



The NATO Science for Peace
and Security Programme

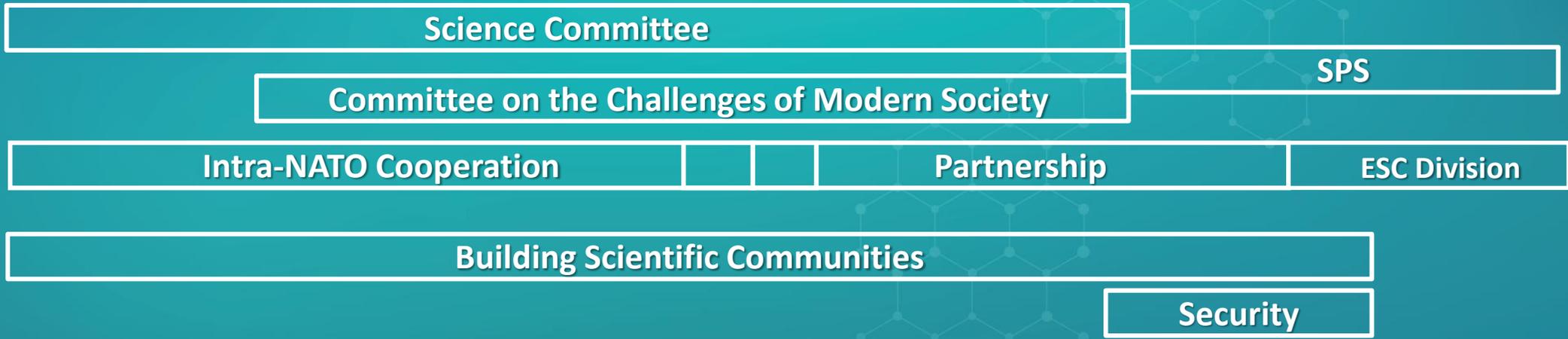
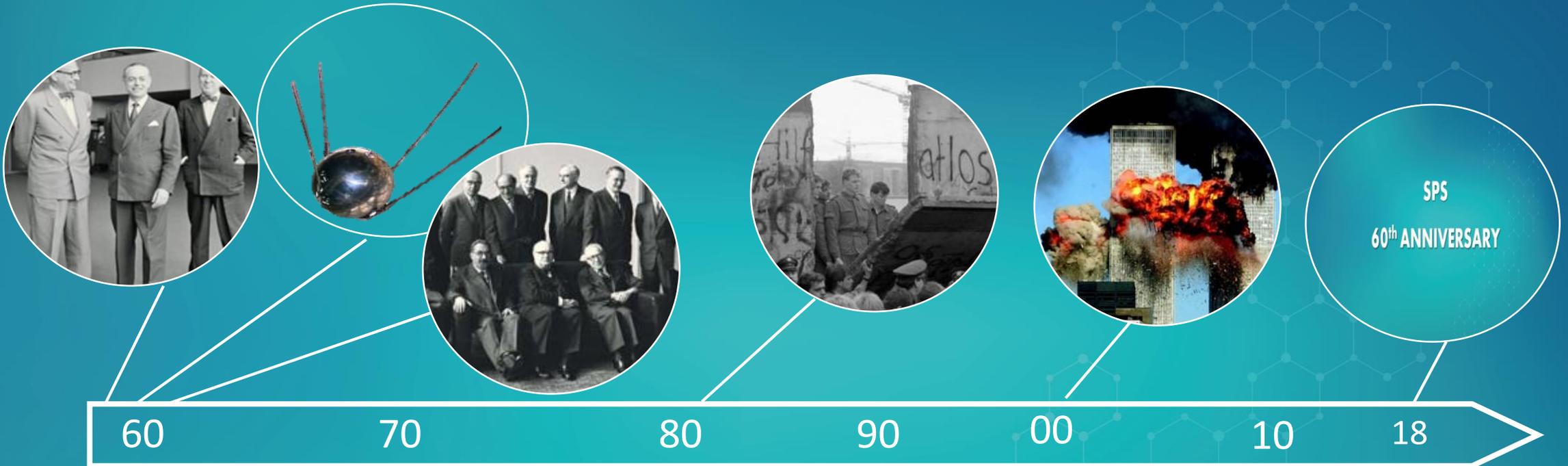
Science for Peace and Security (SPS) Programme

