

PERSONAL INFORMATION

Ionut Porumbel

 [REDACTED] (Romania)

 (+40) 720

 ionut.porumbel@comoti.ro

Sex Male | Date of birth [REDACTED] Nationality Romanian

WORK EXPERIENCE

01/09/2006–Present

Scientific researcher I

INCD Turbomotoare COMOTI
Bd. Iuliu Maniu 220D, Sector 6, 061126 Bucuresti (Romania)
www.comoti.ro

Scientific researcher I.

President of the Scientific Council since 2020.

Vice-president of the Scientific Council between 2013 - 2020.

Head of Department "National Interest Installation" Thermo- Gas Dynamic Complex" between 2015 and 2016.

Research in the field of combustion in aerospace, gas turbine engines, and energy.

Coordination and participation in experimental campaigns. Numerical simulations and analysis. Test rig design and development. Project management. Development of numerical algorithms. Design of prototype assemblies and parts. Elaboration of technical documentation, studies, analyses and scientific publications.

Coordinator of research project FP 7 335091 - TIDE ("Tangential Impulse Detonation Engine") financed by the European Commission.

Coordinator of research project FP 7 - Clean Sky 325977 - OPA ("Optimization of Air Jet Pump Design for Acoustic Application") financed by the European Commission.

Co-Leader of COMOTI partner research team of project FP 7 284859 - ESPOSA ("Efficient Systems and Propulsion for Small Aircraft") financed by the European Commission.

Leader of COMOTI partner research team of project FP 7 - Clean Sky 296551 - HEXENOR ("Development of Helicopter Exhaust Engine Noise Reduction") financed by the European Commission.

Leader of COMOTI partner research team of project FP 7 212367- TEENI ("Turboshaft Engine Exhaust Noise Identification") financed by the European Commission.

Leader of COMOTI partner team of project 1000027451-8000015065-3 PDT ("Pulsed Detonation Thruster") financed by the European Space Agency (ESA)

Coordinator of national research project PN CDI III Experimental Demonstration Project 454PED - PDC ("Pulsed Detonation Combustor")

Coordinator of Operational Program Competitiveness national subsidiary research contract 105890 / 2 – MECDI "Research and development of a mobile wind renewable energy generation installation")

Coordinator of national research project Space Technology and Advanced Research STAR no. 176 / 2017 - MILADEE ("Micro Launcher based on Detonation Engine "), financed by the Romanian Space Agency

Coordinator of national research project PN II Partnerships in Priority Areas no. 81-024 - LEMLES ("Development, Implementation and Experimental Validation on a Combustion Chamber Functional Model of a Numerical Algorithm for Simulating Complex Reactive Turbulent Flows")

Scientific responsible of national research project PN II Partnerships in Priority Areas no. 21-002 -

POSTCOMB ("Research on the Elaboration of a CFD Software and of an Original Afterburner System Functional Model, with Result Validation")

Participation in other European and national research projects.

In charge with the design and development of the Detonation Test Rig, part of the Testing and Experimentation Centre for Space and Security (TESS)

Business or sector Research and development

01/09/2000–30/06/2006 **Research assistant**

Georgia Institute of Technology
1, North Ave NW, 30332 Atlanta, GA (United States)
www.gatech.edu

Development and implementation of combustion numerical algorithms. Numerical simulations (LES), modeling in combustion (LEM model and Artificial Neural Networks) and turbulence. Elaboration of scientific reports and papers.

Business or sector Education

01/06/2003–31/08/2003 **Intern**

Pratt & Whitney
400 Main St., 06118 East Hartford, CT (United States)
www.pw.utc.com

Implementation of combustion numerical algorithms based on artificial neural networks.

