NATO
OTAN

Science for Peace and Security (SPS) Programme
Emerging Security Challenges Division

SPS 60th ANNIVERSARY

SPS Partnership Prize Award Ceremony

Book presentation by Dr. Simone Turchetti
'Greening the Alliance: The Diplomacy of NATO's Science and Environmental Initiatives'

Exhibition of Posters and Prototypes resulting from SPS projects

29 November 2018, 14h00
NATO HQ, Public Square (Press Briefing Room)

www.nato.int/science @NATO_SPS

Foreword by Dr. Antonio Missiroli

60 years ago, on 29 March 1958, the North Atlantic Council met in Paris where the then 15 NATO Ambassadors formally announced the establishment of a NATO Science Committee and the position of a Science Advisor to the Secretary General. Professor Norman F. Ramsey, a renowned US physicist from Harvard University who had once worked on the Manhattan Project, was appointed Science Advisor and chaired the first meeting of the NATO Science Committee, marking the foundation of the NATO Science Programme. Against the background of the launch of Sputnik1 by the Soviet Union, one of the major goals of the programme was to promote the training of scientists within NATO countries to facilitate exchanges, build networks, and increase returns on research investments.

Since then, the Programme has come a long way while constantly adapting to changing demands. Known since 2006 as the Science for Peace and Security (SPS) Programme, it offers unique ways to engage NATO nations and partners in meaningful, practical cooperation with tangible results and deliverables. Today, approximately 150 ongoing SPS projects, workshops and training courses help to build capacity in partner countries, support NATO efforts in the fight against terrorism, facilitate the development of security-related advanced technologies and foster expert networks to address questions related to cyber defence or the role of women in peace and security.

Dr. Antonio Missiroli,
NATO Assistant Secretary General for Emerging Security Challenges

As the SPS Programme celebrates its 60th anniversary, we are proudly looking back at its past achievements and impact. For instance, a constant throughout the last six decades has been the contribution of the Programme to and emphasis on innovation and scientific excellence. More than 20 scientists who had been involved in the Science Programme received a Nobel Prize. This included two gentlemen who were strongly involved in the creation of the Programme in the late 1950s: Norman Ramsey, the First NATO Science Committee Chairman, who was awarded with the Nobel Prize for Physics in 1989 for the invention of a method that had crucial applications in the construction of atomic clocks; and the Canadian Foreign Minister, Lester Pearson, one of the 'Three Wise Men' suggesting to enhance NATO cooperation in non-military areas such as science, and who received the Nobel Peace Prize in 1957 for contributing to a peaceful resolution of the Suez crisis.

On its 60th anniversary, SPS is far from considering retirement. I am convinced that the Programme will remain on a successful path and continue to promote NATO's strategic objectives and partnerships and to demonstrate its flexibility in the foreseeable future.

Introductory statement by Dr. Deniz Yüksel-Beten

In the course of its 60-year history, the NATO Science for Peace and Security (SPS) Programme has promoted practical cooperation by engaging scientists from NATO member and partner countries through its grant mechanisms. The SPS Programme represents a fundamental part of NATO's practical and result-oriented cooperation with Partners and international organisations. In 2018, the Programme continues to successfully implement new strategic and political guidance from Allies, while delivering civil science through security-related research and development (R&D), as well as top-down capacity-building projects requested by several partner nations.

Today, all 29 NATO countries contribute to the success of the SPS Programme in various ways. Allies in the NATO Partnerships and Cooperative Security Committee (PCSC) directly oversee the implementation of the SPS Programme; approve all SPS activities; decide on an annual work programme; and nominate the members of the Independent Scientific Evaluation Group (ISEG). The high approval ratings of SPS award recommendations by the PCSC reflect the Programme's rigorous peer-review process and alignment with NATO's strategic objectives. The Independent Scientific Evaluation Group (ISEG) brings value to the SPS Programme by making sure that all SPS projects meet the criteria for success and are well managed in line with the objectives. Last but not least, the SPS staff monitors the implementation of SPS activities on a daily basis, both from a technical and financial point of view. As a result, Allies in the PCSC receive regular updates on the progress and results of these activities.

Dr. Deniz Yüksel-Beten, *Senior SPS & Partnership Cooperation Advisor, NATO Emerging Security Challenges Division*

During the past decade, the SPS Programme has demonstrated its ability to effectively respond to the demands of Allied and partner countries through practical cooperation, particularly in the area of security-related civil science and technology. With a view towards ensuring a balanced 360-degree approach to its cooperation with all partners, the SPS Programme further enhanced its outreach to partners across the globe. The Programme's cooperation with other international organisations at the staff-to-staff level have been instrumental in building synergies and avoiding duplication.

NATO partners' priorities to further enhance practical cooperation with the SPS Programme are clearly reflected in the partnership political framework documents. Taking into account the North Atlantic Council (NAC) Overarching Guidelines for the SPS Programme and political guidance from Allies, new top-down key flagship projects, including in the fields of counter-terrorism, cyber defence, and women, peace and security will be developed and implemented based on the strong political support of the Allies.

As we celebrate six decades of science cooperation at NATO, the SPS Programme is determined to remain on its successful path and continue to promote NATO's strategic objectives and partnerships and to demonstrate its capacity to adapt in a constantly changing world.

