

THE AVT PANEL

Applied Vehicle Technology

Newsletter

Dear AVT Community,

Happy 2024 to you all!

The AVT Panel Executive Office has been hard at work, in conjunction with our Canadian hosts, preparing for the upcoming 53rd AVT Panel Business Meeting Week in Ottawa.

As many of you have been eagerly awaiting, registration is now open on STO Events for the PBM and associated meetings and events! Please note that we have made some changes to the registration process this year. Participants attending technical and exploratory activity team meetings during the Panel Business Meeting Week will have their own separate registration page. You will find further information and all the registration links in this newsletter.

More good news – our new AVT Executive Officer, Dr Kerstin Huber, from the German Aerospace Center (DLR) will be joining the team on 1 March! She is already an active member of the AVT community and a past AVT Young Contributor awardee! Stay tuned to our next AVT Newsletter for more info.

As a reminder, new AVT **Exploratory Team (ET) proposals** must be submitted to your associated **TC-Chairs and the AVT Panel Office by 15 February** to be considered during the upcoming PBM. Please note the deadline to submit new cross-panel activities (all activity types) for the Spring Cycle was on 1 February.

Best regards,

Erin, Isavela, and Edna

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February 2024 Newsletter

Panel Chairs' Corner

Dr Tom Thorvaldsen & Mr Christoph Müller

First of all, we hope you all had a wonderful Christmas and an end-of-the-year break, and that you found some time to relax and spent a lot of time with your family, relatives and friends. At the time of writing this, January 2024 is already history. It has been a hectic start of this year for several of us, with a lot of things happening and being planned.

Early January we got the very sad message that our colleague Mr Tomas Sollund (Norwegian Defence Research Establishment (FFI)), Norway, passed away only, 42 years old. Tomas joined AVT for the first time in 2017, and since then he has been one of the leaders and main drivers in activities on anti-tamper protection. Tomas was also supposed to receive the Young Contributor Award at the AVT PBM in May this year. The Panel Chair will bring the award back to Norway, and make sure that his family receives it, as we know this means a lot to them.





Dr Denis Gély

Early this year we also got some very good news. Dr Denis Gély, Panel Member from France, was inducted as a member of the American Institute of Aeronautics and Astronautics (AIAA) Associate Fellows in the Class of 2024 at the 2024 AIAA SciTech Forum. As expressed by AIAA President Laura McGill, the grade of Associate Fellow recognizes individuals who made significant and lasting contributions to the aerospace profession, and who have been in charge of important engineering or scientific work, done original work of outstanding merit, otherwise made outstanding contributions to sciences. or technology arts. aeronautics or astronautics. Congratulations to Denis from the entire AVT family!

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February 2024 Newsletter

Panel Chairs' Corner (continued)

In mid-January, the Panel Chair submitted the nomination packages for the 2024 STO Excellence Awards (SEAs). From the AVT side, we have nominated Dr Andreas Schütte (DLR, DEU) for the Individual SEA, and the Research Task Group (RTG) AVT-331 on "Goal-driven, multi-fidelity approaches for military vehicle system-level design" for the Team SEA. The STB Principal members will discuss and decide on this during upcoming Spring STB meeting in March. Both candidates are, in our opinion, very well qualified for the SEA. We are very honored to have them as part of the AVT community, and highly appreciate the great work that has been done. Fingers crossed both nominees will be selected. Also, thanks a lot to the AVT Awards Committee Chairs and others who contributed to the nomination packages.



Dr Andreas Schütte



RTG AVT-331 – Goal-driven, multi-fidelity approaches for military vehicle system-level design

From 23rd – 25th January, the annual STO-ACT meeting was held at NATO Allied Command Transformation (ACT), Norfolk, Virginia, USA. Colleagues and representatives from the Collaborative Support Office (CSO), the Office of the Chief Scientist (OCS), the Centre for Maritime Research and Experimentation (CMRE), and the Chairs and Vice Chairs of five of the Scientific and Technical Committees (also known as the Panels and Group) attended the meeting. The STO attendees received briefings on a wide range of relevant topics, including the NATO Warfighting Capstone Concept (NWCC), the Warfare Development Agenda (WDA), the strategic foresight analysis, the digital transformation and the Capability Development Programme. ACT has been important to our work in AVT, and ACT will continue to be so also in the future.