Business or sector Manufacturing industry - gas turbine engines

01/02/1994–21/08/2000 **Engineer**

SC Turbomecanica SA
Bd. Iuliu Maniu, 244, Sector 6, 061126 Bucuresti (Romania)
www.turbomecanica.ro

Research and development in the aviation and defence industry. Design of parts, sub-assemblies and assemblies, technical support for manufacturing, elaboration of technical standards and specifications, implementation of the „Six Sigma“ Quality Insurance program. Member of the Non-conforming Material Analysis Commission between 1996 and 2000

Business or sector Manufacturing industry - gas turbine engines

01/09/1993–01/02/1994 **Engineer**

SC Master SA
Bd. Iuliu Maniu, 246, Sector 6, 061126 Bucuresti (Romania)
www.mastersa.com

Research and development in the field of thermal engines. Experimental activities and numerical algorithms development.

Business or sector Research and development

EDUCATION AND TRAINING

01/09/2000–30/06/2006 **Doctor**

EQF level 8

Georgia Institute of Technology
1, North Ave NW, 30332 Atlanta, GA (United States)
www.gatech.edu

Aerospace engineering.

Numerical combustion.

- 01/10/1988–30/06/1993 **Engineer Diploma** EQF level 7
 Universitatea Politehnica
 Splaiul Independenței 313, Sector 6, 060042 Bucuresti (Romania)
www.upb.ro
 Aerospace engineering.
 Propulsion systems.
- 15/09/1983–30/06/1987 **Bachelor Diploma** EQF level 4
 Liceul Industrial "I.L. Caragiale"
 Calea Dorobanți 163, 010564 Bucuresti (Romania)
www.cnilcb.ro
 Electro-technical profile.
 General knowledge in mathematics, physics, Romanian language, etc.
 Qualification: Automation technician.
- 01/09/2004–30/06/2005 **Master of Business Administration Certificate** EQF level 5
 Georgia Institute of Technology
 a, North Ave NW, 30332 Atlanta, GA (United States)
www.gatech.edu
 General competencies in Management of Technology (2 years study cycle).

PERSONAL SKILLS

Mother tongue(s) Romanian

Other language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C2	C2	C2	C2	C2
TOEFL					
French	B1	B1	B1	B1	B1
Spanish	B1	B1	A2	A1	A1
Italian	B1	A2	A2	A1	A1

Levels: A1 and A2: Basic user - B1 and B2: Independent user - C1 and C2: Proficient user
 Common European Framework of Reference for Languages

Communication skills

Good communication skills in specialized technical and scientific areas in Romanian and English, as a result of the large number of conferences and symposia where I participated.
 Work and communication experience in multi-national, multi-cultural and multi-racial professional environments.

Organisational / managerial skills

Master of Business Administration in "Management of Technology" (2005) from the Georgia Institute of Technology.
 Leadership and managerial skills gained as:
 Project coordinator or COMOTI research team leader in 11 research projects (PDC, PDT, MECDI/2, MILADEE, TIDE, OPA, ESPOSA, HEXENOR, TEENI, LEMLES, POSTCOMB) since 2006.
 Head of Department "Thermo- Gas Dynamic Complex" of INCDT COMOTI between 2015 and 2016.

Deputy Head of Department "Combustion Chambers Laboratory" of INCDT COMOTI between 2013 and 2015.

Coordinator of the Artificial Neural Networks team of the "Numerical Combustion Laboratory" of Georgia Institute of Technology between 2005 and 2006;

Coordinator on behalf of the "Numerical Combustion Laboratory" of Georgia Institute of Technology of the Artificial Neural Networks implementation program of Pratt & Whitney, in 2003.

Head of Compartment "US Licences" in the "Chief Engineering" Department of SC Turbomecanica SA between 1999 and 2000

Co-leader of the „Six Sigma" Quality Insurance program of Turbomecanica between 1999 and 2000.

Job-related skills ORCID: 0000-0001-6468-7583

Member of the Doctoral School Council at the "Politehnica" University of Bucharest, Department of Aerospace Engineering since 2021.

Expert for the European Commission research programs evaluation and review in FP7, H2020 and Clean Sky 2.