Programme

13h00

Arrival & registration of participants

14h00

Introduction by Dr. Deniz Beten, Senior Advisor Science for Peace and Security (SPS) Programme and Partnership Cooperation

Opening remarks by Mrs. Rose Gottemoeller, NATO Deputy Secretary General

Award Ceremony of the SPS Partnership Prize

This high-level session will commemorate and highlight key achievements of the SPS Programme over the sixty years of its existence and will award the SPS Partnership Prize to three outstanding completed SPS multi-year projects, in the following SPS Key priorities:

- ➤ Cyber Defence
- ➤ Defence against Chemical, Biological, Radiological, and Nuclear (CBRN) Agents
- ➤ Advanced Technologies

Keynote speakers

- Ambassador Claudio Bisogniero, Italy
- Sheikh Fawaz Al-Sabah, Kuwait
- Ambassador Miomir Udovički, Serbia
- Ambassador Vadym Prystaiko, Ukraine
- Ambassador Gaya Mammadov, Azerbaijan
- Dr. Thomas Killion, NATO Chief Scientist

Video – Key achievements of 60 years of Science cooperation at NATO

Thursday, 29 November 2018 – SPS 60th ANNIVERSARY

15h00

Key achievements of the SPS Programme by Dr. Antonio Missiroli,
Assistant Secretary General for Emerging Security Challenges

Book presentation by Dr. Simone Turchetti
'Greening the Alliance: The Diplomacy of NATO's Science and Environmental Initiatives' (University of Chicago Press)

15h30

Closing remarks by Dr. Antonio Missiroli,
Assistant Secretary General for Emerging Security Challenges

Visit of the Exhibition of Posters & Prototypes resulting from SPS projects

16h00

Cocktail reception

17h30

End of the event

List of participants

1. The Honorable Rose E. Gottemoeller, Deputy Secretary General of NATO
2. H.E. Mr. Claudio Bisogniero, Permanent Representative of the Republic of Italy on the North Atlantic Council
3. Sheikh Fawaz Al-Sabah, Head of the Information and Security Follow-up Sector, National Security Bureau of the State of Kuwait
4. H.E. Mr. Miomir Udovicki, Head of Mission of the Republic of Serbia to NATO
5. H.E. Mr. Vadym Prystaiko, Head of Mission of Ukraine to NATO
6. H.E. Mr. Gaya Mammadov, Head of Mission of Azerbaijan to NATO
7. Dr. Thomas Killion, NATO Chief Scientist
8. Dr. Antonio Missiroli, Assistant Secretary General for Emerging Security Challenges
9. Dr. Deniz Beten, Senior Advisor SPS Programme & Partnership Cooperation, NATO
10. Dr. Simone Turchetti, University of Manchester, United Kingdom
11. H.E. Mr. Radovan Javorcik, Permanent Representative of the Slovak on the North Atlantic Council
12. S.E Madame Hélène Duchêne, Permanent Representative of the French Republic on the North Atlantic Council
13. H.E. Mr. Fatih Ceylan, Permanent Representative of the Republic of Turkey on the North Atlantic Council
14. H.E. Mr. Mario Nobilo, Permanent Representative of the Republic of Croatia on the North Atlantic Council
15. H.E. Mr Øystein Bø, Permanent Representative of the Kingdom of Norway on the North Atlantic Council
16. Mr. Petrika Jorgji, Deputy Permanent Representative of the Republic of Albania on the North Atlantic Council
17. Mr. Michal Polakow, Deputy Permanent Representative of the Republic of Poland on the North Atlantic Council
18. Mr. Norbert Brada, Deputy Permanent Representative of the Slovak Republic on the North Atlantic Council
19. Mr. Douglas Jones, Deputy Permanent Representative of the United States on the North Atlantic Council
20. Minister Ragnar G. Kristjánsson, Deputy Head of Mission, Embassy of the Republic of Iceland to Belgium, Mission to the EU
21. H.E. Sheikh Thamer Al-Sabah, President of the National Security Bureau of the State of Kuwait
22. H.E. Mr. Wali J Monawar, Ambassador of the Islamic Republic of Afghanistan
23. H.E. Dr. Elisabeth Kornfeind, Ambassador of the Republic of Austria
24. H.E. Mr. Hyoung-zhin Kim, Ambassador of the Republic of Korea
25. H.E. Mr. Albudaiwi Jasem, Ambassador of the State of Kuwait
26. H.E. Mr. Lilian Darri, Head of Mission of the Republic of Moldova to NATO
27. H.E. Mr. Axel Wernhoff, Head of Mission of the Kingdom Sweden to NATO
28. Mr. Mazen Nureddin, Chargé d'affaires a.i., Embassy of Libya
29. Minister Yoshinori Kodama, Mission of Japan to NATO
30. Ambassador Tacan Ildem, Assistant Secretary General for Public Diplomacy, NATO

