The NATO Science for Peace and Security Programme

CountryFlyer 2021

June

Developing Practical Cooperation through Science

The NATO Science for Peace and Security (SPS) Programme is open to scientists and experts from Japan.

The NATO SPS Programme enables close collaboration on issues of common interest to enhance the security of NATO and partner nations by facilitating international efforts to meet emerging security challenges, supporting NATO-led operations and missions, and advancing early warning and forecasting for the prevention of disasters and crises.

The current SPS Key Priorities include:

- *Counter-Terrorism;*
- *Energy Security;*
- *Cyber Defence;*
- *Defence against CBRN Agents;*
- *Environmental Security;*
- *Security-related Advanced Technology;*
- *Border and Port Security;*
- *Human and Social Aspects of Security*.

Additionally, the SPS Programme helps to promote *regional security* through scientific cooperation among partners. The Programme also helps to *prepare* interested eligible nations for NATO membership. SPS activities often have a high *public diplomacy* value.

JAPAN

Japan is one of NATO's "Partners across the globe". Japan cooperates with NATO in areas of mutual interest, including emerging security challenges, and within the SPS Programme on several Key Priorities, including **Counter-Terrorism, Defence against CBRN Agents**, **Cyber Defence, Security-related Advanced Technology, and Human and Social Aspects of Security**. Building on initial discussions in the early 1990s, dialogue on common security interests has become more regular and structured. Japan's Individual Partnership and Cooperation Programme (IPCP) with NATO identifies joint activities and priority areas for cooperation in the framework of the SPS Programme.

Cooperative Activities

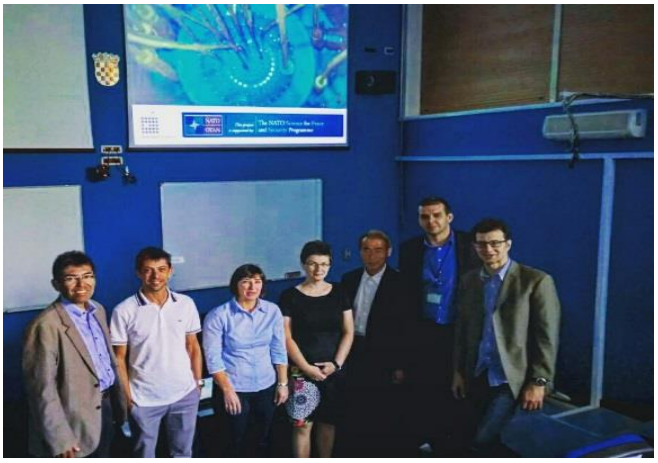
ASSESSING RISKS AND BUILDING COOPERATION IN CYBER DEFENCE

This Advanced Research Workshop (ARW) aimed to bring together a group of world-class experts in cyber defence to discuss issues related to cyber threats, and to develop concrete models in guided and structured workshops. The models helped the countries involved to better understand their own situation in cyber defence, but have also been made available to the wider NATO community. These models were expanded to military situations, building on the expertise of leading military cyber-defence experts, to create more general models for cyber political decision-making. The models were then applied to the situation of Asia-Pacific as a test case, and can be applied to other strategic scenarios as well. 5G, associated telecommunication regulations and sovereign cyber effects were also addressed to identify good practices on tackling some of the well-publicised, related issues. *This workshop, led by experts from Japan and Germany, took place in Japan from 23 to 25 October 2019.* [ref. G5665].

ENHANCING SECURITY AT BORDERS AND PORTS (E-SICURE2)

This Multi-Year Project (MYP) is a follow-on to the previously completed project "E-SiCure" that developed and a tested a SiC-based neutron detector of nuclear material [ref. G5215]. E-SiCure2 aims to provide a solution to the major challenge of illicit materials trafficking at maritime ports and terrestrial borders by developing a swift and effective

detection technology of explosives, CBRN or special nuclear materials. This ongoing project will develop a semiconductor-based sensing device capable of delivering a space-resolved signal of a source emitting both neutrons and X-rays, enabling the identification of threatening materials. Such a technology would largely outperform and improve screening and detection capabilities and efficiencies by widening the family of sensed materials, as well as decreasing inspection times and false-positives. *This project, launched in September 2020, is led by scientists from Japan, Croatia, Portugal and Slovenia.* [ref. G5674].



NANOSTRUCTURES FOR HIGHLY EFFICIENT INFRARED DETECTION

Infrared detection and imaging are key military capabilities for many NATO and partner nations. Applications range from night vision, missile defence, and aerial and satellite imaging, to target tracking, and detection of hazardous substances. This MYP aimed to create nanostructures that will significantly improve the efficiency and performance of many types of infrared sensors. *This project, launched in 2016 and completed in 2020, was led by scientists from Japan, Spain, Australia, Turkey and Lithuania.* [ref. G5048].

RAPID SKIN WOUND HEALING BY INTEGRATED TISSUE ENGINEERING AND SENSING (RAWINTS)

Skin wound healing is a very complex and long biological process. This MYP contributed to the development of rapid medical countermeasures to reduce the recovery time. To this end, scientists from Japan and Belgium worked together to build human disposable skin or mucosa patches for immediate application in case of emergency. These patches provide fast relief to civilians and military personnel injured by chemical or physical agents that have damaged surface tissues. The new patches strengthen medical countermeasures to the exposure of CBRN agents, and provide support to monitor the wounds, burns and vesicles healing processes. *This project, implemented between 2015-2018, was led by scientists from Japan, Belgium, Spain and Italy.* [ref. G4961].

LEADERSHIP DEVELOPMENT PROGRAMME ON GENDER DIVERSITY, PEACE, RISK AND SECUIRTY

This ARW was designed to provide a leadership development and collaboration platform for civilian and military leaders within NATO and national defence and security-related structures, with a particular emphasis on gender equality, diversity, risk, peace and security. Following the event, guidelines on leadership development related to gender, diversity, risk, peace and security were published in a handbook. The workshop also provided the opportunity to identify current trends and potential future areas for research. *This activity was led by experts from Japan and Norway, and held in Belgium from 28 to 30 May 2018.* [ref. G5451].