Review Panel member for the Cost Organization (European Cooperation in Science and Technology) since 2021

Member of two COST Actions: TD1409 MI-NET and CM0901 CMST.

Good mentoring skills. I have collaborated, both in the Georgia Institute of Technology and in INCDT COMOTI to advising several Master and doctoral students.

Relevant knowledge of Quality Insurance processes as a result of graduating the "Six Sigma Supplier Black Belt" training course at Cincinnati, OH, USA and of practical expertise gained in Turbomecanica.

Experience in using LASER measurement equipment (PIV, PLIF, Rayleigh spectroscopy) gained in the experimental activities coordinated in INCDT COMOTI.

Experience in designing and developing experimental test rigs, gained in building the detonation test rig at INCDT COMOTI

Digital competence

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
Independent user	Proficient user	Basic user	Basic user	Independent user

Digital competences - Self-assessment grid

Operating systems: Windows, Linux;

Programming: Fortran, C, C++, Basic, Mathcad, Matlab;

Parallel programming: MPI;

Office: Microsoft Office;

CAD: AutoCAD, CATIA, Unigraphics

Other skills Hobbies: literature, music, sports

Driving licence B

ADDITIONAL INFORMATION

Certifications 2000 – Quality insurance program Six Sigma "Supplier Black Belt" from General Electric Co.,

Cincinnati, OH, USA;

- Conferences** Chairman of the Organizing Committee of the CEAS 2017 Conference (organized by AAAR on behalf of CEAS)
Member of the Editorial Board of the TURBO Journal (edited by COMOTI) since 2014
Member of the Scientific Committee of the NCAS Conference.
Reviewer of scientific papers for ASME conferences.
Reviewer of scientific papers for WSEAS conferences.
Reviewer of scientific papers for the CEAS Aeronautical Journal
- Memberships** Member of the American Institute of Aeronautics and Astronautics since 2003
Member of the American Society of Mechanical Engineers since 2011
Member of the Association of Aeronautics and Astronautics of Romania since 2011
- Honours and awards** 2015 - Silver Medal, "43e Salon International des Inventions de Genève", "Installation for Thermogasodynamic Testing at High Parameters"
2016 - Silver Medal, "44e Salon International des Inventions de Genève", "Installation for Testing Turbine Blades with Hydrogen Flame Adjustment"
2018 – Winner of the Best Researcher contest in COMOTI.
- Invention patents** 2012 – RO127684-A0, RO127684-B1, G. Ursescu, C.E. Hrițcu, I. Porumbel, C. Sandu, F.G. Florean, G. Carlanescu, C. Pușcașu, A.C. Petcu, C. Carlanescu "Installation for Thermogasodynamic Testing at High Parameters" [Buletinul oficial de proprietate industrial nr.7 / 2012]
2013 – RO128845-A0, F.G. Florean, A.C. Petcu, R. Carlanescu, I. Porumbel, C. Sandu, C. Carlanescu "Multiple stage postcombustion installation in self ventilated gas turbine engine skid" [Buletinul oficial de proprietate industrial nr.9/2013]
2015 - RO128864-A0, RO128864-B1, G. Matache, C. Puscasu, V. Silivestru, R. Carlanescu, R.L. Voicu, I. Porumbel, C. Carlanescu, " Installation for Testing Turbine Blades with Hydrogen Flame Adjustment " [Buletinul oficial de proprietate industrial nr.7/2015]
- Books** 2007 – I. Porumbel. "LES of Bluff Body Stabilized Premixed and Partially Premixed Combustion" VDM Verlag Dr. Muller. Germany. ISBN 978-3-8364-6115-3
2017 – I. Porumbel, B.G. Gherman Editors, Aerospace Europe CEAS 2017 Conference "European Aerospace Quo Vadis?". 6th CEAS Air & Space Conference. Proceedings. ISBN 978-973-0-25597-3
- Publications**
1. 2003 – I. Porumbel, S. Menon. "Prediction of Soot Formation in a Turbulent Diffusion Jet Flame Using the Linear-Eddy Model", , AIAA – 2003 – 0312, 41st AIAA Aerospace Sciences Meeting and Exhibit, Reno, Nevada, USA
 2. 2003 – V. Sankaran, I. Porumbel, S. Menon. "Large-eddy simulation of a single-cup gas turbine combustor", AIAA-2003-5083, 39th AIAA / ASME / SAE / ASEE Joint Propulsion Conference and Exhibit, Huntsville, Alabama, USA.
 3. 2003 – S. Menon, G. Eggespieler, I. Porumbel. "Simulation of pollutant emission near lean – blowout in gas turbine engines", Computational Fluid and Solid Mechanics 2003, Proceedings Second MIT Conference on Computational Fluid and Solid Mechanics, Cambridge, Massachusetts, USA. pp. 1459-1461, ISBN 978-0-08-044046-0
 4. 2006 – I. Porumbel, S. Menon. "Large-eddy simulation of bluff body stabilized flames", AIAA-2006-0152, 44th AIAA Aerospace Sciences Meeting and Exhibit", Reno, Nevada, USA
 5. 2006 – I. Porumbel, S. Menon. "Effect of inflow equivalence ratio on bluff body stabilized flames", Poster, 31th International Symposium on Combustion, Heidelberg, Germany.
 6. 2006 – I. Porumbel. "Large Eddy Simulation of bluff body stabilized premixed and partially premixed