31. Ambassador Sorin Ducaru, Senior Fellow, Husdon Institute, Romania
32. Mrs. Clare Hutchinson, NATO Secretary General's Special Representative for Women, Peace and Security, NATO
33. Mr. Robert Weaver, Deputy Assistant Secretary General for Emerging Security Challenges, NATO
34. Mrs. Carmen Romero, Deputy Assistant Secretary General for Public Diplomacy Division, NATO
35. Mr. Gordon B. Davis Jr., Deputy Assistant Secretary General for Defence Investment, NATO
36. Mrs. Shahla Abbakirova, Mission of the Republic of Azerbaijan to NATO
37. Mr. Almansour Abdulmohsen, Mission of the State of Kuwait to NATO
38. Mr. Amir Abramovich, Ariel University, Israel
39. Mrs. Mariam Al-Jiran, Kuwait National Security Bureau, Kuwait
40. Mr. Sultan Al-Qaisi, Embassy of the Hashemite Kingdom of Jordan
41. Mr. Fawaz Al-Othman, Kuwait National Security Bureau, Kuwait
42. Mr. Abdullah Al-Sabah, Kuwait National Security Bureau, Kuwait
43. Mr. Hakan Altan, Middle East Technical University, Turkey
44. Mr. Charl Baard, McMaster University, Canada
45. Mrs. Henrietta Balajthy, Permanent Delegation of Hungary to NATO
46. Mr. Boris Bankov, NATO
47. Mrs. Elena Beganu, NATO
48. Mr. Nir Ben-Tal, Tel Aviv University, Israel
49. Mr. Nauman Bashir Bhatti, Embassy of Pakistan, Pakistan
50. Mr. James Bombace, Former NATO Staff
51. Mrs. Mirjana Bosniak, Permanent Delegation of Croatia to NATO
52. Mr. Luca Bossi, University of Florence, Italy
53. Mrs. Jane Bradbrooke, NATO
54. Mr. Petr Brandel, Permanent Delegation of the Czech Republic to NATO
55. Mrs. Evrim Bunn, Department of Homeland Security, USA
56. Mr. Lorenzo Capineri, University of Florence, Italy
57. Mr. Pieter Claes, Consultant, Belgium
58. Mr. Charles Crepeau, NATO
59. Mr. Florent Christophe, ONERA, France
60. Mr. Lloyd Chubbs, NSPA
61. Mrs. Ineke Deserno, NATO
62. Mrs. Emilia D'Ettorres, NATO
63. Mr. Nicola de Santis, NATO
64. Mrs. Martine Deweer, Former NATO Staff
65. Mr. Nader Diab, NATO
66. Mr. Sofiane Douah, Embassy of Algeria
67. Mr. Dmytro Dovhal, Igor Sikorsky KPI, Ukraine
68. Mrs. Wendy Dubuc, NATO
69. Mrs. Anna Madeleine Hedin Ekstrom, Swedish Civil Contingencies, Sweden
70. Mr. Alkandari Emad, Mission of the State of Kuwait to NATO
71. Mrs. Loredana Enachescu, NATO
72. Mr. Tommaso Erlicher, Permanent Delegation of Italy to NATO

73. Mr. Pierluigi Falorni, University of Florence, Italy
74. Mrs. Chiara Felli, Permanent Delegation of Italy to NATO
75. Mrs. Dominika Fendikova, Permanent Delegation of the Slovak Republic to NATO
76. Mr. Viktor Fischer, LabHC, Jean Monnet University, France
77. Mr. Philippe Fougerolle, C3F, France
78. Mrs. Isabelle Francois, NATO
79. Mrs. Asa Marie Fritzon, Swedish Civil Contingencies, Sweden
80. Mr. Tal Gat, Mission of Israel to NATO
81. Mr. Michael Gaul, Permanent Delegation of Germany to NATO
82. Mrs. Randi Laura Gebert, NATO
83. Mrs. Federica Genna, NATO
84. Mr. Matteo Gerlini, University of Rome, Italy
85. Mr. Otokar Grosek, Slovak University of Technology, Slovakia
86. Mrs. Mariem Ben Hassine, NATO
87. Mrs. Naznoush Habashian, Swedish Armed Forces, Sweden
88. Mr. Filip Hostiuc, NATO NCIA
89. Mrs. Eva Hoxha, NATO
90. Mr. Frank Jongeneel, MD, Belgium
91. Mr. Alain Jubier, Former NATO Staff
92. Mr. Lidor Kahana, Ben Gurion University, Israel
93. Mrs. Klavdija Kaliope, NATO
94. Mrs. Irma Kaljulaid, NATO
95. Mrs. Jessie Kaplan, NATO
96. Mr. Ileung Kim, Embassy of the Republic of Korea, Republic of Korea
97. Mr. Jung-Mu Kim, Chonbuk National University, Republic of Korea
98. Mrs. Thea Kjeldsen, Permanent Delegation of Norway to NATO
99. Mrs. Goran Kniewald, Rudjer Boskovic Institute, Croatia
100. Mr. Joep Knoppers, Permanent Representation of the Netherlands to NATO
101. Mr. Souleymane Konate, Harvard University, USA
102. Mr. Natan Kopeika, Ben-Gurion University of the Negev, Israel
103. Mr. Maxim Kozachuk, Igor Sikorsky Kyiv Polytechnic Institute, Ukraine
104. Mr. Richard Legault, Department of Homeland Security, USA
105. Mrs. Yulia Lyashuk, Mission of Belarus to NATO
106. Mr. Kostyantyn Lukin, IRE NAS of Ukraine, Ukraine
107. Mrs. Gabriella Lurwig, NATO
108. Mrs. Maria Sofia Macedo, Permanent Delegation of Portugal to NATO
109. Mrs. Ana Sofia Magalhaes, NATO
110. Mr. Paul Magis, NATO
111. Mrs. Juliana Mardon, NATO
112. Mr. Marco Martorella, University of Pisa, Italy
113. Mr. Manuel R. Mendes, NATO
114. Mr. Lauren Masella, Harvard T. H. Chan School of Public Health, USA
115. Mrs. Nathalia Melnyk, Mission of Ukraine to NATO, Ukraine
116. Mrs. Susanne Michaelis, NATO
117. Mr. Jeffrey Mortimer, Sandia National Laboratories, USA