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Panel Chairs' Corner (continued)

On 30th January, the CSO Director John-Mikal Størdal and the CSO Information Knowledge Management (IKM) Branch Head, Mr Ben Van-Vianen, invited the STO community to a virtual meeting about the plans for digital transformation in the CSO. Preparatory work has been done in 2023, while waiting for the approval of the CPOW 2030 Action Plan. A dedicated working group has now been (officially) established at CSO. Some may think that the processes are going slowly, but it takes time to find the right tools and overall structure for the digitalization. New tools will be introduced and implemented in the years to come. This will hopefully, in near future, make our daily AVT work easier and more efficient and effective.

The following weeks will be busy for many of us in AVT, with a lot of things happening. First of all, we are looking forward to the next issue of the STO Review Journal, which will include papers and contributions from two AVT activities; AVT-371 and AVT-372. Thanks a lot to the AVT Scientific Committee, Cochairs, members, authors of the AVT



activities, the CSO IKM office an other contributors for making this happen. Publishing high-quality scientific results in the STO Review Journal is one of the action items of the CPOW 2030 Action Plan that is being implemented from 2024 and onwards. We are happy to see that AVT is one of the main contributors to this journal.



The enrollment for the 53rd AVT Panel Business Meeting Week in Ottawa, Canada, 20th-24th of May 2024, has just been opened. Note that the registration for the PBM itself is only for individuals who are appointed AVT Panel and Committee Members or invited guests to the Plenary sessions of the AVT Panel Business meeting. If you are attending AVT Technical or Exploratory Team Activity team meetings during the Spring AVT PBM Week, you are kindly asked to register to the "AVT Spring 2024 Activity Meetings" event.

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February 2024 Newsletter

Panel Chairs' Corner (continued)

Separate links are also established for enrolling to the events/conferences AVT-374 (RSM) on "More Electric Gas Turbine Engines for Aircraft, Rotorcraft and UAVs" and AVT-400 (RWS) on "Emerging Propulsion Technologies for NATO Ground Vehicle Platform Systems". More details are found on the STO Events Page (registration links are available elsewhere in this newsletter). Different registration to different meetings and events during the 53rd AVT PBM Week will hopefully make it clearer to the Nations what activities are organised and held during our meeting week in Ottawa. Please register as soon as possible, and please respect the deadlines, as this will make the host nation and meeting organisers' lives much easier (organising such meeting weeks is a lot of work).

During the week of 12th of February, the Panel Chairs and Executive Officer will attend meetings at CSO and the 2024 Plans and Programmes Workshop (PPW) in Paris, France. On 12th February, the CSO Director has invited all Panel/Group Chairs to the "Chairs College" (the name may change in the future). At this "college", the Chairs will meet in a strategic format, to allow more time for (strategic) discussions. The topics of this first strategic meeting have not yet been decided, but important and relevant discussions will be on how to implement the CPOW 2030 Action Plan and on how to find ways to collaborate and coordinate even better among the Panels and Group, as well as CSO, OCS and CMRE. We will also have our more "traditional" Panels/Group level 2 meetings – the Chairs' Quorum and the L2CC – during the same week. The PPW will this year focus on the ACT NWCC. The Chairs are looking forward to coming to Paris for the meetings.



On 1st of March, our new AVT Executive Officer, Dr Kerstin Huber (DEU) will officially start at the CSO office. Kerstin has been involved in AVT for many years as researcher, activity member and also as a recipient of the 2017 AVT Young Contributor Award. Hence, she is already a member of our family and knows the AVT way of working well. Kerstin has (unofficially) started working at the CSO already, and will join us at the PPW in February. Welcome to AVT, Kerstin! We are really looking forward to working with you in the position as Executive Officer. While Kerstin is moving in to the AVT Executive office, Erin Boldi will be moving back to the

Operations and Coordination Front Office There will be a transition period over the next couple of months, and Erin will join us at the AVT Spring PBM week to support and provide continuity.