- combustion", Ph.D. Thesis, Georgia Institute of Technology, Atlanta, Georgia, USA. December 2006.
7. 2007 – I. Porumbel. "Effect of inflow equivalence ratio variation on bluff body stabilized premixed flames", Thermal Engines and Environmental Engineering METIME 2007, Galați, Romania. ISSN 1843 – 2794.
 8. 2007 – C. Carlanescu, I. Porumbel, C. Sandu. "Gas turbine experimental method", Thermal Engines and Environmental Engineering METIME 2007, Galați, Romania. ISSN 1843 – 2794.
 9. 2007 – I. Porumbel, E. Murad, K. Jesionek, S. Chandra, C. Sandu, C. Cărlănescu. "Research on biomass utilization in gas micro – turbine cogeneration plants", "CeEx Conference: Excellence Research – Favourable Premise for the Development of the Romanian Research Field", Brașov, Romania.
 10. 2008 – I. Porumbel, C. Cărlănescu, E. Murad, A. Marin. "Modelling and experimentation with a direct fired 20 KWE gas turbine wood gasifier", "Power – Gen Europe" Conference and Exhibition, Milano, Italy.
 11. 2008 – C. Cărlănescu, I. Porumbel, E. Murad, R. Petcu, V. Vilag. "Cercetări pe turbomotor alimentat cu gazeificator cu lemn", "WEC Regional Energy Forum – FOREN 2008", SP-110-ro, Neptun, Romania.
 12. 2009 – I. Porumbel, F.G. Florean, S. Ionescu, C.E. Hritcu, C. Sandu. "Numerical Simulation and Experimental Measurements in a Gas Turbine Turbulent Exhaust Jet", 3rd International Conference on Experiments / Process / System Modelling / Simulation & Optimization. Athens, Greece.
 13. 2009 – F.G. Florean, C.E. Hritcu, C. Sandu, C. Cărlănescu, I. Porumbel. "A Linear Eddy Model Simulation of A Gas Turbine Round Turbulent Exhaust Jet Validated By Experimental Measurements", Thermal Engines and Environmental Engineering METIME 2009, Galați, Romania. ISBN 978-973-627-442-8.
 14. 2009 – C. Carlanescu, I. Porumbel, C. E. Hritcu. "Linear Eddy Model Numerical Simulation of the Turbulent Flow in a Round Turbulent Jet", The XXXIInd Proceedings of the "Caius Iacob" Conference on Fluid Mechanics and its Technical Applications, București, Romania
 15. 2009 – I. Porumbel, C. Carlanescu, C.E. Hritcu, F.G. Florean, C. Sandu. "Elaborarea, implementarea si validarea experimentală pe un model funcțional de camera de ardere a unui algoritm de calcul numeric pentru simularea curgerilor turbulente - reactive", The 13th International Conference "Inventica 2009", Iasi, Romania, ISBN 978-973-730-610-4
 16. 2009 – C.E. Hritcu, I. Porumbel, C. Carlanescu, D.P. Vasiliu. "Instalatie de generare a cetei pentru protectia plantelor contra factorilor nefavorabili ai mediului, utilizand camere de ardere pulsatorie", The 13th International Conference "Inventica 2009", Iasi, Romania, ISBN 978-973-730-610-4.
 17. 2010 – I. Porumbel. "LEMLES CFD Solver for Test of Chemical Reaction Mechanism", ECOST-MEETING-CM0901-150910-002245, 1st Annual Meeting, Nancy, France
 18. 2010 – I. Porumbel, K. Knobloch, C.E. Hrițcu, F.G. Florean, C. Sandu, G. Ursescu. "Experimental Measurements for Testing a New Sensor for Acoustic Pressure Measurements in the Hot Regions of a Gas Turbine Engine", The XXIX "Stiinta Moderna si Energia" Conference, Cluj - Napoca, Romania
 19. 2010 – I. Porumbel, G. Maistros, F.G. Florean, C. Sandu, C.E. Hrițcu, C. Cărlănescu. "Experimental Measurements for Testing a New Sensor for Velocity Measurements in a Gas Turbine Engine", The XXIX "Stiinta Moderna si Energia" Conference, Cluj - Napoca, Romania
 20. 2010 – I. Porumbel. "The Embedded Boundary Method with Application in a Turbulent Reactive Flow, using a Large Eddy Simulation Approach", The 18th Conference on Applied and Industrial Mathematics CAIM 2010, Iași, Romania
 21. 2010 – I. Porumbel, C. Cărlănescu, F.G. Florean, C.E. Hrițcu. "LES Algorithm for Turbulent Reactive Flows Simulation", Applied Computing Conference, Timișoara, Romania.
 22. 2010 – I. Porumbel, K. Knobloch, C. Cărlănescu, V. Silivestru. "Experimental Measurements for New Sensor Development", III International Scientific and Technical Conference "Aeroengines of XXI Century", Moscow, Russia
 23. 2011 – C.F. Cuciumita, V.A. Vilag, V. Silivestru, I. Porumbel. "Genetic Algorithm for Gas Turbine Blading Design", GT2011-46171, Proceedings of the ASME Turbo Expo 2011, Vancouver, Canada
 24. 2011 – V. Silivestru, C. Cărlănescu, I. Porumbel. "Algoritm LES pentru simularea curgerilor turbulente reactive", The XXX "Stiinta Moderna si Energia" Conference, Cluj - Napoca, Romania
 25. 2011 – I. Porumbel, B.G. Gherman, F.G. Florean, C. Sandu. "On the Influence of the Combustion Model on the Results of Turbulent Flames Numerical Simulations", ECOST-MEETING-CM0901-150910-002245, 2nd Annual Meeting Zaragoza, Spain.