118. Mrs. Urszula Mus, NATO
119. Mr. Victor Naydenko, Igor Sikorsky KPI, Ukraine
120. Mr. Karol Nemoga, Slovak Academy of Sciences, Slovakia
121. Mr. Nicholas Nguyen, NATO
122. Mrs. Gullen Dilek Gurun Onen, Permanent Delegation of Turkey to NATO
123. Mr. Filipe Ramalho Ortigao, Permanent Delegation of Portugal to NATO
124. Mr. Paul Rambaut, Former NATO Assistant Secretary General
125. Mr. Filipe Osorio, NATO
126. Mr. Claudio Palestini, NATO
127. Mr. Antonio Palucci, ENEA, Italy
128. Mr. Fatma Pasaoglu, Permanent Delegation of Turkey to NATO
129. Mr. Fausto Pedrazzini, Former NATO Staff
130. Mr. Aaron Pitcher, McMaster University, Canada
131. Mr. Ioannis Plotas, Permanent Delegation of Greece to NATO
132. Mr. Gennadiy Pochanin, O.Ya.Usikov Institute for Radiophysics and Electronics of the National Academy of Sciences of Ukraine
133. Mrs. Sonja Reed, NATO
134. Mr. Nicholas Roche, NATO
135. Mr. Asaf Behzat Sahin, Yildirim Beyazit University, Turkey
136. Mr. Jonathan R. Salton, Sandia National Laboratories, USA
137. Mrs. Elena Savoia, Harvard University, USA
138. Mrs. Marion Segnana, Permanent Delegation of Luxembourg to NATO
139. Mr. Abdelmohsen Shafey, Embassy of the Arab Republic of Egypt
140. Mr. Jamie Shea, Friends of Europe/Former NATO Deputy Assistant Secretary General, United Kingdom
141. Mr. Luka Snoj, Jozef Stefan Institute, Slovenia
142. Mr. Rainer Steinwandt, Florida Atlantic University, USA
143. Mrs. Jessica Stern, Boston University, USA
144. Mr. Milovan Stoiljković, Vinča Institute of Nuclear Sciences, Serbia
145. Mrs. Katarina Strbac, Ministry of Defence, Serbia
146. Mr. Maurus Tacke, Fraunhofer IOSB, Germany
147. Mrs. Vera Tarsina, Mission of the Republic of Moldova to NATO
148. Mrs. Aristea Tsamadias, NATO
149. Mr. Haliloglu Turkan, Bogazici University, Turkey
150. Mrs. Tijana Turkovic, Permanent Representation of Montenegro to NATO
151. Mr. Eyup Turmus, NATO
152. Mrs. Roxana Turtoi, NATO
153. Mrs. Laura Van de Vloet, NATO
154. Mrs. Arisleyda Veras, Harvard University, USA
155. Mr. Erling Hannevig Wang, Erling H. Wang Consulting/Former NATO Assistant Secretary General, Norway
156. Mrs. Amanda Webb, NATO
157. Mr. Christian De Wispelaere, Former NATO Staff
158. Mrs. Susan Williamson, NATO
159. Mr. Moritz Zimmermann, NATO
160. Mrs. Petra Zupančič, Permanent Delegation of the Republic of Slovenia to NATO

NATO SPS Partnership Prize

2018

Evaluation criteria
Innovation
Partnership
Young Scientists

Awarded by the NATO Deputy Secretary General for excellence in Partnership collaboration in an SPS multi-year project

The 2018 NATO SPS Partnership Prize is awarded for excellence in cooperation to 3 outstanding SPS multi-year projects

Secure Implementation of Post-Quantum Cryptography

Prof. Otokar Grošek
Institute of Computer Science and Mathematics,
Slovak University of Technology Bratislava, Slovakia

Dr. Eran Tromer
Tel Aviv University - Tel Aviv, Israel

Prof. Viktor Fischer
Jean Monnet University, France

Dr. Rainer Steinwandt
Florida Atlantic University, U.S.A.

The Anthrax MntABC transporter: Structure, Functional Dynamics and Drug Discovery

Prof. Turkan Haliloglu
Bogazici University - Istanbul, Turkey

Prof. Nir Ben-Tal
Tel Aviv University - Tel Aviv, Israel

Assistant Prof. Oded Lewinson
Israel Institute of Technology - The Technion, Israel

Compact Sensor System for Unmanned Aerial Vehicles

Dr. Ignacio Llamas-Garro
Centre Tecnològic de Telecomunicacions de Catalunya – CTTC
Castelldefels, Spain

Prof. Jung-Mu Kim
Chonbuk National University - Jeonju, Korea

Prof. Kostyantyn Lukin
Usikov Institute for Radiophysics and Electronics
National Academy of Sciences of Ukraine, Ukraine

SIMONE TURCHETTI

GREENING THE ALLIANCE

The Diplomacy of NATO's Science and Environmental Initiatives

Book by Dr. Simone Turchetti

'Following the launch of Sputnik, the North Atlantic Treaty Organization became a prominent sponsor of scientific research in its member countries, a role it retained until the end of the Cold War. As NATO marks sixty years since the establishment of its Science Programme, *Greening the Alliance* charts NATO's scientific patronage—and the motivations behind it—from the early days of the Organization to the dawn of the twenty-first century.'