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February 2024 Newsletter

Panel Chairs' Corner (continued)

While preparing for the meetings in Paris in February, the Chairs and Executive Officer, supported by the Strategic Committee Chairs and the other members of the AVT Internal Working Group, are preparing in parallel for the STB meeting 18th -21st of March at NATO HQ in Brussels, Belgium. AVT has been given the opportunity to present the AVT way of working and our strategic plan to the STB. The Chair hopes to succeed in informing STB members about the benefits of the AVT business model and our strategic plan for preparing and shaping AVT for the future. Part of this will of course be the implementation of the CPOW 2030 Action Plan, but also to implement our internal action plan.

Take care and keep up the good AVT work!

Best Regards Tom and Christoph







February 2024 Newsletter

Updates from the Executive Office Recently Approved AVT Technical Activities

We are pleased to inform you that the NATO Science and Technology Board has recently approved all the AVT Fall 2023 PBM endorsed technical activities and changes. Below are the new activities that were approved. With your STO Login, you will be able to find further information following this <u>link</u> and selecting the activity by its number. Also, please let us know if you are interested in joining one of the initiatives.

		rested in joining one of the initiatives.		
Activity Number	Type	Title	Status	Start Date
AVT-399	RTG	Assessment of Experiments and Prediction Methods for Naval Ship Transient Maneuvers in Calm Water and Waves	Approved	01 Jan 2025
AVT-400	RWS	Emerging Propulsion Technologies for NATO Ground Vehicle Platform Systems	Approved	01 Jan 2024
AVT-MSG-401	RTG	Augmented Reality in land operations: Balancing risks and chances in technical and human systems challenges	Approved	01 Jan 2025
AVT-402	RTG	Active flow control Applied to Air Inlets for High-speed Propulsion Systems	Approved	01 Jan 2025
AVT-403	RTG	PFAS In Soil and Water: Mitigation, Remediation and Risk Management for NATO Members	Approved	01 May 202
AVT-404	RTG	Enhanced Design Processes of Military Vehicles through Machine Learning Methods	Approved	01 Jan 2025
AVT-SCI-405	RTG	Conceptual Aggregated Design of Hypersonic Glide Vehicle (HGV)	Approved	01 Jan 2024
AVT-406	RTG	Innovative Solutions for Micro-Propulsion Systems for Small Spacecraft	Approved	01 Jan 2024
AVT-407	RWS	System Qualification and Certification by Analysis	Approved	01 Jan 2024
AVT-408	RTG	Autonomous Mobility Assessment for Military Ground Systems (CDT)	Approved	01 Jan 2024
AVT-409	RWS	Life Cycle Analysis of Sustainable Technology for Military Platforms	Approved	01 Jan 2024
AVT-410	RTG	End-2-End NG-NRMM Demonstration with Autonomous Assist Systems (CDT)	Approved	01 Jan 2024
AVT-411	RWS	Machine Learning and Artificial Intelligence for Military Vehicle Design	Approved	01 Jan 2024
AVT-412	RWS	Bonded Joint Design Validation and Inspection Methods to Achieve Certification	Approved	01 Jan 2024
AVT-413	RTG	Physics and modeling of separated flows around smoothly-curved bodies	Approved	01 Jan 2025
AVT-414	RTG	Acoustic mission planning and environmental impact analysis for UAS and UCA (<5000kg)	Approved	01 Jan 202
AVT-415	RTG	Advanced Noise Reduction Methodologies and Design Efforts for Aircraft Applications	Approved	01 Jan 202
AVT-416	RLS	Lecture Series for Computational Collaborations for Complex Aerodynamics Analysis	Approved	01 Jan 202
AVT-SET-417	RTG	Materials for Thermal Infrared Camouflage – Development and Characterization	Approved	01 Jan 202



February 2024 Newsletter

53rd AVT Panel Business Meeting Week

Registration Now Open

Registration Deadline:

Deadline to register for all 53rd AVT PBM Week Events is 19 April 2024

By invitation of Canada, the 53rd AVT Panel Business Meeting (PBM) Week will be held in Ottawa, Canada from 20 to 24 May 2024. The AVT Community can look forward to an exciting location for meeting and discussing AVT business. During the 53rd AVT PBM Week, a Research Specialists' Meeting, a Research Workshop and a large number of Technical and Exploratory Team meetings will be held, as well as the AVT Panel Business Meeting and various AVT Committee Meetings. All meetings/events will be in-person only.