Dr. Deniz Yüksel-Beten
Senior SPS and Partnership Cooperation Advisor

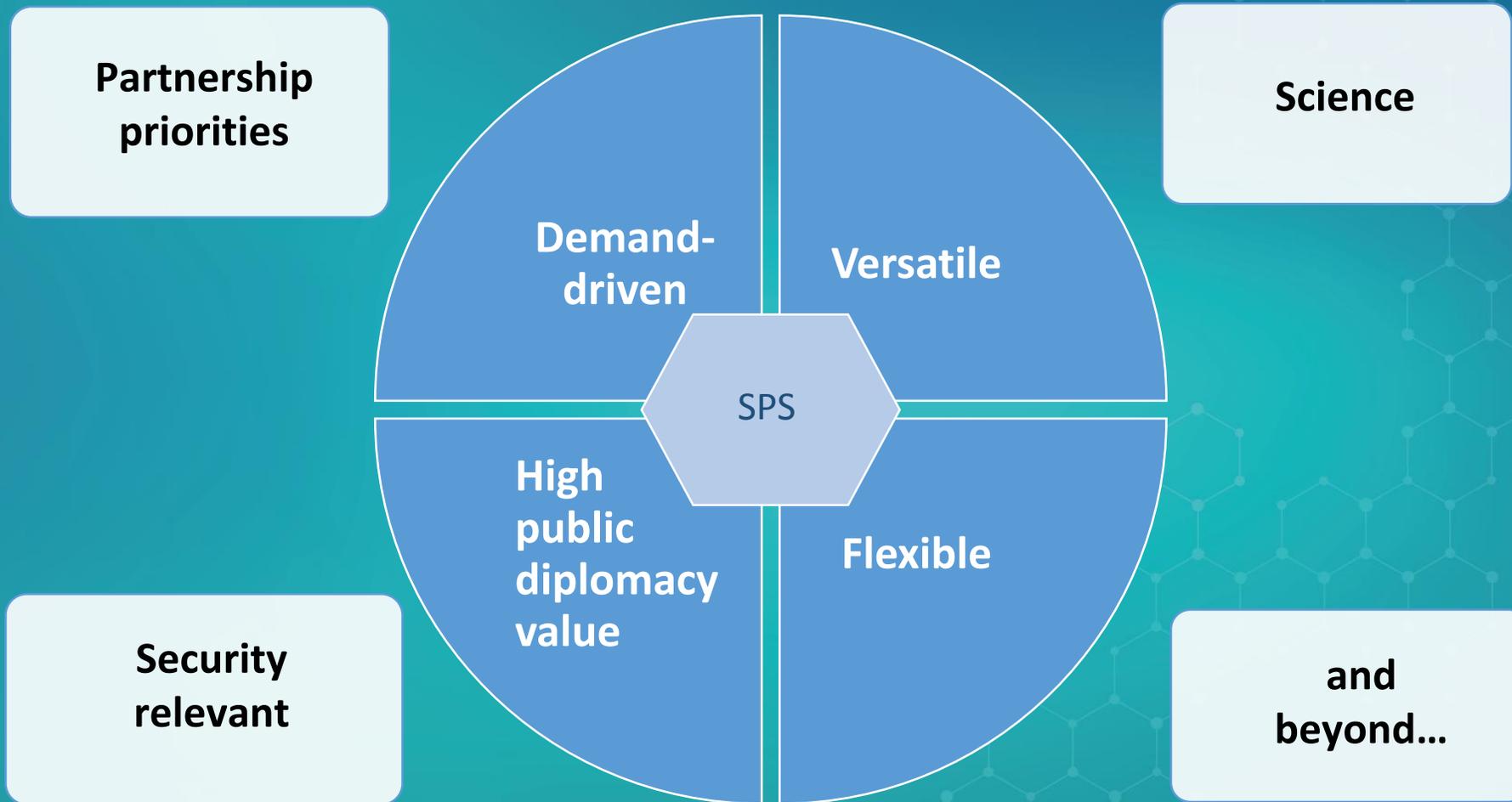
Emerging Security Challenges (ESC) Division

NATO HQ

History of Science at NATO

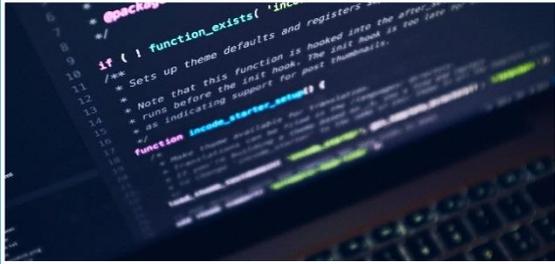


The Science for Peace and Security (SPS) Programme is...



