

The **ONLY** international conference to look at the military utility of directed energy by bringing together DE professionals from the scientific to the operational.

# DIRECTED ENERGY SYSTEMS

26-27 JUNE 2023

HILTON SYON PARK, LONDON,  
UNITED KINGDOM

## INTEGRATING DIRECTED ENERGY FOR USE BY THE WARFIGHTER

OUR 2023 SPEAKER FACULTY INCLUDES:



**Mr. Corry Cox,**  
Director for Research  
and Technology,  
RCCTO,  
**U.S Army**



**Mr Rich White,**  
Program Manager  
for Analysis and  
Assessment, Innovation  
S&T Directorate,  
**U.S Missile Defense  
Agency**



**Rear Admiral  
James Parkin CBE,**  
Director Develop,  
**Royal Navy**



**Mr. Adam Aberle,**  
Director for Directed  
Energy,  
**US Army Space  
& Missile Defense  
Technical Center**



**Mr. Keith Rigby,**  
Principal Technologist,  
Weapons Integration,  
**BAE Systems**

## THE LEADING INTERNATIONAL FORUM FOR THE DES COMMUNITY

- Better understand** how DEWs can **reduce casualties and collateral damage** and how that will change future CONOPS and TTPs
- Receive the latest market intelligence on **adaptive optics, tracking technology, atmospheric compensation and HEL beam control**
- Solve your integration and affordability challenges via **standardisation, miniaturisation and improved modular designs**
- Solve the issue of **battle-hardening** through test and evaluation of systems in the field and by understanding the effect of human factors under operational conditions
- Master **SWaP-C** trade-offs across air, land and naval platforms as these systems earn their way into operations

## MEET THE SPEAKERS



**Rear Admiral James Parkin**  
CBE, Director Develop,  
Royal Navy



**Mr. Corry Cox**, Director for  
Research and Technology,  
RCCTO, U.S Army



**Mr. Rich White**, Program  
Manager for Analysis and  
Assessment, Innovation S&T  
Directorate, U.S Missile  
Defense Agency



**Mr. Adam Aberle**, Director  
for Directed Energy, The  
Army Rapid Capabilities  
and Critical Technologies  
Office



**Dr. Jeffrey Boulware**,  
Technical Director and  
Deputy Division Chief, Joint  
Integrated Air and Missile  
Defense Organization  
(JIAMDO)



**Mr. Creid Johnson**,  
Divisional Director, ACC/A5X  
Futures Division, US Air  
Force



**Mr. Keith Rigby**, Principal  
Technologist, Weapons  
Integration, BAE Systems



**Dr. Sean Ross**, Lead  
Program Manager, Directed  
Energy Prototyping, Air  
Force Lifecycle  
Management Center



**Dr. Fumio Wani**, Deputy  
Manager of Defence Systems  
Engineering Section,  
Kawasaki Heavy Industries



**Dr. Ben Allison**, Chief  
Technologist  
Kord Technologies



**Mr Tony Mrozicki**, Head of  
Innovation Labs, BAE  
Systems Maritime



**Dr. James Davis**, Senior  
Executive Advisor, Booz  
Allen Hamilton



**Rüdiger Schmitt, Ph.D.**,  
Senior Scientist, Laser  
Technology, French-German  
Research Institute of Saint  
Louis



**Major Jonathan Greenblatt**  
Head of Airborne HPL  
Programs, Israeli MoD

# Welcome to Directed Energy Systems 2023

Dear Colleagues,

It is with great pleasure that I welcome you to this year's Directed Energy Systems Conference. Throughout the conference, we will explore the latest advances in directed energy technology, including improvements to range, precision, and power, the SWaP-C trade-offs involved in these weapons and much more.

DEWs have the potential to revolutionise the battlefield by providing military with a new class of weapons that offer significant advantages over traditional munitions. With their precise targeting, high lethality, and low cost per shot, DEWs are poised to become an essential tool for modern militaries. The mass employment of cheap, improvised, of-the-shelf drones in Ukraine has only demonstrated this point further.

