Australian Government
Department of Defence
Science and Technology

EDTAS

EMERGING DISRUPTIVE TECHNOLOGY ASSESSMENT SYMPOSIUM

DIRECTED ENERGY TECHNOLOGIES

25–26 NOVEMBER 2019
SYDNEY, NEW SOUTH WALES

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#EDTAS

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EMERGING DISRUPTIVE TECHNOLOGY ASSESSMENT SYMPOSIUM

DEFENCE INDUSTRY & INNOVATION
NEXT GENERATION TECHNOLOGIES FUND

Noetic GROUP

UNSW SYDNEY

UNSW DEFENCE RESEARCH INSTITUTE

Defence Science and Technology will be hosting an Emerging and Disruptive Technology Assessment Symposium on Directed Energy Technologies for Defence and National Security.

The Emerging and Disruptive Technology Assessment Symposium (EDTAS) series helps future-proof Australian Defence, utilising the Next Generation Technologies Fund to consider an expansive science and technology topic that will likely have a major impact for the Defence or national security domains in the 10+ year timeframe. Held in partnership between Defence Science and Technology, the University of New South Wales University and Noetic Group, the EDTAS on Directed Energy Technologies will bring together internationally recognised academic, industry and Defence leaders in a multidisciplinary workshop environment over two days to explore and shape the long-term vision for directed energy S&T.

The 2016 Defence White Paper has identified Directed Energy as an emerging and potentially disruptive technology that may lead to new advanced weapons capabilities within our region. The EDTAS event will consider topics such as the future of directed energy technologies, how they might be applied in a range of scenarios, capability concepts, and the drivers, barriers and implications for their adoptions. Facilitated workshops will be held to gain a better understanding of opportunities and threats resulting from the employment of directed energy systems and challenges in defending against them. There will be opportunity for participants to engage in networking and partnering, discuss strategic and S&T challenges, and provide input to shape long term Defence and National Security guidance. The workshop will actively engage participants to elicit key insights and contribute to a coherent strategy that will guide future directed energy related research. A key outcome from the symposium will be a Big Picture Assessment Report developed from the workshop contributions of all attendees.

DIRECT ENERGY TECHNOLOGIES

Defence and national security agencies will need to address the challenges presented by the emergence of directed energy systems in a range of future conflicts. Here, directed energy is defined as a system that can deliver a large amount of electromagnetic energy to generate a relatively time persistent disruptive and damaging effect. EDTAS on Directed Energy Technologies is particularly focussed on source technologies including high energy lasers and high powered radio frequency sources.

Scientific advances in directed energy source technologies and concurrent developments in a range of military technologies is enabling the realisation of directed energy systems that will cause new battlefield effects, that may require adaption of Defence capabilities and procedures. Further, Defence and national security agencies will need to consider both the opportunities presented by these systems and also the threat that they pose. The realisation of these systems as capabilities would require an understanding of indigenous support and sustainment needs.

DIRECTED ENERGY TECHNOLOGIES IN 2030 AND BEYOND

Directed energy systems will challenge existing Defence and national security forces. Their effects may drastically change the systems these forces employ, the way these forces operate and the protective measures personnel require. The range of effects, and the ability to scale those effects, generated by directed energy systems may present new opportunities and capability options, but will compel a reassessment of vulnerabilities of critical capabilities.

APPLICATION IN 2040 SCENARIOS

Symposium participants will consider directed energy immersive future scenarios to explore these key S&T challenges. These scenarios will be developed in collaboration with our academic and industry partners.

CAPABILITY CONCEPTS

The adoption and exploitation of directed energy technologies will create unprecedented opportunities and risks relating to future capabilities, including their development and employment by or against Defence and national security agencies. This symposium will help to identify novel capability concepts for Defence in 2040, and in the process, help to uncover the important research challenges and opportunities that lie ahead which require awareness or action by government, academia and industry.

DRIVERS, BARRIERS AND IMPLICATIONS

The EDTAS symposium will explore the broader implications of directed energy technologies from a societal perspective, as well as the potential barriers to adoption for Defence and National Security agencies. What economic, social, political, Defence and national security implications will directed energy technologies have in the next 20 years and beyond? And what are the legal, ethical and policy issues that may hamper the employment of emerging and disruptive directed energy technologies?

S&T CHALLENGES AND OPPORTUNITIES

Key emerging S&T issues to be considered in this symposium include developing an understanding of: the future evolution of directed energy sources; the S&T challenges in developing directed energy systems and other issues associated with their integration with wider Defence and national security systems; the effects of directed energy systems on a wide range of Defence and civilian systems in order to interoperate with them or provide protection; and how to protect individuals operating with or threatened by directed energy systems.

EVENT INFORMATION

The symposium will be held 25-26 November 2019 in Sydney NSW. Attendance at the symposium is by invitation only. If you have expertise in the area of directed energy technologies and would like to receive an invite, please contact the EDTAS organisers as numbers are limited.

CONTACT AND FURTHER INFORMATION

For more information please email us at edtas@dst.defence.gov.au

www.dst.defence.gov.au/edtas **#EDTAS**