

TECHNICAL UNIVERSITY OF KOŠICE

Faculty of Aeronautics



**NEW TRENDS IN AVIATION DEVELOPMENT
2024**

19th INTERNATIONAL SCIENTIFIC CONFERENCE

High Tatras - Starý Smokovec, Slovakia



Platinum Partner



The Letové prevádzkové služby Slovenskej republiky štátny podnik (LPS SR, š. p.), a state enterprise, is a provider of Air Traffic Services.

The mission of Letové prevádzkové služby Slovenskej republiky štátny podnik, a state enterprise, is the provision of air navigation services in airspace and on assigned aerodromes of the Slovak Republic.

Every passenger on scheduled or charter flight over the territory of the Slovak Republic is an indirect client of Letové prevádzkové služby Slovenskej republiky štátny podnik (LPS SR), a state enterprise. Air traffic controllers control flights of aircraft over flying, departing and landing to/ from an airport or taxiing on the ground. The basic goal of LPS SR is to prevent collisions of aircraft in the air and on the ground, to maintain safe and well-organized air traffic flow and to provide advice and information necessary for safe flight in airspace and on assigned aerodromes of the Slovak Republic. LPS SR managed to handle huge increase of traffic maintaining required level of safety and with minimum delays. The goal of LPS SR for the future is a further increase of the capacity of the airspace of the Slovak Republic and to minimize delays as much as possible while maintaining required level of safety.

LPS SR provides these services:

- Air Traffic Services
- Aeronautical Telecommunication Services
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- Rescue Coordination Centre
- Training Centre
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www.lps.sk/en



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LPS SR



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Air Navigation Services Provider



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NTAD 2024

NEW TRENDS IN AVIATION DEVELOPMENT

19th INTERNATIONAL SCIENTIFIC CONFERENCE

FINAL PROGRAMME

DAY 1 – 28.11.2024

- 08:00 – 09:00 Registration
- 09:00 – 09:15 Opening of the Conference
- 09:15 – 10:15 Plenary Session 1 (Invited Talks)
- 10:15 – 10:30 Coffee Break
- 10:30 – 12:00 Plenary Session 2
- 12:00 – 13:30 Lunch Break
- 13:30 – 15:00 Plenary Session 3
- 15:00 – 15:15 Coffee Break
- 15:15 – 16:45 Plenary Session 4
- 15:15 – 16:45 Poster Session
- 19:00 – 22:00 Gala Dinner and Reception

DAY 2 – 29.11.2024

- 08:30 – 09:00 Registration
- 09:00 – 09:20 Plenary Session 5 (Invited Talks)
- 09:20 – 10:50 Plenary Session 6
- 10:50 – 11:05 Coffee Break
- 11:05 – 12:20 Plenary Session 7 (Doctoral)
- 12:20 – 14:00 Closing Ceremony and Lunch Break

November 28-29, 2024

High Tatras – Starý Smokovec, Slovakia

Grand hotel Starý Smokovec



Foreword

On behalf of the organizing committee, it is with great pleasure that I welcome you to the New Trends in Aviation Development 2024. This year's conference promises to be an engaging and insightful event, bringing together experts, researchers, and innovators from diverse fields.

The program is filled with interesting sessions and keynote speakers. It is our sincere hope that you find inspiration, forge new connections, and contribute to the fruitful discussions that will unfold over the coming two days. Our aim is to foster collaboration, exchange ideas, and push the boundaries of knowledge in aviation.

I extend my deepest gratitude to all the participants, sponsors, and volunteers whose dedication has made this conference possible.

Thank you for being a part of this grateful meeting, and I wish you a rewarding and enriching experience at NTAD 2024.

Peter Korba
Conference Chair



Committees

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- ▶ Levente Kovács, Óbuda University, Budapest, Hungary
- ▶ Peter Korba, Technical University of Košice, Slovakia

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- Martin Vencel, Technical University of Košice, Slovakia

NTAD 2024 Secretary general

- Lucia Kleinová, Technical University of Košice, Slovakia



NTAD Programme – Day 1

28.11.2024 – Thursday

08:00 – 09:00 Registration

09:00 – 09:15 Opening of the Conference – Dean of the Faculty of Aeronautics, Technical University of Košice – assoc. prof. Ing. Peter Korba, PhD.

