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MAY 2023



POLISH AIR FORCE UNIVERSITY

## Conference Guide

# SCIENTIFIC RESEARCH AND EDUCATION IN THE AIR FORCE

The 24<sup>th</sup> Edition

**AFASES 2023**



**The 24<sup>th</sup> Edition of the International  
Conference AFASES, 2023**

*Scientific Research and  
Education in the Air Force*

**Conference Guide**



# Conference Agenda

## Thursday, 25 May 2023

19.00 – 21.00 Ice Breaker Evening – Casa Mureşan

## Friday, 26 May 2023

08.30 – 09.00 Welcome and registration – “Henri Coandă” Air Force Academy (Auditorium Hall)

09.00 – 10.30 AFASES Official Opening. Plenary Session:  
Keynote speakers - “Henri Coandă” Air Force Academy (Auditorium Hall)

10.30 – 10.40 Photo session

11.00 – 13.00 Paper presentations on panels (I)

13.00 – 14.00 Lunch – “Henri Coandă” Air Force Academy

14.00 – 16.30 Paper presentations on panels (II)

19.00 – 23.00 AFASES official dinner – Casa Mureşan



# The Session Panels

	Room	Page
<b>1. MILITARY SCIENCES</b>	<b>E77</b>	<b>10</b>
<b>2. MATHEMATICS AND ENGINEERING SCIENCES IN THE AGE OF VIRTUAL REALITY</b>	<b>E44</b>	<b>11</b>
<b>3. MANAGEMENT AND SOCIAL- HUMANITIES</b>	<b>F-E2.10</b>	<b>13</b>
<b>4. AERONAUTICAL AND ATMOSPHERIC SCIENCES</b>	<b>F-E1.5</b>	<b>15</b>

# International Scientific Committee

## Scientific Director of the Conference:

**Marius ȘERBESZKI**, PhD

Rector of 'Henri Coandă' Air Force Academy, Brasov, Romania

## Scientific Committee:

**Simona ANDREI**, PhD

National Institute for Research and Development in Optoelectronics INOE 2000, Romania

**Bogdan ANTONESCU**, PhD

University of Bucharest, Romania

**Pawel BERNAT**, PhD

Polish Air Force University

**Daniela BELU**, PhD

"Henri Coandă" Air Force Academy, Brasov, Romania

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**Sorin CHEVAL**, PhD

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**Cătălin CIOACĂ**, PhD

"Henri Coandă" Air Force Academy, Brasov, Romania

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"Henri Coandă" Air Force Academy, Brasov, Romania

**Claudia-Georgeta CÂRSTEA**, PhD

"Henri Coandă" Air Force Academy, Brasov, Romania

**Aura CODREANU**, PhD

Regional Department of Defense Resources Management Studies, Brasov, Romania

**Adina-Eliza CROITORU**, PhD

Babeș-Bolyai University, Cluj-Napoca, Romania

**Dilyan DIMITROV**, PhD

"Vasil Levski" National Military University, Bulgaria

**Laurian GHERMAN**, PhD

"Henri Coandă" Air Force Academy, Brasov, Romania

**Mariusz KOZIOL**, PhD

War Studies University, Poland

**Ioanna LEKEA**, PhD

Hellenic Air Force Academy, Greece

**Tudorel LEHACI**, PhD

“Carol I” National Defense University, Bucharest, Romania

**Adrian LESENCIUC**, PhD

“Henri Coandă” Air Force Academy, Brasov, Romania

**Doru LUCULESCU**, PhD

“Henri Coandă” Air Force Academy, Brasov, Romania

**Iryna LYSYCHKINA**, PhD

Department of Philology, Translation and Strategic Communications, National Academy of the National Guard of Ukraine

**Ecaterina-Liliana MIRON**, PhD

“Henri Coandă” Air Force Academy, Brasov, Romania

**Victor PRICOP**, PhD

National Institute for Aerospace Research "Elie Carafoli", Bucharest, Romania

**Daniela ROȘCA**, PhD

The University of Craiova, Romania

**Andrzej SOBON**, PhD

War Studies University, Poland

**Daniel-Cornel ȘTEFĂNESCU**, PhD

“Henri Coandă” Air Force Academy, Brasov, Romania

**Alexandru TUDOSIE**, PhD

University of Craiova, Romania



# Organizing Committee

## Chair:

Lect **Adrian PITICAR**, PhD

Vice-Rector for Science, “Henri Coandă” Air Force Academy, Brasov, Romania

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Col Assoc Prof **Daniel-Cornel ȘTEFĂNESCU**, PhD

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Assoc Prof **Claudia-Georgeta CĂRSTEA**, PhD

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Assist Prof **Bogdan CHIOSEAUA**, PhD

