



NATO SCIENCE FOR PEACE AND SECURITY (SPS) SPECIAL CALL FOR PROPOSALS ON SECURITY-RELATED ADVANCED TECHNOLOGIES

Background

Through the Science for Peace and Security (SPS) Programme, NATO has demonstrated a longstanding commitment to science, innovation and practical cooperation with Partners. Among the SPS Key Priorities, “Security-related Advanced Technologies” represent the core of SPS activities in the field of science and technology, and the main instrument to allow researchers from NATO and Partner nations to maintain the technological edge and to stay at the forefront of knowledge.

In order to address the challenges and opportunities raised by innovative and disruptive technologies, the SPS Programme is launching a “Special Call for Proposals on Security-related Advanced Technologies” to enhance the SPS portfolio in a number of areas:

- Data science and Artificial Intelligence
- Communication systems
- Material science
- Sensors and detectors
- Autonomy and counter-autonomy
- Technological convergence

Proposals shall specifically respond to one or more of the identified areas, as further detailed in the next sections.

Boundaries of the call for proposals

The SPS Programme develops and implements practical cooperation, and enhances dialogue between NATO and partner nations through security-related science, technology and innovation. All Programme activities shall contribute towards the Alliance’s strategic objectives.

The SPS Programme supports collaboration through three established grant mechanisms: Multi-Year research and development Projects (MYP), Advanced Research Workshops (ARW), and training courses (Advanced Study Institutes-ASI, and Advanced Training Courses - ATC). Interested applicants should develop proposals for activities that fit within one of these formats. Application forms for SPS workshops, training courses, and multi-year projects can be downloaded from: <https://www.nato.int/cps/en/natolive/169858.htm>.

When drafting applications in response to this Special Call, applicants should refer exclusively to application manuals and materials published on the abovementioned page, as SPS guidelines and application forms are regularly updated. Only complete applications submitted using the correct templates may be considered as eligible.

Note: SPS supports projects in the field of security-related civilian science and/or related to dual-use applications. Proposals that have pure military objectives should be addressed to different programmes, in particular the NATO Science and Technology Organization (STO) Collaboration Support Office (CSO).

Scope of the Special Call for Proposals

This call solicits proposals in the following areas:

- **Data science and Artificial Intelligence (AI):**

- *Collection and preparation of large data sets, including structuring and labelling, and development of innovative methods of analysis;*
- *Development of innovative security-related data science applications based on machine learning algorithms (i.e. object detection and classification, signal optimisation, data mining, support to decision making, etc.);*
- *Analysis of policy, ethical and legal aspects related to AI and its application in the security environment;*
- *Organization of competitions and non-traditional events for young researchers (i.e. datathon, hackathon, etc.).*

Note: all projects are requested to make available, when relevant and possible, all labelled data-sets, so that different projects and scientific communities can benefit from data sharing. Applicants shall specify on their proposals their plans to fulfil this requirement.

- **Communication systems:**

- *Development of security-related systems and applications in the field of Internet of Things;*
- *Development and demonstration of ubiquitous networks to support emergency response and crisis management operations;*
- *Development and deployment of quantum technologies (i.e. quantum communication networks, Quantum Key Distribution (QKD), quantum random generation, etc.);*
- *Development and demonstration of post-quantum cryptography (algorithms capable to resist attacks by a quantum computer).*

- **Material science:**

- *Research and development in the field of nanotechnologies (nanoparticles, nanomaterials, nanocomposites, etc.);*
- *Innovative solutions and materials in the field of 3D printing;*
- *Development of innovative solution for security applications (i.e. high strength materials, coatings, etc.).*

- **Sensors and detectors:**

- *Development and demonstration of new radar concepts (i.e. cognitive radars, holographic radars, ultra-broadband, spintronics, etc.);*
- *Development of innovative sensors (i.e. micro sensors, smart dust, photonics, LIDAR systems, etc.);*
- *Development of innovative sensor fusion concepts.*

- **Autonomy and counter-autonomy:**
 - *Development and demonstration of innovative unmanned and/or autonomous systems (i.e. underwater, maritime, air, space, multi-domain);*
 - *Demonstration of teaming and swarming (i.e. innovative command and control, collective decision-making, collaborative navigation concepts, etc.);*
 - *Research and development in the field of countering autonomy and more specifically Counter Unmanned Aircraft Systems (C-UAS), especially in the field of detection, identification and tracking.*
- **Technology convergence:**
 - *Research and development in multiple scientific areas through a tight integration of different technologies and disciplines with the purpose to serve a common goal (i.e. integration of engineering, biotechnologies, physical sciences, data science, computation, life sciences, social sciences, etc.).*

Programme requirements

As one of the principal goals of the Science for Peace and Security Programme is to promote cooperation between NATO countries and NATO partner nations, only applications from researchers in those countries (see below) can be accepted. Applications should be submitted to sps.applications@hq.nato.int mentioning in the subject of the email the text “Adv Tech Call for proposals 2019” and all relevant enquiries should be addressed to sps.info@hq.nato.int

**Please note that the applications deadline has been extended to:
1 June 2020 (23:59 Central European Time)**

NATO Countries

Albania, Belgium, Bulgaria, Canada, Croatia, Czech Republic, Denmark, Estonia, France, Germany, Greece, Hungary, Iceland, Italy, Latvia, Lithuania, Luxembourg, Montenegro, Netherlands, North Macedonia (the invitee), Norway, Poland, Portugal, Romania, Slovak Republic, Slovenia, Spain, Turkey, United Kingdom, United States.

Eligible NATO Partner Countries

Afghanistan, Algeria, Armenia, Australia, Austria, Azerbaijan, Bahrain, Belarus, Bosnia and Herzegovina, Colombia, Egypt, Finland, Georgia, Iraq, Ireland, Israel, Japan, Jordan, Kazakhstan, Kuwait, Kyrgyz Republic, Malta, Mauritania, Republic of Moldova, Mongolia, Morocco, New Zealand, Pakistan, Qatar, Republic of Korea, Serbia, Sweden, Switzerland, Tajikistan, Tunisia, Turkmenistan, Ukraine, United Arab Emirates, Uzbekistan.