Exhibition of Posters and Prototypes

The Exhibition that marks the 60th Anniversary of the SPS Programme is a unique experience to get to know some of the most promising hands-on results of SPS support to joint cooperative science projects.

This collaborative research has achieved results in line with global innovation trends and relevant to NATO's defence and security objectives. The research supported by SPS gives NATO and its member nations new tools to counter terrorism, create new capabilities, and better support our operations.

The Exhibition provides an opportunity to interact directly with the people behind these projects and the results of their dedicated work. You will learn more about NATO's civil science contribution to promoting peace and security.

Counter-terrorism

Detect explosives

Counter-IED

Small Concealed Weapons

Nuclear substances

CBRN

Rapid skin wound healing

New capabilities

Support infrastructures

Secure maritime infrastructure

Surveillance/monitoring terrain

OVERVIEW OF PROJECTS

Holographic and Impulse Subsurface Radar for Landmine and IED Detection

Italy, Ukraine, USA

The prototype robotic “Ugo 1st” platform for landmine and UXO detection.

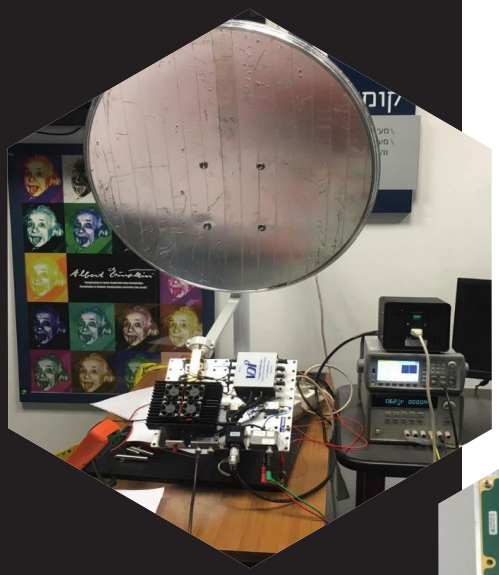
The project presents a remotely-operable, robotic, multi-sensor device for the detection of UXO, landmines, and IEDs. Operation is based on subsurface radar with imaging and classification that distinguishes dangerous targets from harmless clutter. The prototype of the multisensory robotic platform has been realised and preliminarily tested in a controlled outdoor environment with buried landmine simulants in several experimental sessions. The results obtained are very promising in terms of system integration and final user remote operability.

The robotic platform in search of explosives will help prevent human casualties.

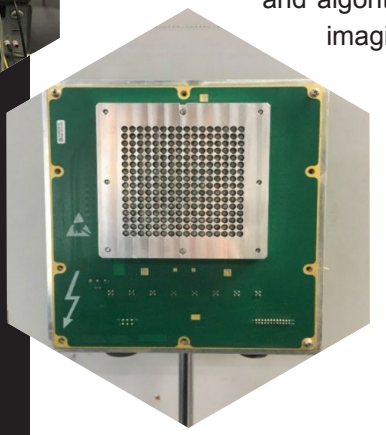
▶ The three G-5014 project teams (University of Florence-Italy, Usikov Institute for Radiophysics and Electronics of NAS-Ukraine, Franklin & Marshall College-USA)

Development of a 100m Stand-off MM-Wave 3D Imaging System Based on a GDD Array

Turkey, Israel



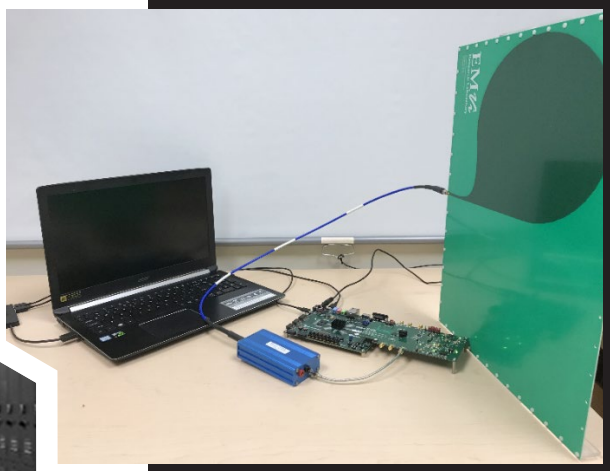
This project presents a low-cost technology that could be used to detect covert threats on persons. The researchers involved in the project have developed, constructed and tested a three dimensional millimeter wave imaging system based on very inexpensive detectors called Glow Discharge Detectors along with the detection techniques, software, and algorithms necessary to operate them. Millimeter wave imaging is a commercial security technology used to image threats concealed on people. This system would allow the imaging of concealed threats on persons at stand-off ranges.