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WO **Ionică PUȘCARIU**

Eng **Daniela OBREJA**

Inf **Adrian ROTARU**

Inf **Adina DOBRIȚOIU**

Eng **Serjii OBREJA**

# Keynote Speakers

Senior Lecturer **Paweł BERNAT**, PhD  
Polish Air Force University

**Daniel METZ**, PhD  
Former CEO and Chairman of the Board of Directors at NTT  
DATA, Romania

Assoc Prof Eng **Mihai COMȘIȚ**, PhD  
“Transilvania” University of Brasov, Romania

Eng **Sorin DINEA**, PhD  
“Henri Coanda” NGO, Bucharest, Romania

# 1. Military Sciences

Conference ROOM E77

## Moderator:

**Daniel-Cornel ȘTEFĂNESCU, PhD**

“Henri Coandă” Air Force Academy, Brașov, Romania

1. *Unmanned Combat Aerial Vehicle (UCAV) – Weapon of the Future*, **Ivaylo Zh. BOZOV**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria
2. *Considerations Regarding the Use of Unmanned Aircraft in the National Security Strategy Paradigm*, **Cezar-Bogdan CHIOSEAUA**, “Henri Coandă” Air Force Academy, Brașov, Romania
3. *Concept Design of a Pneumatic Projectile Accelerator for Ballistic Protection Testing*, **Miroslav DIMITROV, Tsonio TSONEV**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria
4. *Analysis of External Steganographic Methods for Hiding Information*, **Georgi KOZAREV**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria
5. *Fighter Jets for Ukraine: A Reality Check*, **Andreea LOSEKAMM**, U.S. Department of State, U.S. General Consulate in Frankfurt, Germany

# 2. Mathematics and Engineering Sciences in the Age of Virtual Reality

Conference ROOM E44

## Moderators:

**Petru Adrian COTFAS, PhD**

“Transilvania” University of Brasov, Romania

**Ecaterina-Liliana MIRON, PhD**

“Henri Coandă” Air Force Academy, Braşov, Romania

1. *Implementation of Digitisation Elements as a Risk Management Solution in the Maintenance of Radiolocation Systems*, **Liviu GĂINĂ\***, **Mircea BOŞCOIANU\*\***, \* “Henri Coandă” Air Force Academy, Braşov, Romania, \*\* “Transilvania” University of Brasov, Romania
2. *The Study of the Thermoelectric Generator Depending on the Lighting Levels*, **Loreta Daniela MAZILU\***, **Daniel Tudor COTFAS\***, **Petru Adrian COTFAS\***, **Ecaterina Liliana MIRON\*\***, \* “Transilvania” University of Brasov, Romania, \*\* “Henri Coandă” Air Force Academy, Braşov, Romania
3. *EW systems management. A critical review in the actual context of multiple crisis and turbulences*, **Mihai Alin MECLEA\*\***, **Eugen VRAJITORU\*\***, **Mircea BOSCOIANU\*\***, \* “Henri Coandă” Air Force Academy, Braşov, Romania, \*\* “Transilvania” University of Brasov, Romania
4. *Algorithm for Application of Information for Management of Users Spatial Disposition in the Process of Automated Software-Defined Radio Communication Network Implemented*

*by Orthogonal Frequency Division and Multiplexing*, **Miroslav NEDELICHEV, Radostin DIMOV, Stanimir PARVANOV**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria

5. *Cybersecurity Recommendations and Best Practices for Digital Education*, **Miroslav NEDELICHEV, Delyan SLAVOV**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria
6. *Systems with Artificial Intelligence for Defense and Security*, **Linko G. NIKOLOV, Angela R. BORISOVA**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria

# 3. Management and Socio-Humanities

Conference ROOM F-E2.10

**Moderator:**

**Cezar-Bogdan CHIOSEAU, PhD**

“Henri Coandă” Air Force Academy, Braşov, Romania

1. *The Role Played by Women in the Security System: From an Resolution 1325 to Direct Actions*, **Diana CHIŞ-MANOLACHE**, “Carol I” National Defence University, Bucharest, Romania
2. *A Hybrid Security Maintenance*, **Cătălina CUREA**, National University of Political Studies and Public Administration, Bucharest, Romania
3. *Political-Military Doctrine, Italian Fascist Doctrine*, **Cătălina CUREA**, National University of Political Studies and Public Administration, Bucharest, Romania
4. *Women Leaders’ Rights, between Assumed Commitment and Modern Reality*, **Rodica LISEANU**, “Carol I” National Defence University, Bucharest, Romania
5. *The Gaullist Political Ideology and the Exceptionalism of a Complete Leader*, **Rodica LISEANU**, “Carol I” National Defence University, Bucharest, Romania
6. *My ChatGPT Teacher. Towards a Methodology for Using Artificial Intelligence in Self-Directed Learning*, **Simona**