09:15 – 10:15 Plenary Session 1 – Session Chair – prof. Ing. R. Andoga, PhD.

09:15 – 09:35 *Ján Piľa – Aircraft aging and Air transport safety*

09:35 – 09:55 *Vladimír Socha – Navigating Vestibular Illusions in Aviation: Experimental Insights and Training Integration*

09:55 – 10:15 *Marek Polčák – Evolution of Mixed Reality Training Technology*

10:15 – 10:30 Coffee Break – Sponsored by Hell Energy SK



10:30 – 12:00 Plenary Session 2 – Session Chair – M.Eng. Ing. M. Košuda, PhD.

Session 2 is sponsored by: Tropozond – member of Skyeton group



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AVIATION PRODUCTION COMPANY

10:30 – 10:45 Comparative Analysis of Life Cycle Assessment Tools for Aviation – *Martina Koščáková, Peter Korba, Peter Koščák, Lubomíra Szokeová, Peter Klamo*

10:45 – 11:00 Multidisciplinary Design Optimization Framework for Morphing Wing using Metamaterials – *Pavel Zikmund, Michael Kofler, Jan Navrátil, Miroslav Hrstka, Jakub Pollák, Erik-Jan van Kampen*

11:00 – 11:15 Conceptual Framework for Autonomous Airside Vehicles Business Models – *Erlangga Rudy Sunaryo, Gijs Bartelet, Catya Zuniga Alcaraz*

11:15 – 11:30 Bridging the Skies: analyzing Unmanned Traffic Management from a defense-centric perspective – *Gabor Horvath*



NTAD Programme – Day 1

28.11.2024 – Thursday

11:30 – 11:45 Monitoring the Development of Military Pilot Competencies During Studies at the University of Defence – *Jiří Ulvr, Vladimír Smrž and Ondřej Mach*

11:45 – 12:00 Recent advances in hydrogen production for providing air transport needs – *Anna Yakovlieva, Pavol Kurdel, Sergii Boichenko, Iryna Shkilniuk, Marek Češkovič, Natália Gecejová*

12:00 – 13:30 Lunch Break

13:30 – 15:00 Plenary Session 3 – Session Chair – doc. Ing. P. Kurdel, PhD.

Session 3 is sponsored by: Omnipol



13:30 – 13:45 Enhancement of Runway Area Division for More Accurate Pavement Condition Index Assessment – *Jan Vomela, Tomáš Havrda, Petr Kalvoda*

13:45 – 14:00 Statistical analysis of aircraft gas turbine engine failures caused by quality of fuel – *Oleg Dobridenko, Sergii Voitenko, Yurii Tereshchenko, Anna Yakovlieva, Vasyl Boshkov, Igor Trofimov*

14:00 – 14:15 Modern Avionics and ATM Technologies Implementation Gap Analysis. Latvian and Georgian Case Studies – *Nika Tikanashvili, Monta Aleksandra Lacane*

14:15 – 14:30 Engine installation effect contribution in noise performances of the new supersonic airplane – *Oleksandr Zaporozhets, Vitalii Makarenko, Vadim Tokarev, Kateryna Kazhan*

14:30 – 14:45 Runway-Slope Illusions: A Systematic Review and Experimental Insights with Implications for Future Research – *Vladimír Socha, Lenka Hanáková, Muhammet Ali Kiraz, Umer Asgher*



NTAD Programme – Day 1

28.11.2024 – Thursday

14:45 – 15:00 Evolution from Virtual Gaming into Mixed Reality Training -
Marek Polcak, Petr Frantis

15:00 – 15:15 Coffee Break – Sponsored by Hell Energy SK



15:15 – 16:45 Plenary Session 4 – Session Chair – doc. Ing. M. Češkovič, PhD.

