

LASER & POWER ELECTROMAGNETICS FOR NAVY

20-21 November 2024

ISL – French-German Research Institute of Saint-Louis, Saint-Louis, FR



The technologies of Directed Energy Weapons (DEW), electromagnetic launchers and pulsed power systems have advanced to a point where they can be considered for future applications in military operations, especially within naval contexts. Indeed, first demonstrations of High Energy Laser (HEL) on naval vessels have recently boomed, increasing the interest in high-power fibre lasers. High-Power Microwave (HPM) systems are also emerging as a promising technology for neutralising UAVs, particularly in saturation attack scenarios. Systems based on electromagnetic acceleration, such as railguns and electromagnetic catapults, have significantly advanced in their technological readiness. Currently, railguns can launch projectiles to very high speed (> 2 km/s), reaching ranges in excess of 200 km. These technologies require high-power and/or high-energy electrical generators. Recent advancements in electrical energy storage and power multiplication make it now possible to consider these technologies for being implemented on a surface warship. Electric weapon systems, including laser, HPM and railguns, could provide naval forces with a significant operational advantage in maritime combat scenarios since these systems are particularly effective against missiles, aircraft and drones. Special attention is given to asymmetric threats, where cost-effective countermeasures are crucial as well as to new conventional threats that demand rapid self-protection. Additionally, the implementation of electric weapons may impact ship architecture, hazards, standards, equipment compatibility and stealth, all of which need careful evaluation.

In this context, the French-German Research Institute of Saint-Louis (ISL) is organising a workshop on “Laser & Power Electromagnetics for Navy”.

The workshop will address the following topics:

- French/German national programmes or roadmaps for naval forces,
- Threats and future maritime combat scenarios in which electric weapon systems could offer an operational advantage to the naval forces,
- Integration of new weapon systems on existing or future naval vessels: tactical, operational and technical aspects (e.g. EMC),
- Laser systems (e.g. HEL and optronic countermeasures),
- High-power microwaves and Electromagnetic DEW,
- Railguns and electromagnetics catapults,
- Pulsed power supply for electrical weapon systems,
- Electrical storage and power distribution.

The workshop will have plenary presentations in which the participants can share their views and results of their work in dedicated talks with time for questions and discussions. This workshop will be held in-person on-site in order to provide an opportunity for exchange and networking between representatives from industry, academia, government agencies and the navy. The workshop is foreseen to start on 20th November 2024 around noon and to close on 21st November in the afternoon. It will be possible to visit the ISL laboratories. The workshop is open to French and German citizens only.



Workshop on

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Every participant is invited to submit an abstract to the workshop by giving a 15 - 20 minutes long presentation related to the above mentioned topics. Please use one of the following templates for its preparation and submit it during the registration process until 9th of September, 2024. Note that figures have to be uploaded as a separate file.

Accommodation

Please book your room directly with the hotel. Some hotels have special rates for ISL visitors.

Location

French-German Research Institute of Saint-Louis – ISL
5 rue du Général Cassagnou – BP 70034
68301 SAINT-LOUIS Cedex – France

Language

English

Call for papers

Title and abstract to be submitted before 9th September, 2024

Conference registration

Before 20th October, 2024

Dinner registration

35 € at a local restaurant on 20th November

Lunches

12 €/day (paid on arrival at the workshop)

Please note that access can only be granted upon presentation of an identity card or passport. All visitors acknowledge that they will be subject to prior administrative security check (according to French Law, Article L. 114-1 Internal Security Code).

Contact

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