...in close cooperation with other NATO Divisions & Bodies

Key Priorities of the SPS Programme



EMERGING SECURITY CHALLENGES

- Counter-terrorism
- Energy security
- Cyber defence
- Defence against CBRN agents
- Environmental security



SUPPORT FOR NATO-LED OPERATIONS & MISSIONS



NEW DEVELOPMENTS AND CRISIS PREVENTION

- Security-related advanced technology
- Border and port security
- Mine and UXO detection and clearance
- Human and social aspects of security



OTHER DIRECTLY SECURITY-RELATED TOPICS

Euro-Atlantic Partnership (EAPC)

Armenia, Austria, Azerbaijan, Belarus, Bosnia and Herzegovina, Finland, Georgia, Ireland, Kazakhstan, Kyrgyz Republic, Malta, Republic of Moldova, Montenegro, Serbia, Sweden, Switzerland, Tajikistan, Turkmenistan, Republic of North Macedonia, Ukraine, Uzbekistan



Partners around the Globe (PaG)

Afghanistan, Australia, Colombia, Iraq, Japan, Mongolia, New Zealand, Republic of Korea, Pakistan

Mediterranean Dialogue (MD)

Algeria, Egypt, Israel, Jordan, Mauritania, Morocco, Tunisia

SPS COOPERATION

Istanbul Cooperation Initiative (ICI)

Bahrain, Kuwait, Qatar, United Arab Emirates

SPS Grant Mechanisms



Multi-Year Projects (MYPs)

R&D projects;
Purchase of equipment;
Reimburse travel expenses;
Training for young scientists

A. Projects

Advanced Study Institutes (ASIs)

High-level tutorial courses;
Latest developments;
Young scientists at post-doctoral level.

B. Training

Advanced Training Courses (ATCs)

Specialists in NATO countries share security-related expertise with trainees from partner countries

Advanced Research Workshops (ARWs)

Expert workshops aimed at finding solutions to today's security challenges.

C. Workshops

Success Stories

NATO SPS Partnership Prize to 3 multi-year projects in the following SPS Key priorities:

- **Advanced Technologies**
- **Cyber Defence**
- **CBRN Defence**



**Compact
Sensor for
Unmanned
Aerial Vehicles**

**Secure
Implementation of
Post-Quantum
Cryptography**



**The Anthrax
MntABC
Transporter:
Structure,
Dynamics, and
Drug Discovery**



Prof. Otokar Grošek, SPS co-director

**Slovak Scientist of the Year in the category
“Figure of International Cooperation”.**

High Public Diplomacy Value

- **SPS Website:** SPS activities are featured online in news stories and videos
- **Social Media:** Photos, announcements and updates on SPS activities are shared on the **SPS Twitter Account @NATO_SPS**
- SPS activities have been featured in **mainstream media** such as the New York Times, Bloomberg Business, Politico, Washington Post, local media and journals
- Publication of ARW, ASI and ATC proceedings in the **NATO Science Series**
- **SPS Information Days** in NATO and partner nations

Health & Science
NATO working with South Dakota telemedicine hub
The New York Times

NATO Science for Peace and Security Series
D: Information and Communication Security - Vol. 35
Best Practices in Computer Network Defense: Incident Detection and Response
Edited by
Melissa E. Hathaway
IOS Press

NATO SPS Programme @NATO_SPS
Glad to see excellent speakers at #Macedonian & #US counter-terrorism experts. @NATO_SPS

Maria Mundt @MariaMundt
ATA SecGen Jason Wiseman lecturing at @NATO_SPS 'Countering the South East European Terrorist Threat' in #Macedonia