26. 2011 – I. Porumbel, C. Cărlănescu, V. Silivestru. "LES Algorithm for Turbulent Reactive Flows Simulation", 3rd CEAS Air & Space Conference, Venice, Italy.
27. 2012 – B.G. Gherman, F.G. Florean, C. Carlanescu, I. Porumbel. "On the Influence of the Combustion Model on the Result of Turbulent Flames Numerical Simulations", GT2012-69255, Proceedings of the ASME Turbo Expo 2012, Copenhagen, Denmark
28. 2012 – F.G. Florean, J.A. Popescu, I. Porumbel, C. Cărlănescu, G. Dumitrașcu. "Experimental Measurements and Numerical Simulations in Isothermal Turbulent Flows", GT2012-69377, Proceedings of the ASME Turbo Expo 2012, Copenhagen, Denmark
29. 2012 – F.G. Florean, A.C. Petcu, I. Porumbel, C. Sandu, C. Cărlănescu, G. Dumitrașcu. "Experimental Measurements in Reactive and Non-Reactive Turbulent Flows", AIAA-2012-4271, 48th AIAA/ASME/SAE/ASEE Joint Propulsion Conference & Exhibit and 10th International Energy Conversion Engineering Conference, Atlanta, GA, USA
30. 2012 – I. Porumbel, F.G. Florean, A.C. Petcu. "Artificial Neural Networks for Reactive Flow Simulations", ECOST-MEETING-CM0901-150910-002245, 3rd Annual Meeting, Sofia, Bulgaria
31. 2012 – A.C. Petcu, I. Porumbel, C. Cărlănescu. "An Embedded Boundary Algorithm for Large Eddy Simulations in Complex Geometries", INCAS Bulletin, vol 4, no. 2, pp. 83 – 97, ISSN 2247 - 4528
32. 2012 – A.C. Petcu, B.G. Gherman, F.G. Florean, I. Porumbel. "Numerical Simulations of Round Turbulent Jet Flames", in "Non-Equilibrium Processes in Plasma Combustion and Atmosphere", Edited by A.M. Stavrik and S.M. Frolov, Moscow, Russia, ISBN 978-5-94588-121-1, pp.395 - 401
33. 2013 – C.F. Cuciumita, B.G. Gherman, I. Porumbel. "Novel Pulse Detonation Engine Concept", CEAS 2013 Air and Space Conference – Innovative Europe, Linköping, Sweden
34. 2013 – F.G. Florean, I. Porumbel, C. Carlanescu, G. Dumitrascu. "LIF experiments in a turbulent reactive flow using an afterburner", 4th CEAS Air and Space Conference – Innovative Europe, Linköping, Sweden
35. 2014 – I. Porumbel, T. Cuciuc, C.F. Cuciumita, C.E. Hritcu, F.G. Florean. "Large Eddy Simulation of Non-Reactive Flow in a Pulse Detonation Chamber", Advances in Applied and Pure Mathematics. Proceedings of the 7th International Conference on Finite Differences, Finite Elements, Finite Volumes, Boundary Elements (F-and-B '14), Gdansk, Poland, pp. 291-300, ISBN 978-960-474-380-3, ISSN 2227-4588
