

Operating in the future electromagnetic environment symposium 2022

The Defence Science and Technology Laboratory (Dstl) is hosting its third Operating in the Future Electromagnetic Environment (OFEME) symposium on 21 and 22 November 2022, inviting representatives from industry, academia and across government.

In today's connected world, the electromagnetic environment is crucial for many sectors, such as mobility (moving people, goods and services), a connected society and healthcare. In defence, spectrum dependent systems are ubiquitous across land, sea, air and space, being used for communications, sensing, weapons systems and more.

However, the parts of the electromagnetic spectrum commonly used – primarily radio frequencies and microwaves – is facing increasing congestion, which limits our ability to efficiently and reliably exploit energy or information in a timely manner. Our reliance on parts of the spectrum that are in high demand and used by multiple occupants has been reported as a looming 'spectrum crisis'.

Some solutions are starting to emerge, such as how we can use less-congested parts of the electromagnetic spectrum, and these solutions may also offer additional advantages. The question remains: have we sufficiently explored options for improving electromagnetic spectrum access and operations within congested bands?

Figure: The Electromagnetic Environment from AJP 3.6 C (NATO EW Doctrine) NATO UNCLASSIFIED; Reproduced with Permission from MoD Head of Delegation for NATO EW within the NATO EW

The challenge of congestion, deliberate or otherwise, is, a shared feature across all sectors. In the defence context, the electromagnetic environment can also be contested, such as through electronic warfare, where reliable spectrum access can be deliberately denied or degraded.

To help solve these challenges, academics, suppliers including small and medium-sized enterprises, and colleagues from MOD and other government departments are invited to join the OFEME symposium, to work alongside Dstl's scientists and shape future thinking.

The event will cover:

- shared challenges for operating within the future electromagnetic environment, both inside and outside of defence
- how research and development investment can be harnessed in future

approaches

Dstl is planning to hold the symposium as an in-person event at the Institution of Engineering and Technology (IET) in London. It will feature a range of keynote speakers, technical presentations, poster sessions and interactive workshops.

In addition to contextual presentations, advances and implications of the following topics will be included at this year's event:

- control engineering and theory
- micro-engineering
- autonomy
- microwave and terahertz photonics
- information theory

To request an invitation to the event please email:

OFEME_Symposium@dstl.gov.uk. When your place is confirmed you will receive a link to Eventbrite to register.

£1.5 million available to experiment on CHERI architecture within defence and security systems

- DASA has launched a new Themed Competition: CHERI within Defence and Security
- Funded by Defence Science and Technology Laboratory (Dstl) Cyber Programme
- £1.5 million funding available to experiment and trial the effects of the CHERI (Capability Hardware Enhanced RISC Instructions) based architecture extensions within the Arm's Morello prototype System on Chip (SoC)

The [Defence and Security Accelerator](#) (DASA) is pleased to launch a new Themed Competition, [CHERI within Defence and Security](#). Run on behalf of the [Defence Science and Technology Laboratory](#) (Dstl) Cyber Programme, this competition seeks proposals to experiment and trial the effects of the CHERI (Capability Hardware Enhanced RISC Instructions) based architecture extensions within Arm's Morello prototype System on Chip (SoC) for defence and security.

Key dates and funding

£1.5 million funding is available for this Themed Competition, and we expect to fund several proposals up to £100k.

The deadline to submit a proposal is midday 14 November 2022

Do you have a useful idea for testing CHERI within Defence and Security? [Read the full competition document and submit a proposal.](#)

What is Arm Morello and CHERI?

Cyber security needs to keep pace with the rapid evolution of technologies, and currently, a lot of time, effort and money is spent on patching systems so they are more secure. However, in a world with uncertain technological and military challenges, systems that are built from the ground up to be more resilient to attacks is vital for a safer future.

The [Arm Morello Program](#), funded by [Digital Security by Design](#) (DSbD), is a collaboration between academia, industry and government to research and create more secure hardware and software to improve built-in security. CHERI (Capability Hardware Enhanced RISC Instructions) is the key underpinning technology that addresses memory safety issues and enables fine grain protection of applications.

Using this technology, Arm has designed a prototype SoC and development board, called the Morello board, the world's first industrial quality implementation of CHERI. The Morello board is being distributed to industry and academia to test the prototype architecture to investigate and experiment on its capabilities.

Evaluating CHERI within Defence and Security

The CHERI within Defence and Security Themed Competition is aimed at providing the Morello board to the Defence and Security sector for research, evaluation and experimentation. Successful proposals will be provided with the Morello board to trial and evaluate the effect of the new technologies within their defence systems.