Session 4 is sponsored by: STA



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TRAINING
ACADEMY

15:15 – 15:30 Design of a Simple Aircraft Residual Current Device Control
Logic – *Martin Schrötter, Róbert Bréda, Kyrylo Zadorozhnyi*

15:30 – 15:45 Damage assessment for onshore and offshore wind power
stations – *Péter Udvardy, József Semjéni, Károly Pál*

15:45 – 16:00 Impact of continuous climb/descent procedure
implementation on ATCO workload – *Jan Fiala, Terézia Pilmannová, Stanley
Schmidt*

16:00 – 16:15 Implementation of medium and low precision IMUs for the
design of integration architectures – *Róbert Bréda, Marek Vološin*

16:15 – 16:30 Boundary Layer Turbulence Identification in the Vicinity of
Svidnik Airport – *Ladislav Choma, Jozef Sabo, Matej Scerba*

16:30 – 16:45 Harnessing Artificial Intelligence in Aviation – *Patrik Šváb, Patrik
Géci, Sebastián Čikovský*

15:15 – 16:45 Poster Session – prof. Ing. L. Fózó, PhD.

– Measuring the Company's Efficiency Using the DEA Method – *Edina
Jenčová, Lucia Melníková, Branko Mikula, Adam Hiriak*

– Safety on air transport in a multicultural working environment – *Robert
Wieszala, Marek Marcisz, Jacek Mendala, Jarostaw Kozuba*



NTAD Programme – Day 1

28.11.2024 – Thursday

- Overview of methods for high performance cubesat attitude control –
Dávid Hriadel, Dominik Beňo, Rudolf Andoga
- Evaluation of the CBA 3.0 Methodology in the Context of Determining
Fuel Consumption for New Road Infrastructure – *Andrea Senova, Annamaria
Behunova, Marcel Behun*
- Examination of requirements and proposal of specifications for the
educational simulator of tower air traffic control at the Faculty of Aeronautics–
*Volodymyr Polishchuk, Martin Kelemen, Jr., Anton Korniienko, Ján Jevčák,
Roman Tokarčík*
- Operational Assessment of the Remote Tower Concept – *Anton
Korniienko, Matej Antoško, Miroslav Kelemen, Ladislav Choma*
- The Airspace Capacity of Szolnok Airport – *Matej Antoško, Martin
Kelemen, Anton Korniienko, Edina Jenčová, Róbert Rozenberg, Jozef Jusko*
- Aviophobia Among Young Commuters: Rational Concerns or Emotional
Response? – *Vladimír Socha, Michal Matowicki, Lenka Hanáková, Umer
Asgher, Denis Tagunkov*
- Analysis of the airspace overload and performance of Air Traffic Control
over the Europe – *Nikola Gédrová, Milan Džunda, Lucia Melníková*
- Hybrid Technology for Assessing the Fatigue Level of Air Traffic Controllers
Using Video Surveillance – *Volodymyr Polishchuk, Martin Kelemen, Jr., Inna
Polishchuk, Zoltán Dudas, Miroslav Kelemen*
- Risk management of increased workload of air traffic controllers – *Tomáš
Hoika, Zbyšek Korecki*
- The Proposal for Eliminating the Most Common Causes of Air Accidents in
Czechia and Slovakia – *Alena Novák Sedláčková, Filip Bobek, Pavol Kurdel*

19:00 – 22:00 Gala Dinner and Reception



NTAD Programme – Day 2

29.11.2024 – Friday

- 08:30 – 09:00 Registration
- 09:00 – 09:20 Plenary Session 5 – Session Chair** – doc. Ing. M. Antoško, PhD.
- 09:00 – 09:20 *Dominik Varga – Raybird-3*
- 09:20 – 10:50 Plenary Session 6 – Session Chair** – doc. Ing. M. Antoško, PhD.