The central focus of the conference is how we can better progress DEWs into becoming a standardised operational reality in the field, which is why this year's conference is themed: "from lab to lethality: integrating directed energy for use by the warfighter". While these weapons have been in development for decades, it is only in recent years that they have started to become a viable option for military forces. We will explore how industry is helping to make DEWs a reality by addressing key technical challenges, such as beam quality and power management.

We will also have the opportunity to hear from senior scientists and engineers who are at the forefront of this exciting field. These experts will share their insights into how they are improving the performance of directed energy weapons, and discuss the latest research findings and trends in this area.

Another key focus of our discussions will be the SWaP-C trade-offs involved in directed energy weapons. The size, weight, power, and cost of these weapons are critical factors that can have a significant impact on their effectiveness in the field. We will explore the latest developments in these areas, and discuss how industry is working to balance these trade-offs to produce weapons that meet the needs of the warfighter.

This conference is about more than just learning and knowledge-sharing. It is also an opportunity to connect with fellow professionals, forge new relationships, and strengthen existing ones. The forum is co-located with our Full Systems Air Defence conference and, although the conference sessions will run independently, this will provide additional networking possibilities as well as an opportunity to sit in on sessions dealing with new technologies to counter the cost asymmetry on the battlefield in addition to incapacitating hypersonic threats.

By working together, we can advance the state of the art in DEWs and help to create a safer and more secure world

Best regards,



**Hamish Maddocks**  
Conference Producer  
Director Directed Energy Conference Defence iQ

# WORKSHOP DAY | MONDAY 26 JUNE

0830

**MORNING REGISTRATION AND NETWORKING COFFEE**

0900

**WORKSHOP A: TRANSITIONING DIRECTED ENERGY THROUGH DETAILED SYSTEMS ENGINEERING CONSIDERATIONS**

*In order to transition Directed Energy Weapons (DEW) technology into useful and affordable military systems to be deployed across multiple domains, the integration of the technology must go through intensive Systems Engineering based development & planning to satisfy the acquisition, design & manufacturing, production, training, and logistics requirements needed by the military communities.*

**By attending the workshop, you will:**

- Understand the various elements of a DE Weapon (DEW) system and how requirements depend on a firm Systems Engineering basis
- Learn what role the development of "-ilities" requirements have on shaping the architecture and programmatics for DEW development
- Be aware of the implications of platforms, missions, targets, and environment on establishing the requirements for DEW capabilities
- Better grasp the significance of SWaP, affordability, logistics, training, and policy have in driving DEW transition into military programs of record



Workshop Host:

**James Davis**, Senior Executive Advisor, **Booz Allen Hamilton**

1200

**LUNCH AND NETWORKING**

1300

**WORKSHOP B: LOW POWER LDEW APPLICATIONS**

*In recent times, there has been a drive in nations such as the USA to develop Laser Directed Energy Weapons of ever increasing powers. Such programmes demand large investments that are beyond the scope of most nations. Therefore, it could be assumed that laser weapons can only be effective at very high energy levels. However, this is not the case. LDEW of lower powers can create a range of effects that can provide a transformational capability to the warfighter, requiring less investment in cutting edge technologies.*

**By attending this workshop, you will:**

- Investigate the scenarios where lower power lasers can be effective and consider the SWaP-C considerations / Cooling against employment by smaller military platforms that have a limited availability for the integration of large / heavy, power-hungry systems.
- Learn about how modelling and simulation can help to determine key design drivers for integrated systems
- Gain an insight into some of the integration issues and potential trades that are needed to realise a low power LDEW fitted to a smaller platform.

There will also be the opportunity to discuss with Platform Integration Specialists areas such as SWaP-C, the differences in integration between different military domains, and other pressing issues.