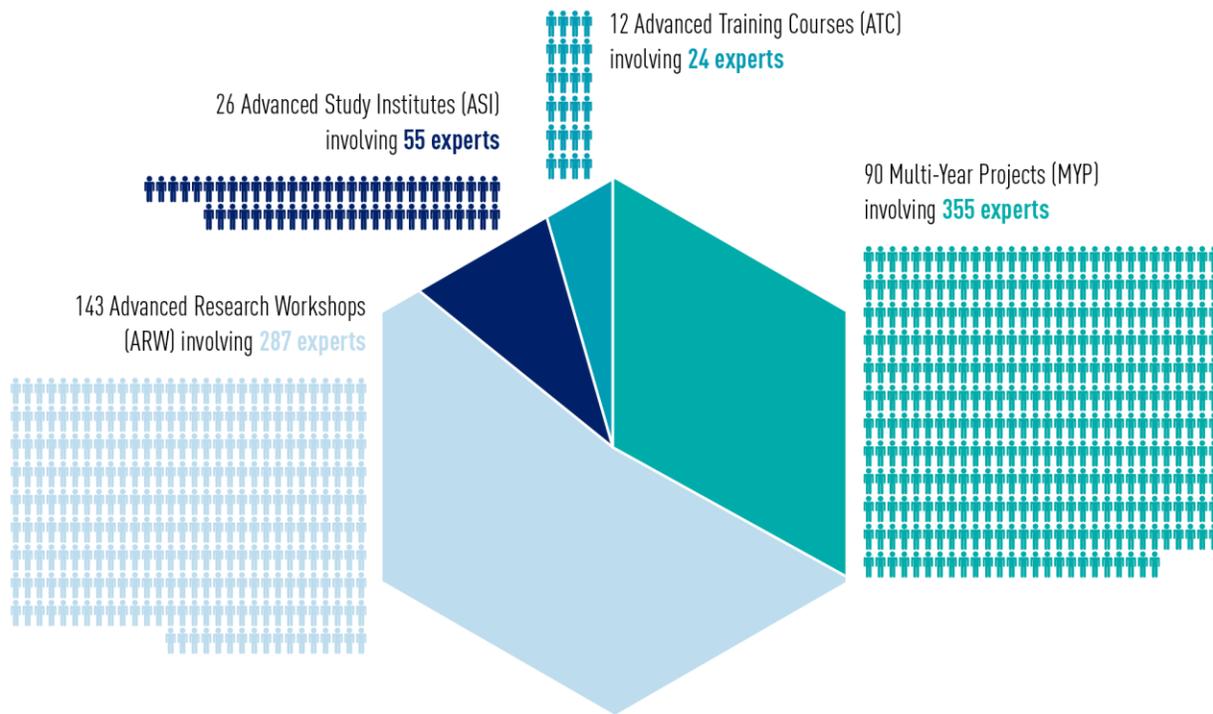
SPS Cooperation with Ukraine: Facts and Figures



The NATO Science for Peace and Security Programme

Practical Cooperation with Ukraine - Facts and Figures 2019

Since 1991, more than **721 experts** from Ukraine have participated in the SPS activities as follows:



Over the past 28 years the SPS Programme has facilitated the exchange of more than **945 young scientists**.

83 publications



Thanks to the SPS Programme more than **146 experts** from NATO countries have visited scientific establishments from Ukraine with the aim of knowledge sharing and exchange of good practices.



The SPS Programme also supported **44 Ukrainian young scientists** who studied abroad to continue their research in Ukraine.

Cooperation with a wide range of NATO and partner countries:



Examples of SPS Activities in Cooperation with Ukraine

Contribution to Comprehensive Assistance Package



Key Flagship Activities



Durable impact

Comprehensive Assistance Package (CAP) for Ukraine

3 SPS MYPs completed:

G4748 - “Multinational Telemedicine System”

- To improve access to medical expertise and increase survival rates in emergency situations, including in remote areas.

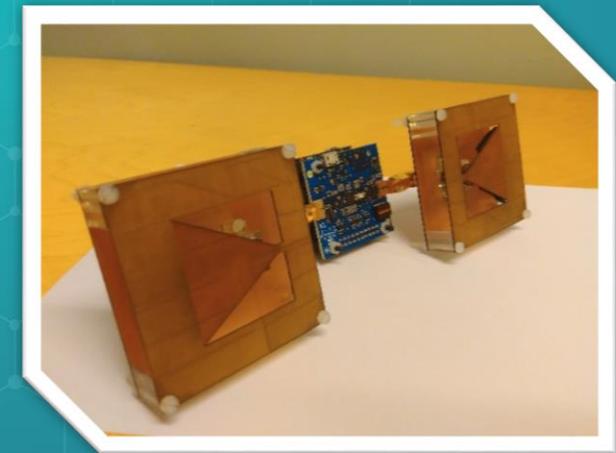


G5024 - “Support to Humanitarian Demining in Ukraine”

- Equipment and training for the State Emergency Service of Ukraine (SESU) in Donetsk and Luhansk regions.
- Also enabled clearance by Ukrainian demining teams in Balaklia and nine nearby settlements, following the March 2017 incident.