Session 6 is sponsored by: TLM



- 09:20 – 09:35 Language Skills – *Robert KLÍR , Miroslava SEMANČÍKOVÁ*
- 09:35 – 09:50 Local Air Quality Studies for Supersonic Aircraft – *K. Synylo, A.Krupko, O. Zaporozhets*
- 09:50 – 10:05 Copernicus Satellite Data and Air Traffic Control – *Peter Szabó, Tibor Muszka*
- 10:05 – 10:20 Impact analysis and economic benefits of airspace modernisation – *A. Tobisova, A. Turac, R. Rozenberg, A. Mytnikova*
- 10:20 – 10:35 Recent Changes in European Aviation Legislation in Relation to the Training of Aeronautical Technical Personnel – *Branislav Rácek, Marián Hocko, Maroš Divok, Juraj Horkay*
- 10:35 – 10:50 Research on the Application of Software Support Analysis (SSA) in Civil Aircraft Life Cycle – *Huili Wang, Xiao Chen*
- 10:50 – 11:05 Coffee Break – Sponsored by Hell Energy SK**
- 11:05 – 12:20 Plenary Session 7 – Session Chair** – Ing. M. Schrötter, PhD.
- 11:05 – 11:20 Sustainable Innovation in 3D Printing: The Role of Thermoplastic Recycling – *Jaroslav Kessler, Karol Semrád, Jozef Novotňák*





NTAD Programme – Day 2

29.11.2024 – Friday

11:20 – 11:35 Innovative software tool for cyber security against security incidents in civil aviation network operations – *Ján Jevčák, Martin Kelemen, Róbert Rozenberg, Lubomír Török*

11:35 – 11:50 Design Proposal of Landing and Lighting Systems for Svidník Airport – *Tatiana Gajdušková, Peter Koščák, Edina Jenčová, Peter Korba*

11:50 – 12:05 Selection of Suitable Magnetic Microwires for Use in RTD Magnetometers Applicable on UAVs – *Adam Polakovič, Pavol Lipovský, Katarína Draganová*

12:05 – 12:20 Simulation Model of Logistics Processes for Baggage Handling at Airports – *Volodymyr Tymofiiiv, Michal Hovanec, Peter Korba, Samer Al-Rabeei, Martin Vencel*

12:20 – 14:00 Closing Ceremony and Lunch Break

End of the Conference

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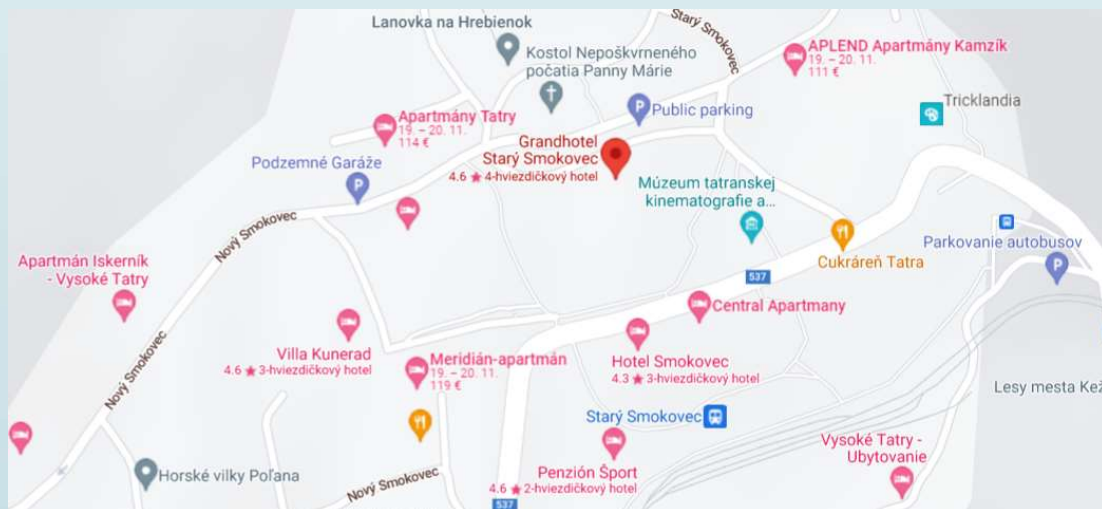
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Conference venue

Grand Hotel Starý Smokovec



Starý Smokovec – High Tatras



Notes:





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