Please note that the registration process has changed slightly this year. Attendees of AVT Technical and Exploratory team meetings should now register separately under the Spring 2024 Activity Meetings registration page on the STO Events website.

Registration Links

53rd AVT Panel Business Meeting and Committee Meetings

- Registration only for Appointed Panel/Committee Members or keynote speakers for PBM Plenary sessions (<u>Link for registration</u>)
- Appointed AVT Panel and Committee members <u>do not need</u> to register separately to attend AVT Technical and Exploratory Team activity meetings

AVT Spring 2024 Activity Meetings (Change for 2024)

- Registration for participants attending AVT Technical and Exploratory Activity team meetings during the 53rd AVT PBM Week (<u>Link for registration</u>)
- A survey will be sent to the Activity Co-chairs in February to submit their meeting room requests

AVT-374 Research Specialists' Meeting (RSM) on "More Electric Gas Turbine Engines for Aircraft, Rotorcraft and UAVs"

- 21-22 May 2024 (<u>Link to Registration</u>)
- Open to NATO Nations and Partners

AVT-400 Research Workshop (RSW) on "Emerging Propulsion Technologies for NATO Ground Vehicle Platform Systems"

- 21-22 May (<u>Link to Registration</u>)
- Open to NATO Nations, Australia, Japan, Sweden, Switzerland and Austria



February 2024 Newsletter

Registration Open for NATO AVT-393 RWS on 'Environmental and Thermal Barrier Coatings for Military Aircraft Engines'

The AVT-393 Team will hold a Research Workshop (RWS) on "Environmental and Thermal Barrier Coatings for Military Aircraft Engines" in **Ottawa, Canada** from **15-17 May 2024**. This workshop is NATO Unclassified and is open to representatives from NATO Nations, Australia, Japan and Sweden.

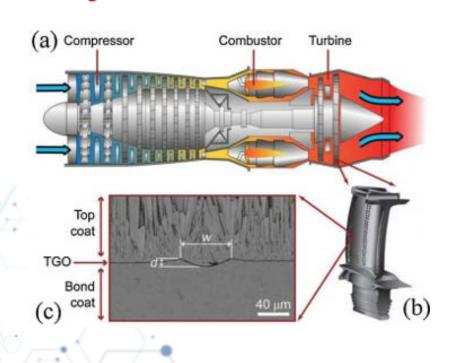
Registration for this RWS is now open on the STO Events website (Link to registration).

The three-day RWS seeks to bring together subject matter experts from civil and military organizations to identify participants, high level military needs, limitations, data source and relevant development efforts within thermal and environmental coatings.

The topics to be covered are:

- · evaluations of terms and definitions;
- existing state of art on barrier coatings;
- technology investment and development efforts;
- emerging technologies which are applicable throughout the engineering lifecycle;
- understanding Fluid-Structure-Interaction modelling of particle and aerosol laden turbomachinery flow;
- existing test and acceptance criteria.

Registration Deadline is 15 March 2024





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Call for Papers for NATO AVT-394 RSM on 'Water Sampling, Monitoring and Control/Remediation for Live-Fire Military Ranges'