G5217 - “Development of a Mine and IED Recognition System based on Ultrawideband Technology”

- Enhanced the detection of dangerous targets, allowing for faster, cheaper and safer clearance of former conflict zones.



DEXTER: Detection of EXplosives and firearms to counter TERrorism



Objective: Develop an integrated system to detect explosives and firearms in public places, remotely and in real time, without disrupting the flow of pedestrians.

The DEXTER Consortium includes:

- 11 institutions from NATO (France, Italy, Germany, Netherlands) and Partner nations (Ukraine, Republic of Korea, Republic of Serbia, Finland).
- 3 SPS MYPs:
 - G5395 – “Microwave image curtain (MIC)”
 - G5526 – “EXplosive TRAcE detection for Standex (EXTRAS)”
 - G5605 – “INtegrated System for Threats EARly Detection (INSTEAD)”
- 5 additional contributing nations



Redefined Chernobyl Confinement Model

G4906 - MYP led by Germany and Ukraine
Implemented between January 2015 and May 2019

Objectives

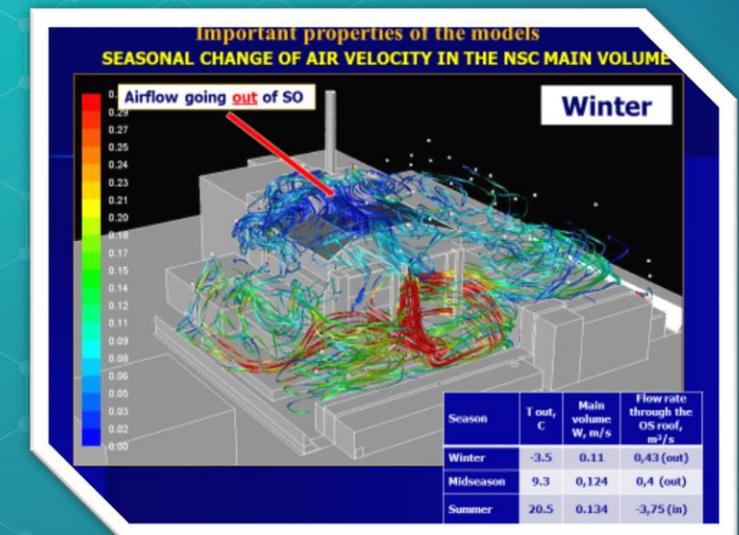
- To assist Ukraine in managing radioactive dust disturbances and leaks.
- To develop a 3-D computer model for the distribution and movement of highly radioactive dust and aerosols of the destroyed Chernobyl reactor unit 4.

Outcomes

- ✓ Model transferred to end-users, who can use it to predict dose loads and select protection measures for the personnel who are dismantling the destroyed reactor.
- ✓ The work is being done under the New Safe Confinement (NSC) built to cover the destroyed unit 4.

End-users

- State Specialized Enterprise “Chernobyl Nuclear Power Plant” (ChNPP)
- The State Agency for the Management of the Exclusion Zone
- Ukrainian authorities responsible for the safety of the Chernobyl personnel
- NOVARKA consortium that built the New Safe Confinement



New Phytotechnology for Cleaning Contaminated Military Sites

- **G4687 - MYP** led by **Czech Republic** and **Ukraine**, with experts from **Kazakhstan** and **Slovakia**
- Kicked-off in **April 2016** – still ongoing

Goals:

- ✓ Develop methods for producing **biomass** from **grass hybrid**, grown on contaminated military sites, in order to **decontaminate soil**.
- ✓ Focus on how to produce **second generation biofuels** from the biomass



Outputs:

- ✓ **New phytoremediation technology** as an alternative approach to the rehabilitation of military sites.
- ✓ **Biomass production** as a possibility for the defence research and development community to advance **biofuel production**.
- ✓ Publication of a **guideline book** that will enable relevant authorities to use the **method** for commercial production of this grass hybrid on contaminated soil.

Flood Monitoring and Forecast in the Pripyat River Basin

MYP led by Belarus, Ukraine, and Slovakia

Kicked-off in November 2009 and concluded in November 2011

End users:

- ✓ Hydrometeorological Centres at Brest Oblast (Belarus) and Volyn Oblast (Ukraine)
- ✓ Ministry of Natural Resources and Environmental Protection (Belarus)
- ✓ Central Research Institute for Complex Water Resources (Belarus)
- ✓ Nuclear Power Station at Rivne, Ukraine.