Workshop Hosts:

**Mr Keith A. Rigby**, CEng FIET FRAeS – Licenced Technologist, LDEW, **BAE Systems FalconWorks** & **Mr Tony Mrozicki**, Head of Innovation Labs, **BAE Systems Maritime**


1600

**END OF WORKSHOP DAY**

# DAY TWO | TUESDAY 27 JUNE


0830 **MORNING REGISTRATION AND NETWORKING COFFEE**

0845 **DEFENCE IQ OPENING REMARKS**  
 Defence  **Hamish Maddocks**, Conference Producer, **Defence IQ**

0850 **CHAIRMAN'S OPENING REMARKS**


0900 **US ARMY SCIENCE AND TECHNOLOGY EFFORTS TO SUPPORT AND SUSTAIN FIELDING OF DIRECTED ENERGY SYSTEMS**

- Decreasing Size, Weight, Power, and Cost (SWaP-C) of Laser Sources
- Increasing effective range of DEWs
- Improving lethality of DEWs

 **Corry Cox**, Director for Research and Technology, **U.S. Army Space and Missile Defense Command**

0930 **THE U.S. MISSILE DEFENSE AGENCY (MDA) AND INTEGRATING DIRECTED ENERGY INTO THE MISSILE DEFENSE SYSTEM**

- The threats from adversaries that we currently face
- MDA's mission
- The sensors, weapons, and communications MDA currently employs
- How US missile defense currently operates
- Organizational relationships across the US Department of Defense
- Operating locations of MDA
- Types of Directed Energy weapons, and how they can augment Kinetic Kill defense in the Missile Defense System
- How Artificial Intelligence and Machine learning can be used across the kill chain

 **Mr Rich White**, Program Manager for Analysis and Assessment, Innovation S&T Directorate, **U.S Missile Defense Agency**

1000 **CONFRONTING UAS AND NEXT GENERATION THREATS**


- High Energy Laser Science and Technology Efforts across the US Army
- Great Power threats and the realities of UAS
- Developing unambiguous counter-UAS doctrine

 **Adam Aberle**, Director, Directed Energy, **US Army Space and Missile Defence Command Technical Centre**

1030 **MORNING COFFEE AND NETWORKING**

1100 **GLOBAL INTEGRATION OF DIRECTED ENERGY WEAPONS**

- Integrating the use of DEWs with traditional kinetic weapons
- Looking to how DEWs can be incorporated into TTP requirements in the field
- Overcoming the CONOPS considerations in integrating DEWs into your operations

 **Dr Jeffrey Boulware**, Technical Director and Deputy Division Chief, **Joint Integrated Air and Missile Defense Organization (JIAMDO)**

1130 **DEW Prototyping in the US Air Force**

- Results from our field assessments
- The current state of manufacturing in DEWs
- What is the path forward for DEWs?



**Dr. Sean Ross**, Lead Program Manager, Directed Energy Prototyping, **Air Force Lifecycle Management Center**

1200 **PANEL DISCUSSION: HOW CAN DOD BETTER INCENTIVISE INDUSTRY TO SCALE UP DEWS?**

- What can the DoD do to help industry move away from R&D and make DEWS a widespread reality
- Analysis on the current state of DEWs evaluation and how test sites must create more realistic scenarios
- How can the DoD create help to create a market for DEWs?

**Panellists:**

- **John Garrity**, Director of Program Management, Acquisition, Tracking, and Pointing Division, **BlueHalo**
- **Dr. Ben Allison**, Chief Technologist, **Kord Technologies**

1300 **LUNCH AND NETWORKING**1400 **ACC DIRECTED ENERGY LETHALITY ACTIVITIES: DE CHALLENGES & OPPORTUNITIES**

- Driving laser beaming capabilities in support of advanced lethality
- Challenges associated with DE integration efforts: necessary next steps
- Initiatives to put DE capabilities into the Warfighter's hands



**Mr. Creid Johnson**, Divisional Director, ACC/A5X Futures Division, **US Air Force**

1430 **ADVANCING THE FUTURE OF NAVAL WARFARE**

- Cutting-Edge Research and latest breakthroughs
- Naval Applications of directed energy weapons and exploring how DES are transforming the landscape of naval warfare
- Collaboration and future prospects in advancing DES



**Rear Admiral James Parkin CBE**, Director Develop, **Royal Navy**

1500 **PANEL DISCUSSION: WHY OPERATIONALISING DEWS HAS BECOME A NECESSITY FOR MODERN WARFARE**

*As the world becomes increasingly complex and threats become more diverse, it is imperative that we keep pace with evolving technology to maintain our strategic edge. DEWs are the future of warfare, and they offer several advantages over traditional weapons. This panel will discuss this around 3 key talking points:*

- Efficiency and Effectiveness and the SWaP-C effect
- Cost Effectiveness of DEWs
- Can DEWs provide our forces with the strategic edge? If so, how?

