	**MEA Capabilities** **Philip Comer** Defense Microelectronics Activity **David Flowers** Defense Microelectronics Activity	**JOTP-51 Complex Logic Development in Fuzing Systems Utilizing Flash** 20385 **Nicholas Adams** L3 Defense Electronic Systems

5:00 – 5:20 pm

Take the Fuze Safety Design Quiz, Part I — **Session 5B Complete**

Homesh Lalbahadur
U.S. Army ARDEC

5:20 pm

ADJOURN

The 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.

SPONSORS

L3 Defense Electronic Systems

L3 DEFENSE ELECTRONIC SYSTEMS

OPENING RECEPTION & REGISTRATION SPONSOR

L3 Defense Electronic Systems (L3 DES), a division of L3 Technologies, Inc., provides precision electronic components, subsystems, and systems for the Department of Defense and international allies. L3 DES specializes in the design and manufacture of build to print and modernized fuze solutions, ignition safety devices, proximity sensors, inertial measurement and GPS navigation systems, assured position, navigation, and timing (A-PNT) capabilities, aerospace status indicators, and intelligence management systems. As a trusted partner, you can count on L3 DES to deliver quality products and develop superior solutions that enhance capabilities and provide overmatch superiority to the warfighter.

Headquartered near Cincinnati, Ohio, L3 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, and San Diego, CA, L3 DES has strategically located its resources, including program management, engineering, and quality assurance, at each site to ensure complete adherence to programmatic and technical requirements, enabling process efficiencies.

Dedicated to continuous improvement, L3 DES operates a quality management system certified to AS9100D and ISO 9001:2015 standards. With highly flexible manufacturing operations, L3 DES can accommodate a variety of products, with run rates that can exceed 40,000 units per month down to individual production units for development efforts. L3 DES also has on-site inspection and test capabilities to perform all required environmental test procedures.

At L3 DES, customer focus is a key element of who we are and how we operate. Our customers are the foundation of our success and we are committed to establishing long-term relationships and ensuring collaboration throughout the product lifecycle.

L3 DES is committed to supporting the warfighter. We will continue to innovate and develop unique solutions by leveraging our valued workforce. To learn more, please visit www.L3T.com or call 513-943-2000.

ORBITAL ATK

GRAND RECEPTION SPONSOR

Orbital ATK is an industry-leading developer and manufacturer of defense and aerospace components and armament systems. Among our extensive portfolio of highly engineered products are some of the most technologically advanced intelligent fuzes available today, including the hard and deeply buried target defeat FMU-167/B void sensing penetrating bomb fuze, the FMU-139D/B all-electronic general purpose bomb fuze, the Multi-Function Fuze (MFF) for the 5 Inch 54 naval surface deck gun, and the Precision Guidance Kit (PGK) field artillery fuze for the U.S. Department of Defense and allies. In addition to munitions fuzing, Orbital ATK designs and produces proximity height of burst sensors for direct attack munitions, as well as rocket motor Ignition Safety Devices (ISD) and Flight Termination Systems (FTS) for the missile community.

For more information about these and other fuzes offered by Orbital ATK, visit us at www.OrbitalATK.com.

EXCELITAS TECHNOLOGIES CORP.

WEDNESDAY LUNCH SPONSOR

Excelitas Technologies Corp. is a global technology leader focused on delivering innovative, high-performance, market-driven photonic solutions to meet the lighting, detection, and optical technology needs of global customers.

Excelitas Technologies is a supplier of energetic safety systems for initiation, actuation, and detonation applications. Our scientific and engineering personnel have spent many years developing a fundamental understanding of all aspects of energetic device performance and testing. Knowledge of the basic properties of these devices allows the performance of Excelitas' products to exceed typical aerospace and defense requirements and makes them the energetic safety systems of choice for many defense and aerospace systems.

Leader in providing innovative defense and aerospace solutions, Excelitas Technologies is committed to enabling our customers' success in their end-markets. Excelitas Technologies has approximately 6,000 employees in North America, Europe, and Asia; serving customers across the world. Connect with Excelitas on Facebook, LinkedIn, and Twitter.