Long range stand-off microwave radar for personnel protection

Canada, Ukraine

The This project presents its work on a compact portable (possibly wearable) warning system for the stand-off detection of on-body concealed weapons. The project is focused on protecting military or law-enforcement personnel from acts of terrorists and militants who often adopt a civilian disguise to inflict as much damage as possible. The system could also be useful in civilian protection. Its goal is to protect military and law-enforcement personnel from a broad spectrum of threats by giving early enough warning to be able to react in a timely fashion.



Microwave Imaging Curtain

France, Ukraine, Republic of Korea

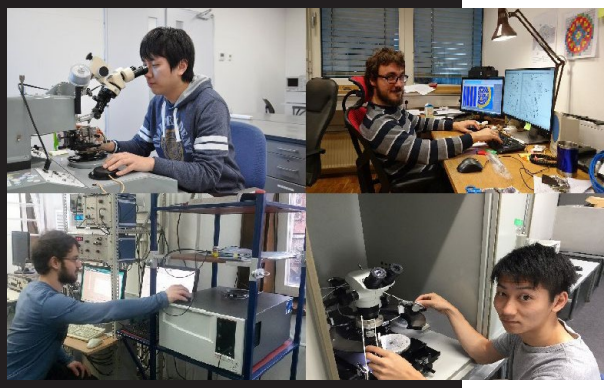
This recently launched project has the ambition to demonstrate the performance of an affordable solution to the challenge of detecting firearms or explosives concealed by a person in a mass-transit scenario, without disturbing the continuous flow of surrounding walking people. This project is an integral part of the DEXTER programme (Detection of EXplosives and firearms for counter TERrorism).

The project will design, develop and test in a representative environment, a radar-based imaging device addressing non-checkpoint detection of explosives and firearms. Taking into account current regulations on the impact of radiations upon human health, as well as intimacy protection, the project will integrate off-the-shelf high performance microwave modules, and it will develop specific signal processing algorithms in order to reconstruct 3D images of objects carried by moving persons, and to automatically recognize dangerous objects.

EXTRAS – EXplosive Trace detection for STANDEX

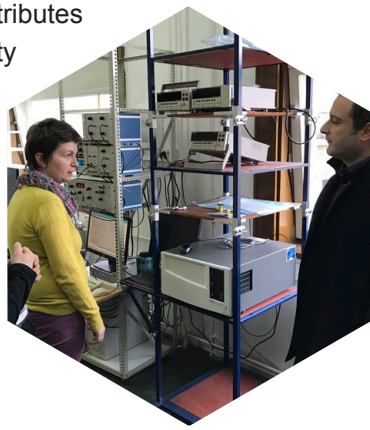
Italy, Serbia, Ukraine, The Netherlands, Germany

This recently launched project aims at developing a stand-off scanning sensor to detect trace compounds, compliant with the safety civil regulations, in the frame of the DEXTER programme (Detection of EXplosives and firearms for counter TERrorism). EXTRAS has been designed to be incorporated as Non-Checkpoint Detection of Concealed Explosives and Firearms, as well as to contribute as Confirmatory Detectors with the development of a new remote sensing apparatus for energetic materials (explosives and their precursors) trace detection. EXTRAS will deploy the Raman spectroscopy technique in order to investigate in real time a large portion of a potential bomber that might be contaminated with energetic materials. For a safe operation in public areas, EXTRAS will be compliant with European Directive 2006/25/EC, which sets the Maximum Permissible Exposure (MPE) to laser radiation.



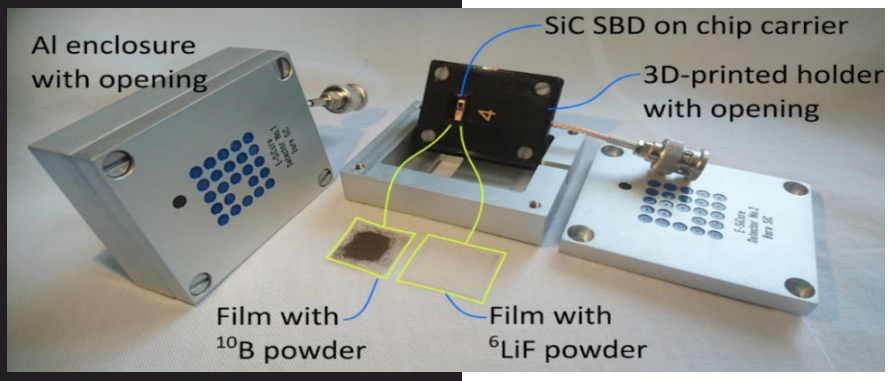
Engineering Silicon Carbide for Enhanced Border and Port Security (E-SiCure)

Croatia, Australia, Portugal, Japan, Slovenia



This project presents a technology that contributes to enhancing border and port security through state-of-the-art silicon carbide (SiC)-based radiation detectors. SiC is one of the most promising semiconductor material for the new generation of detectors. It is non-toxic and non-hazardous and can be produced at low cost. Unlike existing and commonly used gas-based neutron detectors, SiC-based devices have the potential to be simultaneously portable, operable at room temperature and radiation hard.

The developed device will be able to detect special nuclear materials at ports of entry, along borders, for in-transit monitoring of cargo and crowds, for mounted and mobile surveillance tools, as well as for personal and distributed detector networks.