36. 2014 – I. Porumbel, A.C. Petcu, F.G. Florean, C.E. Hritcu. "Artificial Neural Networks for Modeling of Chemical Source Terms in CFD Simulations of Turbulent Reactive Flows", Applied Mechanics and Materials, vol. Modeling and Optimization of the Aerospace, Robotics, Mechatronics, Machines-Tools, Mechanical Engineering and Human Motricity Fields, Collection of selected, peer reviewed papers from the 9th International Conference on Modeling and Optimization of the Aerospace, Robotics, Mechatronics, Machines-Tools, Mechanical Engineering and Human Motricity Fields (OPTIROB '14), June 26-29, 2014, Mangalia, Romania. pp. 395
37. 2014 – C.F. Cuciumita, D. Olaru, V.A. Vilag, I. Porumbel, S. Riznyk, S. Khomylev. "Experimental Measurements of Static Pressure in the Inter-Turbine Duct of a Gas Turbine Engine", Recent advances in Mechanical Engineering. Proceedings of the 5th International Conference on Fluid Mechanics and Heat & Mass Transfer (FLUIDSHEAT '14), Lisbon, Portugal, pp. 185-193, ISBN 978-960-474-402-2, ISSN 2227-4596
38. 2014 – C.F. Cuciumita, D. Olaru, V.A. Vilag, I. Porumbel, S. Riznyk, S. Khomylev. "Experimental Measurements of Pressure Losses in the Inter-Turbine Duct of a Gas Turbine", Applied Mechanics and Materials. Collection of selected, peer reviewed papers from the 3rd International Conference on Power Science and Engineering (ICPSE '14), December 18-20, 2014, Barcelona, Spain.
39. 2014 – C.F. Cuciumita, D. Olaru, V.A. Vilag, I. Porumbel, S. Riznyk, S. Khomylev. "Experimental Measurements of Pressure Losses in the Inter-Turbine Duct of a Gas Turbine", Applied Mechanics and Materials, vol. 789 – 790, pp. 538 – 546
40. 2015 – R. Carlanescu, T. Prisecaru, A.C. Petcu, I. Porumbel. "Numerical Analysis of the Effect of the Fuel Composition on the Flame Characteristics in Hydrogen – Methane Diffusion Flames", International Conference on Jets, Wakes and Separated Flows (ICJWSF 2015) 16 – 18 June 2015, Stockholm, Sweden
41. 2015 – C.F. Cuciumita, I. Porumbel. "Computation of Thermodynamic Cycle for Novel Detonation Aircraft Engine", 5th CEAS Air and Space Conference – Challenges in European Aerospace, Paper 180, September 7 - 11, Delft, The Netherlands.
42. 2015 – J.A. Popescu, I. Porumbel, V.A. Vilag, C.F. Cuciumita. "Thermodynamic Cycle Analysis for Overall Efficiency Improvement and Temperature Reduction in Gas Turbines", International Journal of