PRESIDIO COMPONENTS, INC.

CONFERENCE PROGRAM SPONSOR

PRESIDIO COMPONENTS offers high-reliability pulse energy capacitors for EFI detonators and ignition systems, single or multi-pulse firing operations. Available in a wide variety of dielectrics, voltages, and case size configurations, with bleed resistors for added safety. Lead frame options for board flex compliance also offered. Call (858) 578-9390 or visit www.PRESIDIOCOMPONENTS.com.

TABLE TOP INFORMATION

DISPLAY HOURS

TUESDAY, MAY 15
4:00 – 6:00 pm

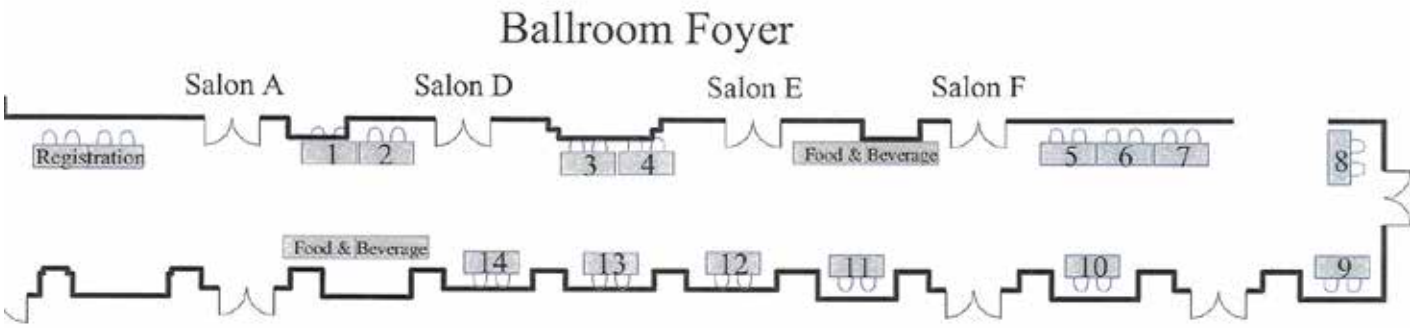
WEDNESDAY, MAY 16
7:00 am – 7:00 pm

THURSDAY, MAY 17
7:00 am – 3:30 pm

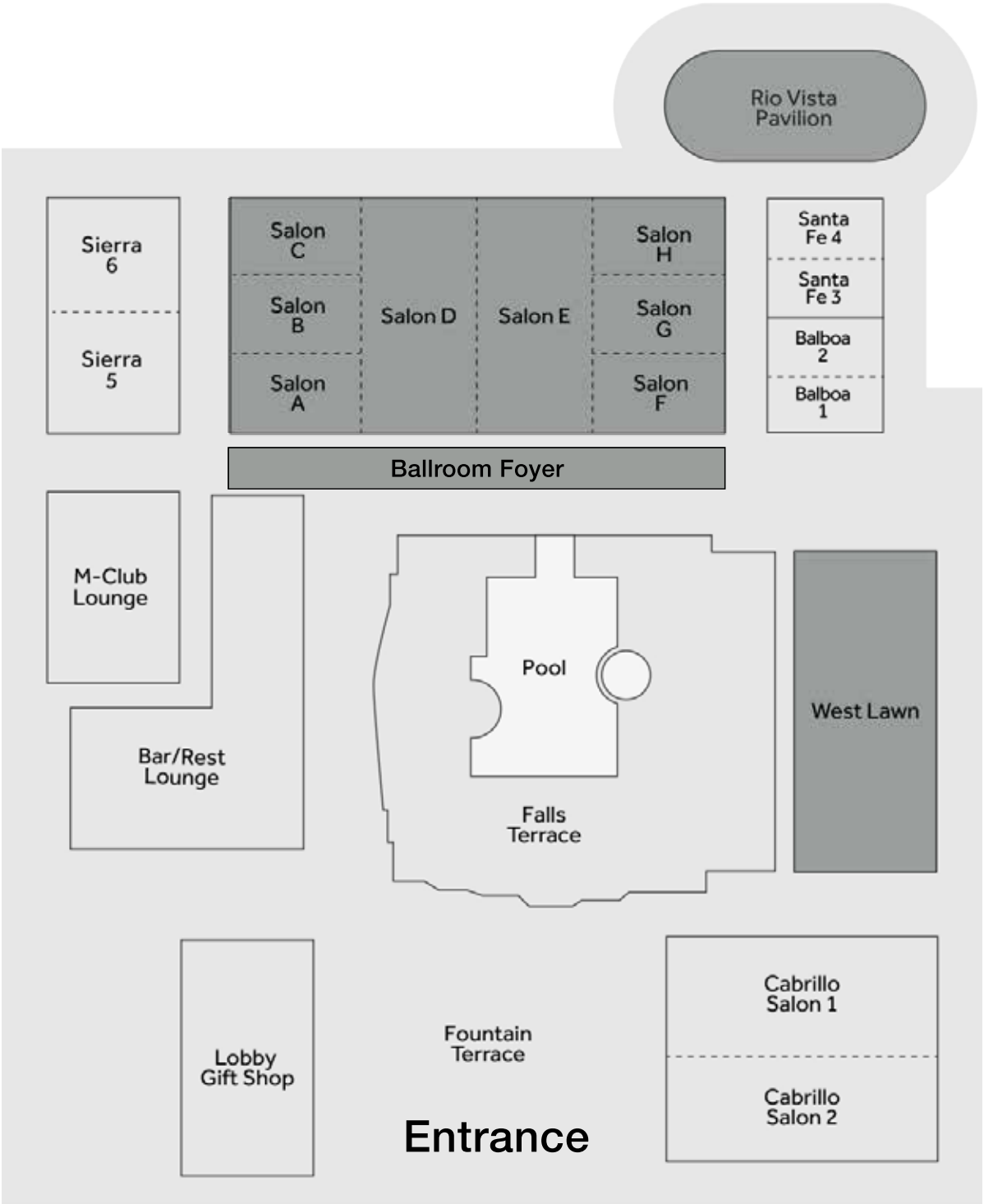
TABLE TOP DISPLAYS

Chem Processing, Inc.
Diehl & Eagle Picher GmbH
EnerSys Advanced System
Excelitas Technologies Corp.
Gowanda Components Grou
HT MicroAnalytical, Inc.
Knowles-Novacap