1530 **AFTERNOON COFFEE AND NETWORKING**

1600

**ADVANCING ISRAEL'S DEFENCE CAPABILITIES THROUGH DIRECTED ENERGY SYSTEMS**

- State-of-the-art laser technology, an overview into IMOD's cutting edge HPL Program
- Operational successes and highlighting the successful deployment and testing of HPL systems in real-world scenarios
- Future directions and the IMOD's strategic vision for the utilization of airborne HPL

**Major Jonathan Greenblatt**, Head of Airborne HPL Programs, **Israeli MoD**

1630

**ADVANCEMENTS IN HIGH-ENERGY LASER DEVELOPMENT IN JAPAN**

- An overview of Japan's current strategic threat landscape, with regard to missile/air/naval threats, and how and why this underlines the importance of DES development
- The current ability of high-energy laser systems and the potential military applications of the HEL programme in Japan
- Future DES vision – from GBAD to naval capability enhancement
- Challenges and lessons from Japan's own laser programme, and what opportunities exist for international development and coordination in this field
- Looking towards the projected future capabilities of Japan's high-energy laser system

**Dr. Fumio Wani**, HEL Program Manager, **Kawasaki Heavy Industries**

1700

**PHYSICS OF HIGH-ENERGY LASER IMPACT ON DEFENCE-RELATED MATERIALS AND THEIR IMPORTANCE FOR MILITARY APPLICATIONS**

- Overview of basic physical processes in the interaction of laser radiation with matter.
- Drilling and perforation of metallic and dielectric materials with high-energy lasers.
- Hazards due to direct and indirect reflections during the interaction process and their dynamics.

**Rüdiger Schmitt, Ph.D.**, *Senior Scientist, Laser Technology*, **French-German Research Institute of Saint Louis**

1730

**CHAIRMAN'S SUMMARY REMARKS AND END OF CONFERENCE****NEED MORE INFORMATION?**

Hamish Maddocks  
Conference Producer – Directed Energy Systems  
Defence IQ  
E: [hamish.maddocks@defenceiq.com](mailto:hamish.maddocks@defenceiq.com)

# JOINT FORUM

The forum is co-located with our Full Systems Air Defence conference and, although the conference sessions will run independently, this will provide additional networking possibilities as well as an opportunity to sit in on sessions dealing with new technologies to counter the cost asymmetry on the battlefield in addition to incapacitating hypersonic threats.



Directed energy systems have the potential to provide resilience, lethality, and overall dominance in future air, land and sea combat scenarios. While there has been much discussion regarding the implementation of directed energy technologies in the next few years, what is the reality of it? This content hub provides everything you need to know regarding current operational use cases for directed energy, challenges, development and integration of directed energy systems into their mission capabilities and platform.



While military radar systems have been a staple of military operations for a number of years, the requirement on these systems remains in consistent flux, as new threats emerge in UAVs, missile systems and Electronic Warfare (EW) capabilities. With the threat now developing across every spectrum, ensuring 360 degree radar coverage has become a priority for the radar operators worldwide

26 JUNE 2023

27 JUNE 2023

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## FULL SPECTRUM AIR DEFENCE

FSAD will reinvigorate the conversation, addressing the full scale, range and structures of air defence. Led by senior air defence commanders, research and development specialists, and industry partners, we will determine strategy, technological advancements, integration, and approaches for international cooperation across the full air defence spectrum, ensuring the response to existing and emerging threats remains unified and effective.