Challenge areas

The competition has three challenge areas. Proposals may address more than one challenge.

Code Porting

This challenge area seeks to port an existing codebase or tool (e.g. compiler) into the Morello environment and strengthen its security by using the Morello enhanced security features.

Software Compartmentalisation

This challenge area seeks to refactor an existing application to employ fine grain software compartmentalisation.

Innovation

This challenge area seeks to conduct research in an area in line with competition scope, such as a security enhancing innovation, now enabled by the availability of the Morello features.

To learn more about the challenge areas of the competition, [read the full competition document](#).

Submit a proposal

Do you have an innovative project to test the CHERI based architecture in a defence setting? Submit your idea and help create a safer and more cyber resilient defence.

[Learn more and submit a proposal](#).

Environment Agency continues crucial work to protect fisheries amidst summer like no other

Environment Agency officers up and down the country were on high alert to manage the impacts of low water levels in rivers and fisheries, particularly low flowing rivers, and respond to reports of fish in distress as quickly as possible.

Action included deploying or loaning aeration equipment as well as using hydrogen peroxide to restore dissolved oxygen levels, providing expert advice to angling clubs and anglers and, as a last resort, relocating fish through fish rescues.

Teams working in the Kent, Surrey and London region responded to over 60 fish incidents and fish rescues, preventing large scale fish loss and damage to fragile river fish populations, while ensuring these incidents did not become larger, more serious events.

Heidi Stone, Environment Agency Fisheries Partnerships Manager said:

This summer's unprecedented dry weather saw our officers carrying out hugely important work to protect our fish populations, environment and surrounding wildlife, while also continuing to clamp down on illegal fishing through our annual enforcement campaign.

Anglers are our valuable eyes and ears and I want to thank all those reporting incidents so we are able to respond as quickly as possible and ensure angling continues to be a safe and enjoyable hobby for everyone”.

The months of July and August also saw the Environment Agency continue its annual enforcement campaign, Operation Lungfish, which clamps down on illegal fishing by ensuring all anglers have a fishing licence.

Operation Lungfish plays a vital part of the Environment Agency’s year-round efforts to keep river banks safe from crime and antisocial behaviour, and tackle the problems illegal fishing can bring including risks to vulnerable fish stocks such as salmon and eel.

Targeting poachers and those fishing without a licence remains a high priority and anglers caught and prosecuted for not having a fishing licence can face a day in court and a significant fine. The six week long campaign saw Environment Agency enforcement officers supported by Voluntary Bailiffs from the Angling Trust and local police officers to conduct patrols on rivers, lakes and ponds, with 5,300 licences checked and over 200 people reported for fishing illegally.

Nino Brancato, the Angling Trust’s National Enforcement Support Manager, said:

Protecting fish and fisheries from poachers and fish thieves and increasing rod licence compliance is of great importance to all anglers. The Voluntary Bailiff Service is an important partnership between the Angling Trust and Environment Agency, empowering anglers to support the police and the Environment Agency in fighting back against fisheries crime and protecting fish and fisheries especially during Operation Lungfish. The VBS initiative continues to be enormously successful, driving forward positive change.

Operation Lungfish activity included Fisheries Enforcement Officers in the North East targeting illegal angling taking place overnight at vulnerable locations such as weir and bridge pools. They combined patrols with other enforcement activities, including fish dealer checks to ensure no fish caught as a result of illegal activity were being offered for sale, and the seizure of illegal traps.

Warm weather incident responses and Operation Lungfish are vital to support fisheries, angling clubs and anglers and are funded purely by fishing licence income. Get a fishing licence on [GOV.UK](https://www.gov.uk) or go digital and help us invest more into fishing and improving the environment.

Maintenance Loan payments reach £2.1bn as new academic year gets underway

News story

As the 2022/23 academic year gets underway, SLC has been making Maintenance Loan payments to students across the country.



Monday (26th September) was its biggest payment day of this academic year, with £797m of funding paid into the bank accounts of 372k students. This brings the total paid out so far this term to £2.1bn.

SLC is able to release payments to students once they have enrolled or registered with their university or college, and we have received this confirmation. Students can quickly and easily check the status of their payment via their online account.

If a student has applied for student finance late, they may not get their full entitlement straight away, as it can take six to eight weeks to process an application. In these cases, once eligibility is confirmed, the minimum Maintenance Loan is paid first, followed by a top-up payment if the student is entitled to more funding. If more information is needed, SLC will get in touch. More information can be found here – [Find out more about applying late online.](#)

To provide support to students who have questions about their payment, SLC has made a 'common questions' area available within their online accounts and they can also access our [online guide to payment](#). Students can keep up with all the latest student finance information by following Student Finance England on [Facebook](#), [Twitter](#), [Instagram](#) and [YouTube](#).