**Mirela SUSNEA**, “Alexandru Ioan Cuza” University of Iasi,  
Romania

7. *The Importance of Female Engagement Team Missions in Theatres of Operation in Afghanistan*, **Ionela Petronela TERINTE**, “Nicolae Bălcescu” Land Forces Academy, Sibiu, Romania
8. *Digital Transformation in Crisis Management: The Key Role of Artificial Intelligence*, **Oana-Mihaela VLADU**, “Carol I” National Defence University, Bucharest, Romania

# 4. Aeronautical and Atmospheric Sciences

Conference ROOM F-E1.5

## Moderators:

**Mihai-Victor PRICOP, PhD**

National Institute for Aerospace Research "Elie Carafoli", Bucharest, Romania

**Vasile PRISACARIU, PhD**

"Henri Coandă" Air Force Academy, Braşov, Romania

## Invited Paper:

***HENRI COANDA: LENS SHAPE AIRCRAFT***

**Sorin DINEA, PhD**

"Henri Coanda" NGO, Bucharest, Romania

1. *Risk Management Applied to Aerospace Engineering Design*, **Irina-Carmen ANDREI\***, **Gabriela-Liliana STROE\*\***, **Sorin BERBENTE\*\*\***, **Vasile PRISACARIU\*\*\***, **Emil COSTEA\***, **Ionel POPESCU\*\*\*\***, **Octavian Ioan FILIPESCU\*\***,  
\*I.N.C.A.S. – National Institute for Aerospace Research "Elie Carafoli", Romania, \*\*"Politehnica" University of Bucharest, Romania, \*\*\*"Henri Coandă" Air Force Academy, Braşov, Romania, \*\*\*\*STRAERO – Institute for Theoretical and Experimental Analysis of Aeronautical Structures
2. *Research on aerosol-cloud interaction in the convective environment – ACCuReSyProject*, **Simona ANDREI\***, **Bogdan ANTONESCU\*\***, **Mariana ADAM\***, **Răzvan PÎRLOAGĂ\***, **Vasile PRISACARIU\*\*\***, **Adrian PITICAR\*\*\***, **Alexandru TUDOR\*\*\*\***,  
\*National Institute of Research and Development for Optoelectronics, Măgurele, Romania, \*\*University of



Bucharest, Romania, \*\*\*“Henri Coandă” Air Force Academy,  
Braşov, Romania

3. *Reconstruction of Severe Weather Events in Romania Using ERA5 Reanalysis: Focus on Tornado Events*, **Bogdan ANTONESCU\***, **Simona ANDREI\*\***, **Meda Daniela ANDREI\*\*\***, **Sorin CHEVAL\*\*\***, \*University of Bucharest, Romania, \*\*National Institute of Research and Development for Optoelectronics – INOE 2000, \*\*\*National Meteorological Administration, Romania
4. *Considerations Regarding Prevention Strategies and Avoiding Overloads in the Aeronautical Environment*, **Albert BĂLTEANU**, **Eduard MIHAI**, “Henri Coandă” Air Force Academy, Braşov, Romania
5. *Reverse Engineering: A Case Study for an UAV Landing Gear*, **Mădălina-Ioana BLAJ**, **Gheorghe OANCEA**, “Transilvania” University of Brasov, Romania
6. *WI-FI Communication System for Anfixed-Wing Twin-Engine Airplane UAV*, **George-Razvan BUICAN**, **Sebastian Marian ZAHARIA**, “Transilvania” University of Brasov, Romania
7. *Aerodynamic Study of UAV-VTOL Aircraft*, **Ionuț BUNESCU\***, **Ștefan RĂCĂȘANU\*\***, I.N.C.A.S. – National Institute for Aerospace Research “Elie Carafoli”, Romania, \*\*\*“Henri Coandă” Air Force Academy, Braşov, Romania
8. *Weapon Systems and Missions Specific to the F16 Aircraft in the Romanian Air Force*, **Ionică CÎRCIU**, “Henri Coandă” Air Force Academy, Braşov, Romania
9. *Considerations regarding the use of mixed reality in aerospace simulators*, **George CRĂCIUN**, **Marius TUTUNEA**, “Henri Coandă” Air Force Academy, Braşov, Romania