L3 Defense Electronic Systems
Meggitt Sensing Systems
NASCENTechnology Manfacturing, Inc.
Orbital ATK
PCB Piezotronics, Inc.
Presidio Components, Inc.
Teledyne e2v
Thiot Ingenieriee

MAP



VENUE MAP


Rio Vista Pavilion
Sierra 6
Sierra 5
Salon C
Salon B
Salon A
Salon D
Salon E
Salon H
Salon G
Salon F
Santa Fe 4
Santa Fe 3
Balboa 2
Balboa 1
Ballroom Foyer
M-Club Lounge
Bar/Rest Lounge
Pool
Falls Terrace
West Lawn
Lobby Gift Shop
Fountain Terrace
Entrance
Cabrillo Salon 1
Cabrillo Salon 2

THANK YOU TO OUR SPONSORS

L3 Defense Electronic Systems

Orbital ATK

EXCELITAS TECHNOLOGIES®

KAMAN Fuzing & Precision Products

PACSCI EMC

PCB PIEZOTRONICS MTS SYSTEMS CORPORATION

PRESIDIO

SAVE THE DATE

2018 INTERNATIONAL EXPLOSIVES SAFETY SYMPOSIUM & EXPOSITION

August 6 – 9, 2018

Sheraton San Diego Hotel & Marina

San Diego, CA

NDIA.org/Events