*Please note these are provisional figures. Full year figures are published in SLC's Student Support for Higher Education statistical release, which will be published on 24 November.

[Avian influenza prevention zone declared in Norfolk, Suffolk and parts of Essex](#)

Following a number of detections of avian influenza in both poultry and wild birds across Norfolk, Suffolk and parts of Essex, the United Kingdom's Deputy Chief Veterinary Officer has declared an Avian Influenza Prevention Zone (AIPZ) across the region to mitigate the risk of further outbreaks of disease occurring.

This means that from midday on Tuesday 27 September it will be a legal requirement for all bird keepers in Norfolk, Suffolk and parts of Essex to follow strict biosecurity measures to help protect their flocks, of whatever type or size. Bird keepers are advised to consult the [interactive map](#) to check if they are impacted and should then read the [AIPZ declaration](#) which sets out the requirements in a regional AIPZ.

All bird keepers, including hobby and backyard poultry keepers and anyone who keeps chickens, ducks and geese as pets must take [steps](#) to limit the risk of the disease spreading to their animals.

Additionally, keepers with more than 500 birds will need to restrict access for non-essential people on their sites, workers will need to change clothing and footwear before entering bird enclosures and site vehicles will need to be cleaned and disinfected regularly to limit the risk of the disease spreading. There is also a mandatory requirement to keep records and to make them available on request.

The UK Health Security Agency continue to advise that the risk to public health from the virus is very low and the Food Standards Agency advice remains unchanged, that avian influenzas pose a very low food safety risk for UK consumers. Properly cooked poultry and poultry products, including eggs, are safe to eat.

The UK has faced its largest ever outbreak of bird flu with over 150 cases confirmed across the country since late October 2021. The introduction of this regional AIPZ comes after the disease was detected in kept birds at 10 premises in the affected regions since the beginning of September, as well as several reports in wild birds.

The United Kingdom's Deputy Chief Veterinary Officer Richard Irvine said:

Following an increased number of detections of avian influenza we have declared an Avian Influenza Prevention Zone across Suffolk, Norfolk and parts of Essex. This means that all bird keepers in the region must urgently take action now to both prevent disease getting in to flocks and it spreading any further.

Whether you keep just a few birds or thousands, you are now legally required to introduce stricter biosecurity standards on your farm or small holding. It is in your interests to do so in order to protect your birds from this highly infectious and devastating disease.

The introduction of an AIPZ follows the recent increase in cases of bird flu in poultry and other captive birds in the area and increased reports of mass mortality in wild birds.

The regionalised AIPZ now in force does not include a requirement to house birds. However, this is being kept under constant review. Further disease control measures will be based on the latest scientific evidence and veterinary advice.

The Avian Influenza Prevention Zone (AIPZ) means bird keepers in the affected regions must:

- Cleanse and disinfect clothing, footwear, equipment and vehicles before and after contact with poultry and captive birds – if practical, use disposable protective clothing
- reduce the movement of people, vehicles or equipment to and from areas where poultry and captive birds are kept, to minimise contamination from manure, slurry and other products, and use effective vermin control
- keep records of mortality, movement of poultry and poultry products and any changes in production
- thoroughly cleanse and disinfect housing on a continuous basis
- keep fresh disinfectant at the right concentration at all farm and poultry housing entry and exit points
- minimise direct and indirect contact between poultry and captive birds and wild birds, including making sure all feed and water is not accessible to wild birds
- prevent access by poultry to ponds and watercourses and ensure that birds are kept in fenced or enclosed areas

The AIPZ will be in place until further notice, and will be kept under regular review as part of the government's work to monitor and manage the risks of bird flu.

Bird keepers and members of the public should report dead wild birds to Defra's national dead wild bird helpline on 03459 33 55 77 and keepers should report suspicion of disease in their birds to APHA on 03000 200 301. Keepers should familiarise themselves with our [avian influenza advice](#).

Defra has also set out practical guidance to support land managers, the public and ornithological and environmental organisations in their response to the growing threat of avian influenza to wild birds. The [‘Mitigation Strategy for Avian Influenza in Wild Birds in England and Wales’](#) sets out how these groups, together with the government and its delivery partners, can mitigate the impact of avian influenza on wild bird populations whilst protecting public health, the wider environment and the rural economy.