10. *Considerations Regarding the Use of Digital Tools as a Means of Improving Parachuting Instruction in the Romanian Air Force*, **Mihai DEAS\***, **Florian RAPAN\*\***, \**“Henri Coandă” Air Force Academy, Braşov, Romania,* \*\**“Dimitrie Cantemir” Christian University, Romania*
11. *A Method for Synthesis of Families of Sets of Phase Manipulated Signals with Optimal Correlation Properties*, **Dilyan DIMITROV**, **Borislav BEDZHEV**, **Monika BEDZHEVA**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria
12. *Modern Aircraft Braking Systems*, **Liviu DINCA**, **Jenica-Ileana CORCAU**, **Dimitrii CONDREA**, University of Craiova, Romania
13. *AURA System*, **Sorin DINEA**, “Henri Coanda” NGO, Bucharest, Romania
14. *Parametric Study of NACA Airfoils at Low Speed: A Comparison of Low and High Fidelity Solvers*, **Mihai-Vlăduţ HOTHAZIE\*\***, **Ionut BUNESCU\*\***, **Mihai Victor PRICOP\*\***, **Mihăiţă-Gilbert STOICAN\***, National Institute for Aerospace Research "Elie Carafoli" – INCAS, Romania, \*\**“Politehnica” University of Bucharest, Romania*
15. *Drone Jamming Over Romanian Air Space (A New Challenge in the 21<sup>st</sup> Century)*, **Andrei LUCHIAN**, Special Telecommunications Service, Bucharest, Romania
16. *Aeronautical Communication Security Challenges*, **Ovidiu PĂSCUTOIU**, “Transilvania” University of Braşov, Romania
17. *Statistical Analysis of Wind Components \at Bucharest–Măgurele Using State-of-the-Art Instruments and ERA5 Reanalysis Data*, **Răzvan PÎRLOAGĂ\***, **Mariana ADAM\***, **Bogdan ANTONESCU\*\***, **Simona ANDREI\***, \*National

Institute of Research and Development for Optoelectronics  
INOE 2000, Romania, \*\* University of Bucharest, Romania

18. *Optimization of Thrust Program for Maximum Altitude and Vertical Landing of a Rocket Vehicle*, **Mihai-Victor PRICOP**\*\*, **Ionut BUNESCU**\*\*, **Vladut Mihai HOTHAZIE**\*\*, \*I.N.C.A.S. – National Institute for Aerospace Research “Elie Carafoli”, Romania, \*\*“Politehnica” University of Bucharest, Romania
19. *Impact of Weather Conditions on Flights and Aircraft*, **Delyan SLAVOV**, **Miroslav NEDELICHEV**, National Military University “Vasil Levski”, Artillery, AAD and CIS Faculty, Shumen, Bulgaria
20. *Project Management Applied for Composite Materials Used in Aeronautics. Carbon Fiber and Nano-Additives*, **Gina Florica STOICA**\*, **Irina-Carmen ANDREI**\*\*, **Nicoleta CRIȘAN**\*, **Delia PRISECARU**\*, **Adriana ȘTEFAN**\*\*, **Cristian STOICA**\*\*\*, **Anca GRECULESCU**\*, **Sylvain TACHEREAU**\*\*\*\*, **Dylan VEELERS**\*\*\*\*\*, **Katharzyna SZYMAŃSKA**\*\*\*\*\*, **Paul COZMA-IVAN**\*, \* “Politehnica” University of Bucharest, Romania, \*\* I.N.C.A.S. – National Institute for Aerospace Research “Elie Carafoli”, Romania, \*\*\* COMOTI – Romanian Research and Development Institute for Gas Turbines, Romania, \*\*\*\* ENIT, l'École Nationale d'Ingénieurs de Tarbes, France, \*\*\*\*\* Saxion University of Applied Sciences, Enschede, the Netherlands, \*\*\*\*\* University of Technology, Lodz, Poland
21. *Indoor Navigation: Necessity, Mechanisms and Evolution*, **Daniel ȚIGĂNIUC**\*, **Petre NEGREA**\*\*, \*Military Equipment and Technologies Research Agency - In Flight Test Research and Innovation Center, Craiova, Romania, \*\* University of Craiova, Romania

22. *The Present, Planned Future and Challenges of Eco-Friendly “Green” Aviation*, **Jozsef TOTH, Peter CSATO**, National , University of Public Service, Budapest, Hungary
23. *Applications of Remote Sensing in Biometeorology: Enhancing Weather and Climate Monitoring*, **Alexandru TUDOR, Sorin CHEVAL**, ”Henri Coandă” Air Force Academy, Braşov, Romania
24. *Countering Drone Activity in Military Areas: Exploring Deauthentication WI-FI Attacks and Signal Jamming of 2.4 Ghz/5ghz Frequencies*, **Alexandru TUDOR, Ionut FOLEA**, ”Henri Coandă” Air Force Academy, Braşov, Romania
25. *Aircraft Hydro-Mechanical Nozzle Versus Pneumo-Hydraulic Nozzle as Controlled Objects*, **Alexandru-Nicolae TUDOSIE**, University of Craiova, Romania
26. *Flight Performance Optimization of Mini UAVs*, **Vasile Prisacariu**, “Henri Coandă” Air Force Academy, Braşov, Romania
27. *Study on the Impact of Aircraft Age on Flight Safety for a Medium Courier Turboprop Airplane*, **Marius-Alexandru VOICU**, “Henri Coandă” Air Force Academy, Braşov, Romania

# Notes: