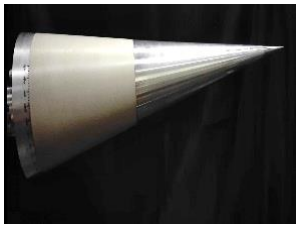
NORTH ATLANTIC TREATY ORGANIZATION
SCIENCE AND TECHNOLOGY ORGANIZATION

Technology in Action No. 5

NATO explores potential solutions and applications of Hypersonic Technologies



The Model on the Wind Tunnel Sting, Hypersonic Boundary-Layer Transition Prediction, STO-TR-AVT-240, p. 13-10

Hypersonic technologies will allow to travel faster than five times the speed of sound. This could have a strong impact on doctrine and conduct of future military operations because currently there are no effective defense systems against hypersonic vehicle.
NATO STO researchers and designers are working to improve overall designs and achieve definitive progress by coordinating international research efforts.

NATO STO Flight Medicine Summit and Technical Course

FORWARD TOGETHER

The last annual Ramstein-NATO STO Flight Medicine Summit and Technical Course was held to provide continuing medical education to 210 aerospace medicine professionals from 25 nations. Lecture Sessions have covered many medical fields such as: International Aeromedical Collaborations, Vision and Perception, Special Operations, Internal Medicine, Fighter Pilot Medicine, Neck and Back Pain, Applied Aviation Medicine , Aviation Psychology, and Flight Medicine Delivery and Training.

NATO studies Adaptive Information Processing and Distribution to Support Command and Control

In military operational mission contexts, vehicles and military personnel have ever more IT and communication devices for acquiring and processing information but connectivity cannot always be guaranteed. Hence, NATO STO is studying an infrastructure to allow the data to be moved and new control strategies for matching data storage, processing and connectivity availability.

NATO enhances energy efficiency in the military

Solar Portable Alternate Communications Energy System (SPACES)

NATO is always awareness of the crucial role of supply in missions which involve long distances and sustained presence.
Hence NATO STO is conducting Initiatives that focus on energy efficiency to make the most out of limited resources focusing on reducing dependencies on energy resources outside of the Alliance and by enhancing energy efficiency through technical and operational solutions.

NATO endorses Space as a Force Enabler

Standing watch in a combat information center. (Source: https://www.defense.gov/observe/p

In December 2019, NATO defence ministers recognized space as a new operational domain – alongside air, land, sea and cyberspace. NATO STO is arranging a research workshop to bring together operators, planners, space thinkers, and the acquisition community to exchange information and feed into the NATO Science and Technology community to help determine and prioritize NATO near- , mid- , and far- term needs and requirements.

NATO studies graphene and its possible applications

Graphene is a single, tightly packed layer of carbon atoms that are bonded together in a hexagonal honeycomb lattice. The exceptional properties of graphene made it compelling for various engineering applications.

NATO STO is exploring conductive properties of graphene and its application in a field of batteries.

NATO explores modelling and simulation support to operational tasks

Modelling and Simulation has great potential in operational planning and execution of missions, in particular in support of operational and tactical decision making also in Cyber and Electronic domains. NATO STO is investigating new Modelling and Simulation application in support of operations such as Logistics, Cyber Defence, War Gaming, which can assist in identifying gaps in national Rules Of Engagement when nations come together as a coalition force.

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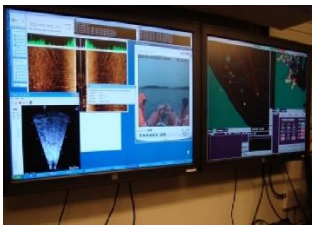
NATO Centre for Maritime Research and Experimentation (CMRE) studies and provides Maritime Security



Maritime security is a global concern. Great strides have been made in developing technologies for detecting possible attackers.The Centre's work in this area is currently focusing on independent testing, on evaluation of nonlethal response technologies and on developing appropriate responses once an attacker is identified.