E-SiCure prototype detectors. Left: assembled detector prototype in aluminum enclosure. Right: prototype detector components: SiC SBD mounted onto chip carried with contacts, installed in 3D printed holder with opening, converter films (with 10B and LiF powder), open aluminum enclosure

Autonomous platform for securing marine infrastructures (ThreatDetect)

Spain, Israel, Canada

This project presents its work on the development of an underwater unmanned system to secure marine infrastructures from the threat of diving intruders and submerged mines. The research team plans to investigate the key aspects for the successful operation of autonomous underwater observation systems, namely, object detection, positioning, and classification. To this end, the team intends to develop practical system architectures and signal processing algorithms and deploy them using a marine platform and on-board of an autonomous underwater vehicle (AUV). The platform will provide detection through an acoustic array, while the AUV will use its sonar system to enable detection verification of a submerged mine.

The final objective is to protect sensitive underwater areas from possible threats represented by intruding divers and submerged mines. The system works by actively scanning a given area using acoustic signals in order to detect the presence of divers. An AUV is sent to investigate whether intruding divers released any mines or other explosive ordnance in the area. The images acquired by the AUV are segmented and processed locally, and a summary of the results is sent back to a nearby control center using acoustic communications

High Altitude Balloon-Borne Radar

Italy, Australia

This project presents its work on the development of a demonstrator of a Synthetic Aperture Radar (SAR) system carried by a High Altitude Platform (HAP), more specifically a high altitude balloon. The new technology will be realised by building a miniaturised radar system that will be mounted on a novel platform employing high altitude balloons. The novel system intends to bridge the gap between Unmanned Aerial Vehicles (UAVs) and space-borne systems.

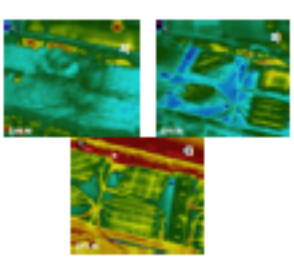
The proposed system will be low-cost and easily deployable while not compromising the performance of the system, such as target detection and recognition. The system proposed will be able to provide SAR images of designated areas at high resolution to be used for target/activity detection and for target classification/recognition

.

Icing Mitigation Studies and Technology with Applications to Security Systems

Canada, Ukraine, Belgium

The project presents the creation of an innovative system for combating icing issues in extreme maritime conditions relevant for defence and security, such as communication antennas/dishes, as well as operating vessels in high seas. The project developed an innovative cost-effective thermo-electric system that once it detects ice formation manages to reverse the process. The system relies on specific software as well as innovative super hydrophobic materials to counteract ice accretion.



RApid Skin Wound healing by Integrated Tissue engineering and Sensing (RAWINTS)

Belgium, Japan, Italy, Spain

This project presents its work to the development of an artificial human disposable skin or mucosa patches for immediate applications in case of medical emergency. These patches will provide fast relief to civilians and military personnel injured by chemical or physical agents destroying for example their skin or other surface tissues. The new patches will strengthen medical countermeasures to the impact of exposure to e.g. CBRN agents and provide support in monitoring the healing process associated with wounds, burns and vesicles.

1958-2018: Celebrating 60 Years of Scientific Cooperation at NATO

2018 marks the 60th anniversary of the NATO Science for Peace and Security (SPS) Programme, the foundations of which were laid on 13 December 1956, when the North Atlantic Council endorsed a report to enhance non-military cooperation and coordination within NATO. Known as the Report of the Three Wise Men, it proposed concrete activities to enhance cooperation in the areas of politics, economics and science. The final Report of three NATO Ministers, i.e. Lester B. Pearson (Foreign Minister of Canada), Gaetano Martino (Foreign Minister of Italy), and Halvard Lange (Foreign Minister of Norway), included a dedicated subchapter on scientific and technological cooperation.

The NATO Science Programme was launched in direct response to the Three Wise Men's recommendations in 1957 and against the background of the launch of Sputnik I, which showed the gap between Soviet and Allied missile technology. The Programme was aimed at promoting scientific projects and collaboration among scientists from NATO countries to facilitate exchange and maximise the return on research investments.

"NATO means not only collective security but also knowledge and expertise that can be used and shared with Ukraine,"

Dr Olga Bogomolets, Chairman of the Committee of the Verkhovna Rada of Ukraine on Health Care and Advisor to the President of Ukraine on Humanitarian Issues.

One year later, the NATO Science Committee (SCOM) was established and the first Science Advisor to the Secretary General was appointed on 29 March 1958. The NATO Science Committee was set up in response to the Report of the Three Wise Men containing recommendations for non-military cooperation among NATO Allies in line with Articles 2 and 4 of the North Atlantic Treaty. It aimed to promote scientific cooperation for Allied security, strengthen the transatlantic link, and enhance solidarity.

During the period of détente in the 1960s, Allies had acquired the governmental skills which would enable them to act in concert with respect to those aspects of the natural and social environment which would require a multinational effort. Accordingly, the North Atlantic Council created the Committee on the Challenges of Modern Society (CCMS) in 1969. The CCMS was subsequently expanded to include partners, and provided a unique platform for the sharing of knowledge and experience on technical, scientific, and policy aspects of social and environmental matter in both the civilian and military sectors.