Mechanical, Aerospace, Industrial, Mechatronic and Manufacturing Engineering Vol:9, No:4, 2015

43. 2015 – L.A. Stika, M. Boşcoianu, V.A. Vilag, I. Porumbel. "Numerical Simulation Method for Velocity Sensors Calibration in High Speed Flows", 6th International Conference on Aerospace, Robotics, Biomechanics, Neurorehabilitation, Human motricities, Mechanical Engineering and Manufacturing Systems (ICMERA 2015), October 29-31, Bucharest, Romania
44. 2015 – F.G. Florean, I. Porumbel. "Novel Algorithm for Geometrical Optimization of Flow Channels", *Termotehnica*, vol. 2, ISSN-L 1222-4057
45. 2015 - B.G. Gherman, I. Malael, M. Mihaescu, I. Porumbel. "Jet pump optimization through Reynolds averaged Navier-Stokes Simulation Analysis", AIAA-2015-2610, 22nd AIAA Computational Fluid Dynamics Conference, 22 - 26 June, Dallas, TX, USA
46. 2016 – A.C. Petcu, F.G. Florean, I. Porumbel, C. Berbente. "Experiments Regarding the Combustion of Camelina Oil / Kerosene Mixtures on a Burner", *Energy for Sustainable Development*, vol. 33, pp. 149 - 154 - ISI impact factor: 2,379
47. 2016 – F.G. Florean, A.C. Petcu, I. Porumbel, G. Dediu. "PIV Measurements in Low Noise Optimized Jet Pump Demonstrators", *International Journal of Energy*, vol. 10, pp. 33 - 43, ISSN: 1998-4316
48. 2016 – C.F. Cuciumita, T. Cuciuc, I. Porumbel. "Evaluation of the Cycle Averaged Performances of a Pulsed Detonation Engine Based on Thermodynamic Cycle Computations", GT2016 - 57310, Proceedings of the ASME Turbo Expo 2016: Turbomachinery Technical Conference and Exposition, Seoul, South Korea, 13 – 17 June 2016
49. 2016 - T. Cuciuc, I. Porumbel. "Detonating Combustion in a Hartmann Resonator Pulsed Detonation Combustor", 8th International Conference Materials Science and Condensed Matter Physics, September 12 - 16, 2016, Chisinau, Moldova
50. 2016 - C.F. Cuciumita, I. Porumbel, S. Danaila. "Gas Turbine Using In Situ Combustion", *Applied Mechanics and Materials*, vol. 859, pp. 20 - 28
51. 2016 - I. Malael, B.G. Gherman, I. Porumbel. "Increase the Smart Cities Development by Using an Innovative Design for Vertical Axis Wind Turbine", Proceedings of the 27th DAAAM International Symposium, pp.0506-0513, B. Katalinic (Ed.), Published by DAAAM International, ISBN 978-3-902734-08-2, ISSN 1726-9679, Vienna, Austria DOI: 10.2507/27th.daaam.proceedings.076