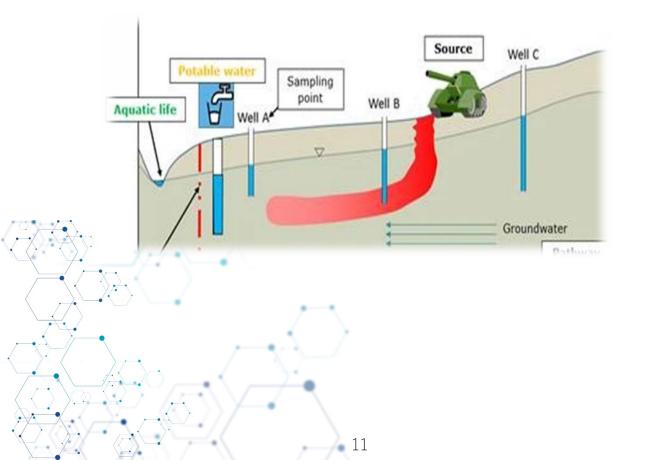
This Research Specialists' Meeting is open to NATO Nations, Enhanced Opportunity Partners (EOP) and Partnership for Peace (PfP) Nations. It will be held **14-16 October 2024 in Koblenz Germany** in conjunction with the 54th AVT PBM.

The objective of this RSM is to promote the exchange of knowledge among an audience of experts and specialists on current practices and research on the topics of water sampling, monitoring and remediation techniques concerning munition's constituents.

Some topics to be covered are: water sampling and monitoring techniques; surface water treatment and management; groundwater and active source zone remediation and management; hydraulic control measures to avoid off-site migration of contaminants; emerging munitions constituents as contaminants in water; cold region challenges and climate resiliency for range contamination.

Deadline for Abstracts is 01 March 2024

You can also find this Call for Papers on our STO Events website via this link.





February 2024 Newsletter

Call for Papers for NATO AVT-384 RSM on 'Novel Materials and Manufacturing in Military Vehicle Design'

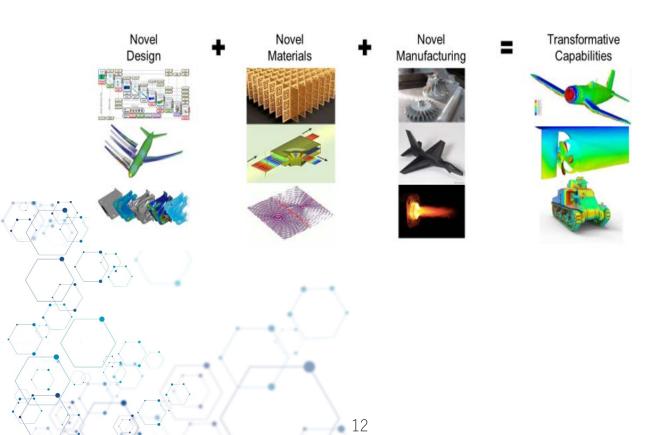
This Research Specialists' Meeting is NATO Unclassified and is open to representatives from NATO Nations and Australia, Japan and Sweden. It will be held **16-18 October 2024 in Koblenz Germany** in conjunction with the 54th AVT PBM.

The objective of this RSM is to investigate the current state-of-the-art of novel materials and manufacturing techniques in military vehicle design and its ability to greatly reduce the time required to implement new materials and processes.

Some topics to be covered are: manufacturing (including characterization; experimental techniques; high temperature materials; metamaterials; multiscale materials; smart materials; architected/hierarchical materials); integration of novel manufacturing capabilities (including agile manufacturing; reconfigurable processes; additive manufacturing; implications on initial operating capability timelines); developments in novel design methods (including multidisciplinary design and optimization (such as gradient-based techniques); integration of material design and manufacturing constraints; Al/ML based generative design methods).

Deadline for Abstracts is 01 March 2024

You can also find this Call for Papers on our STO Events Website via this link.





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Call for Papers for NATO AVT-391 RSM on 'Advanced Wind Tunnel Boundary Simulation III'

This Research Specialists' Meeting is NATO Unclassified and is open to representatives from NATO Nations and Australia, Japan and Sweden. It will be held in **May 2025** in **Washington DC, USA** in conjunction with the 55th AVT PBM (19-23 May 2025).

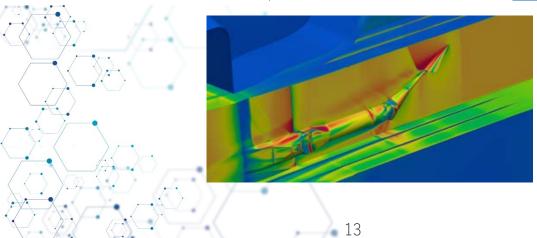
The objective of this RSM is to promote the exchange of state-of-the-art knowledge among an audience of experts and specialists in the use of high-fidelity computational fluid dynamics (CFD) simulation of wind tunnel flow and boundaries, including inflow, outflow, walls, and model support hardware.