In 1978 the Science committee celebrated its 20th anniversary. Over these two decades, the Programme funded more than 1500 projects, allowing over 6000 scientists from different NATO Countries to work together; it also resulted in 650 scientific books and several thousand articles being published in scientific books. More than 60,000 scientists had attended NATO-funded Advanced Study Institutes, and over 12,000 scientists had benefitted from NATO Science Fellowships, which allowed scientists to train in different prestigious institutions in NATO countries.

In 1992, following the political changes in Central and Eastern Europe and the Soviet Union and according to the guidance provided by the 1990 London Summit, the geographical scope of the activities of the Science Committee and the CCMS grew substantially with the creation of the North Atlantic Cooperation Council (NACC). The NACC focused on multilateral, political dialogue and lacked the possibility of each Partner developing individual cooperative relations with NATO. In this regard, a major change was represented by the launch in 1994 of the Partnership for Peace (PfP) a major programme of practical bilateral cooperation between NATO and individual Partner countries, which represented a significant leap forward in the cooperative process. The NACC eventually became the Euro-Atlantic Partnership Council, which provided a forum for dialogue and consultation on political and security-related issues, and for partnership through practical cooperation activities. In this same year NATO foreign Ministers agreed on strengthening scientific cooperation among Allied and partner nations. A prominent role in this regard was played by the NATO Science Fellowships, extended also to Cooperation Partner countries. Each year some 1300 fellows were selected by national competitions to receive these prestigious fellowships. At the same time, in 1997, with the signing of the Founding Act between NATO and the Russian federation, the Science Programme developed activities with Russian scientists strengthening research in dealing with the cold war legacy. A special programme of support for cooperation between scientists and experts from Russia and NATO countries has also been established within the Science for Peace and Security Programme, which later led to the establishment of the NATO-Russian Council-SPS Committee. For many years, Russia was the largest beneficiary of sponsorship until the illegal annexation of Crimea in 2014 led to the suspension of NATO's collaboration with Russian scientists.

"Today, I would say, people do not know NATO. They do not know what NATO is doing for peace and security; that is why the SPS Programme is so important,"

Ambassador Alessandro Minuto-Rizzo, Former Deputy Secretary General of NATO.

"The cooperation in the framework of Science for Peace and Security Programme provides yet another opportunity for us to join efforts towards enhancing security in our country as well as internationally."

Minister Petriashvili Georgian State Minister for European and Euro-Atlantic Integration.

In 2003, the Science Committee and its Programme were transferred to the newly created NATO Public Diplomacy Division. This development represented a fundamental re-direction of the Science Programme to focus on security, in line with NATO's new directions and objectives. It is only in 2006 that the restructured Programme took its current name of the Science for Peace and Security, following the merger of the Science Committee and CCMS. Soon after, in 2010, the SPS Programme and its staff were embedded into the Emerging Security Challenges (ESC) Division that was created in the same year. Corresponding to this move, the SPS Key Priorities were updated in 2012 to reflect an increased focus on new security challenges and in line with NATO's political agenda such as cyber defence, terrorism, and energy security.

"The value of the SPS Programme does not exclusively lie in its scientific contributions but also in its value for and application in security,"

Ambassador João Mira Gomes, Permanent Representative of Portugal to NATO from 2010 to 2015.

As this brief historical account demonstrates, NATO's civil science programme has been flexible and adapted throughout its 60-year history to reflect and respond to the changing political and security context in which it operates. In the early years, the Science Programme contributed to building a positive image of NATO as a security provider through engagement with Allied scientific and civilian communities based on the principles of solidarity. Over the years, and particularly at the end of the Cold War, this intra-alliance programme was transformed to reach out and offer practical cooperation across NATO's partnership frameworks. An example of this renewed image of the scientific cooperation was the Virtual Silk Highway project, launched in October 2001 with the objective to provide internet access for academic and scientific communities of eight Partner countries in the Southern Caucasus and Central Asia. Since the Programme's inception, a wide international network of scientists and experts from NATO member and partner countries has been established that now includes Montenegro, as a new NATO Ally, and Colombia as a new partner country. More than 20 Nobel Laureates are associated with the SPS Programme, a testament to the scientific excellence supported by the SPS Programme.

"The SPS Programme offers an excellent opportunity to collaborate with scientists and military in NATO Partner nations on research topics that are very relevant for both the Partner nations and the NATO nations. Examples are the projects on the clearance of unexploded ordnance from WWII in the Northern Desert of Egypt, in which important knowledge on detection technologies for increasing the clearance speed was gained and shared with the project partner",

Dr. Arnold Shoolderman from the Netherlands' Organisation for applied scientific research (TNO).

Today, the SPS Programme provides well-established and globally recognized mechanisms to engage all partners in practical cooperation activities based on scientific research, technological innovation, and knowledge exchange. SPS offers funding, expert advice and support to tailor-made, security-related activities that respond to NATO's strategic objectives and address priority areas of cooperation with partners.

In the past decade the SPS Programme:

trained more than 5800 young scientists and trainees.

promoted cooperation with more than 40 partners countries.

supported more than 300 publications.

completed more than 160 multi-year projects.

organized more than 400 events in the format of Advanced Research Workshop (ARW), Advanced Studies Institute (ASI) and Advanced Training Courses (ATC).

Notes

0866-18 NATO GRAPHICS & PRINTING