*"It was first time attending and it was certainly valuable to get an overview, plus an outlook on the history, present and future thoughts and direction"*

Business Development Manager, TNO

*"Very good opportunity for side meetings and networking with Good choice of speakers, interesting presentations"*

Sales Manager Laser Weapon Systems, MBDA Deutschland GmbH

# Maximise Your Involvement: Sponsorship and Exhibition Opportunities

## Invest in making an impact with the people that matter to your business

Sponsorship is the most effective solution to share your company's idea to senior professionals from across the directed energy industry, who are searching for actionable solutions to their current business challenges.

Directed Energy Systems will be attended by senior officials and decision-makers from the directed energy community, bringing together buyers and suppliers in one location. With tailored networking, sponsors can achieve the face-to-face contact that overcrowded trade shows cannot deliver.

Exhibiting and Sponsorship options are extensive, and packages can be tailor-made to suit your individual company's needs

### Features of sponsorship include:

- ▶ Prominent exhibition space in the main conference networking area
- ▶ Thought leadership speaking opportunities
- ▶ Participation in comprehensive pre-event marketing campaigns
- ▶ Tailored networking solutions

For more information and to discuss the right opportunity, contact us on +44 (0)207 368 9300 or [partner@iqpc.co.uk](mailto:partner@iqpc.co.uk)

## Past Attending Organisation's Included:

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Defence Science And Technology Agency  
DRDO  
DSTL - UK MoD  
European Working Group for Non-Lethal Weapons  
French-German Research Institute of St Louis  
G&H Aerospace & Defence  
Honeywell

HQ Air Combat Command USAF  
HQ SACT NATO  
IAI  
INCAS - National Institute For Aerospace Research "Elie Carafoli"  
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The Center for Strategic & Budgetary Assessments  
The Johns Hopkins University Applied Physics Laboratory  
U.S Department of Energy  
UK MoD  
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United States Air Force  
United States Army  
University of Southampton  
US Army Europe  
US Department of Energy  
USAF Air Combat Command

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## Free Industry Resources

You can access a variety of free resources such as whitepapers, articles, news, podcasts and presentations online at <https://www.defenceiq.com/events-directedenergysystems>



**CONFERENCE DATES:** 26 – 27 June 2023  
**VENUE:** Hilton Syon Park, London, United Kingdom

To speed registration, please provide the priority code located on the mailing label or in the box below.

My registration code **PDFW**

Industry	2 Day
Register & pay by Friday 28th April 2023*	<b>SAVE £400</b> £2,299 + VAT
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Standard Price	£2,699 + VAT

Military/Government**	2 Day
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Register & pay by Friday 12th May 2023*	<b>SAVE £300</b> £699 + VAT
Standard Price	£999 + VAT

\*To qualify for early booking discounts, payment must be received by the early booking deadline. All prices are exclusive of UK VAT is charged at 20%. VAT Registration #: GB 799 2259 67  
 \*\*Military and government discounted rates apply to serving military officers, government, and university personnel only. Serving Generals/Flag Officers 1 Star and above may attend the conference free of charge. Please contact [enquire@defenceiq.com](mailto:enquire@defenceiq.com) for further details.

## DELEGATE DETAILS

Please photocopy for each additional delegate

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Family Name Job Title

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Special dietary requirements: Vegetarian Non-dairy Other (please specify)

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## PAYMENT

Total price for your Organisation  
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Credit Card: please phone to process payment

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## TEAM DISCOUNTS\*

IQPC recognises the value of learning in teams.

- Groups of 3 or more booking at the same time from the same company receive a 10% discount
- 5 or more receive a 15% discount
- 7 receive a 20% discount

Only one discount available per person. Team discounts are not applicable in conjunction with another discount.

## START KNOWLEDGE SHARING AND NETWORKING BEFORE THE EVENT



## VENUE & ACCOMMODATION

City, Country. Venue to be released shortly. For updates on the venue and accommodation information, please visit: <https://www.defenceiq.com/events-directedenergysystems>

Travel and accommodation are not included in the registration fee.

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