Outcomes:

- ✓ Riverbed and floodplain cross-sections of the Pripyat river basin as a basis for **river-monitoring design** and **hydraulic modeling**;
- ✓ Installation of a **network of seven river monitoring stations** at the Pripyat river estuary (five upstream in Ukraine and two in Belarus);
- ✓ **Online public data sharing** of water level, current, precipitation, flood forecast and warning;
- ✓ **Knowledge transfer** to end-users.



New Electron Storage Ring (NESTOR)

Project led by the Netherlands, Ukraine and Germany

Longest running SPS project: 2003-2012

Outcome:

- ✓ A unique machine that produces high energy X-rays for high resolution image detection systems.
- ✓ Smaller and much less expensive than previous models.
- ✓ Used in medicine, detection of illicit trafficking and explosives, forensic detection and environmental security.

Impact:

- ✓ Located in National Science Centre's Kharkiv Institute of Physics and Technology
- ✓ **18** out of 42 project team members were **young scientists**
- ✓ Built capacity and helped retain young talents in Ukraine

X-Ray generator project builds capacity among young nuclear scientists in Ukraine

13 Nov. 2012 - | Last updated: 14 Nov. 2012 12:39

English | French | Russian | Ukrainian



The NESTOR project, which is developing a revolutionary X-ray generator, has engaged a new generation of nuclear scientists in Ukraine. Launched in January 2003 and nearing completion, this is one of the longest-running projects under the NATO Science for Peace and Security (SPS) Programme.



Now open: Special Calls for Proposals

Science for Peace and Security (SPS)

How to apply

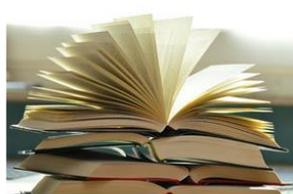
SPS is currently accepting proposals in response to two Special Calls for Proposals on Advanced Technologies and Explosives Detection. To access the calls and relevant application material, please follow the links below. **The applications deadline is 15 February 2020.**



**SPECIAL CALL
FOR PROPOSALS ON
ADVANCED TECHNOLOGIES**



**SPECIAL CALL
FOR PROPOSALS ON
EXPLOSIVES DETECTION**



**APPLICATION MANUALS
AND
MATERIALS**

- Building on recommendations from SPS Cluster Workshops held in 2018 and 2019
- Aligned with current and future trends
- Details and application material available on the SPS website under “How to Apply”
- Deadline: 15 February 2020



The NATO Science for Peace
and Security Programme

NATO SCIENCE FOR PEACE AND SECURITY (SPS) SPECIAL CALL FOR PROPOSALS ON EXPLOSIVES DETECTION

Background

Mines, unexploded ordnances (UXOs), improvised explosive devices (IEDs) and other explosive remnants of war (ERW) pose a direct threat to the security of the citizens of NATO and partner nations, and to international stability and prosperity. Mines and UXOs are a persistent global threat, particularly in war-torn countries, and international cooperation is crucial to effectively address this challenge.

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The NATO Science for Peace
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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



The NATO Science for Peace and Security Programme

Follow us

The screenshot shows the website for the Science for Peace and Security Programme. At the top, it features the NATO logo and the text 'NORTH ATLANTIC TREATY ORGANIZATION'. Below this is a navigation menu with 'ORGANIZATION', 'TOPICS', 'NEWSROOM', and 'E-LIBRARY'. A search bar is also present. The main content area is titled 'Science for Peace and Security' and includes a 60th anniversary banner. A sidebar on the right contains sections for 'HOW TO GET FUNDING' (with links for 'What we fund' and 'How to apply') and 'MANAGING MY GRANT' (with a link for 'How to report').

nato.int/science

The screenshot shows the Twitter profile for the NATO SPS Programme (@NATO_SPS). The profile header includes the NATO logo and the text 'The NATO Science for Peace and Security Programme'. Below this, it shows a '60' anniversary badge and statistics: 1,050 tweets, 690 following, 3,545 followers, and 974 likes. A pinned tweet from December 7, 2018, asks 'Ever wondered in which @NATO_SPS activities your homecountry is involved?' and includes a link to an interactive map. A 'New to Twitter?' section at the bottom encourages users to sign up for a personalized timeline.

[@NATO_SPS](https://twitter.com/NATO_SPS)