The following objectives are to be addressed:

- Discuss activities to physically characterize wind and water tunnel and measurement processes for CFD;
- Presentation of work on high-fidelity CFD (Reynolds Averaged Navier-Stokes, Scale Resolving Simulation, Lattice Boltzmann, etc.) simulation of measured wind/water tunnel flow (to include matched post processing to the extent possible);
- Discuss results from coordinated activities involving facility simulations, for example:
 - Discuss first results from AVT-387 "Common Research Wind Tunnels for CFD Verification and Validation" activities;
 - Discuss results from NASA (high-lift) Common Research Model eco-system
- Develop recommendations for the use of high-fidelity simulation of wind/water tunnel flows and/or experimental characterization for CFD comparison;
- Identify educational aspects (link to AVT-ET 235), with a view to establish a course on the requirements for and methods to predict wind tunnel interference effects, including blockage, buoyancy, slotted and perforated wall effects for transonic testing etc.
- Continue to identify key areas requiring further research and development, possibly resulting in support of mid to long term simulation and testing plans;
- Mature a longer-term Community of Interest for wind tunnel corrections and CFD validation in research, academia and industry.

Deadline for Abstracts is 08 April 2024

You can also find this Call for Papers on our STO Events website via this link.





February 2024 Newsletter

SAVE THE DATE for NATO AVT-375 RLS on 'Munitions Health Management: Implementation Challenges'

The AVT-375 Research Lecture Series (RLS) will be held next year in the following locations:

- Ankara, Türkiye from 5-6 June 2024
- Bristol, United Kingdom from 26-27 June 2024
- Washington DC, United States from 10-11 September 2024

This RLS will provide information on state-of-the-art Munitions Health Management (MHM) technologies and approaches and provide guidance on setting up and implementing MHM technologies based on realistic cost benefit analyses. The educational event will provide important information for:

- · decision makers;
- quality and safety people;
- logistics people;
- management end users of munitions at NATO Ministries of Defence.

For more information, please see the promotional video on YouTube via this link.

The registration is expected to open on the STO Events website in March 2024



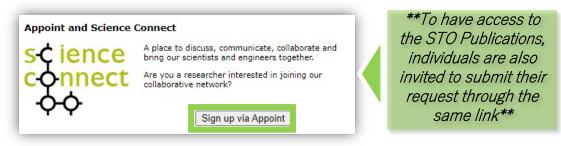


February 2024 Newsletter

APPOINT STO Digital Appointment System

Joining an AVT activity as a new team member? Don't' forget to submit your appointment request via the digital STO appointment system called APPOINT. Appointments for Panel membership will transition to this system by end of February.

You can access APPOINT via the STO Website and clicking "Sign up via Appoint".



Your AVT activity appointment request is routed as below:





February 2024 Newsletter

NATO ACT 2024 Innovation Continuum

Experimentation Opportunities for STO Activities

The NATO Allied Command Transformation (ACT) Innovation Continuum 2024 is an event in which STO activities can engage in experiments with the operational community to demonstrate S&T deliverables. It is a year long planning cycle for the event (which is much shorter than the typical exercise experimentation cycle and easier to engage in). This is a relevantly new event - last year was the first iteration which demonstrated applications of 5G technologies in an exercise in Latvia. The initial scoping event for the 2024 Innovation Continuum is in La Spezia, Italy from 27-29 February.

If your AVT activity is interested in participating in this year's Continuum or would like possibly get involved in next year's cycle, please contact Mr Krzysztof Skurzak (Krzysztof.Skurzak@act.nato.int) and Christian Luebben (Christian.luebben@act.nato.int) at ACT and cc the AVT Panel Office (AVT@cso.nato.int).





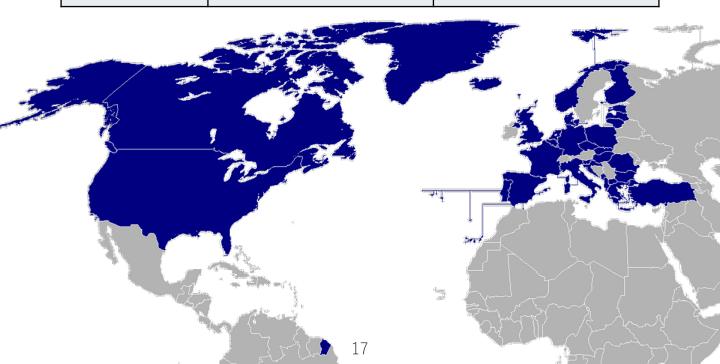


February 2024 Newsletter

AVT Panel Business Meeting 2024 - 2026 Schedule

Please find below more information regarding the locations of our upcoming AVT Panel Business Meetings through 2026.

PBM	Dates	Location	
53 rd AVT PBM	20-24 May 2024	Ottawa, Canada	
Spring 2024	20-24 May 2024		
54 th AVT PBM	14-18 October 2024	Koblenz, Germany	
Fall 2024	14-16 October 2024		
55 th AVT PBM	10, 22 May 2025	Washington DC, USA	
Spring 2025	19-23 May 2025		
56 th AVT PBM	TBD Late September or October	TDD Latvia	
Fall 2025	2025	TBD, Latvia	
57 th AVT PBM	TDD Apr. or Mov. 2020	TDD France	
Spring 2026	TBD Apr or May 2026	TBD, France	
58 th AVT PBM	TBD Late September or October	Antalya, Türkiye	
Fall 2026	2026		





February 2024 Newsletter

New Publications

STO Publications J	January 2024
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STO Publications January 2024				
STO-TR-SET-293	PRE-RELEASE: RF Sensing for Space Domain Awareness			
STO-TR-HFM-294	PRE-RELEASE: Big Data in The Military: Integrating Genomics Into the Pipeline of Standard-Care Testing and Treatment			
STO-TR-SAS-147	Annex C – Classified Scenarios / Vignettes Annex D – Generic Target Types Analysis Annex H - Comparison with Supporting Classified Studies			
STO-TR-AVT-331	PRE-RELEASE: Goal-Driven, Multi-Fidelity Approaches for Military Vehicle System-Level Design			
STO-TR-HFM-281	PRE-RELEASE: Personalized Medicine in Mental Health and Performance			
STO-TR-HFM-297	Assessment of Augmentation Technologies for Improving Human Performance			
STO-TR-AVT-318	PRE-RELEASE: Low Noise Aeroacoustic Design for Turbofan Powered NATO Air Vehicles			
STO-TR-SCI-295	Development of Methods for Measurements and Evaluation of Natural Background EO Signatures			
STO-TR-SCI-311	PRE-RELEASE: Collaborative Space Domain Awareness (SDA) Data Collection and Fusion Experiment			
STO-TR-SET-271	PRE-RELEASE: Airborne Maritime Radar Based Submarine Periscope Detection and Discrimination at High Grazing Angles			
STO-TM-USA-HRV- SAS-SP-001	Support Project – Develop the Ability of the Croatian Armed Forces to Conduct War Games at the Operational and Military Strategic Levels			
<u>STO-TR-SAS-144</u>	Proposed NATO Standards and Guidelines for Conducting Military Surveys			
STO-TR-SAS-161- VOL-IV	The NATO STO SAS-161 Research Task Group (RTG)— Military Aspects of Countering Hybrid Warfare: Experiences, Lessons, Best Practices. Volume 4: Russian			

use of Economic Instruments of Power



February 2024 Newsletter

Contact Us!

For content suggestions, contributions, or if you have any questions please contact avt@cso.nato.int.



<u>@natosto</u>



@natoscienceandtechnology



STO on YouTube



sto.nato.int

Dr Tom Thorvaldsen



Mr Christoph Müller AVT Panel Vice-Chair



AVT Panel Executive Officer

Ms Isavela Kontolaimaki AVT Panel Executive Assistant

Ms Edna Ferraz AVT Panel Assistant