52. 2016 - A. Araújo, A. Gibali, A.Kyprianou, E.Antoniou, M.D.Bustamante, Y. Kaminski, W.Okrasinski, G.Benham, A.N. Riseth, C. Morosanu, I.Porumbel, C.Deliyiannis, A.Micheletti, P.Hjorth, H.Ockendon. "Increasing the Creativity of ENGINO Toy Sets and Generating Automatic Building Instructions", Study Group Report, European Study Group with Industry, ESGI 125, Limassol, Cyprus, December 5-9.
53. 2017 – I. Porumbel, "Numerical Simulation of Detonation Inception in Hydrogen / Air Mixtures", FORUM-AE Non - CO2 Technology Workshop, Berlin, Germany, 8 – 9 March, 2017
54. 2017 - T. Cuciuc, C.E. Hritcu, G.G. Ursescu, I. Porumbel, C.F. Cuciumita. "Valveless Pulsed Detonation Chamber Controlled by Hartmann Oscillators", Paper 219, Proceedings of the 6th CEAS Air and Space Conference "Aerospace Europe", Ed. B.G. Gherman, I. Porumbel October 16 - 20, Bucharest, Romania
55. 2017 - I. Porumbel, B.G. Gherman, I. Malael, V. Dragan. "Numerical Simulation of Detonation in a Valveless Pulsed Detonation Chamber", Paper 221, Proceedings of the 6th CEAS Air and Space Conference "Aerospace Europe", Ed. B.G. Gherman, I. Porumbel, October 16 - 20, Bucharest, Romania
56. 2018 -I. Porumbel, C.F. Cuciumita, C. Nechifor, R. Kuncser, T. Cuciuc, "Experimental Measurements in Hartmann Oscillators", *Transportation Research Procedia*, vol. 29, pp. 339 - 355
57. 2018 - J.A. Popescu, V.A. Vilag, I. Porumbel, C.F. Cuciumita, N. Macrisoiu, "Experimental approach regarding the ignition of H₂ / O₂ mixtures in vacuum environment", *Transportation Research Procedia*, vol. 29, pp. 330 - 338
58. 2018 - O.M. Dumitrescu, B.G. Gherman, I. Porumbel, "Importance of a Second Entrance in a Test Cell", *INCAS Bulletin*, vol. 10, no. 1, pp. 63 - 72.
59. 2018 - B.G. Gherman, F.G. Florean, I. Porumbel, "Subsonic Jet Pump Comparative Analysis ", *INCAS Bulletin*, vol. 10, no. 1, pp. 73 - 83.
60. 2018 - I. Malael, B.G. Gherman, I. Porumbel, "Numerical Investigation of a New LH2 Centrifugal Pump Concept used in Space Propulsion", *INCAS Bulletin*, vol. 10, no. 2, pp. 65 - 74
61. 2018 - A.C. Mangra, I. Porumbel, F.G. Florean, "Experimental Measurements of Camelina Sativa Oil Combustion", *Energy for Sustainable Development*, vol. 44, pp. 109 – 116

62. 2018 – V. Dragan, I. Malael, I. Porumbel, G.B. Gherman, “Turbulence model sensitivity on steady state mapping of a very high pressure ratio compressor stage”, Proceedings of the ICNPAA World Congress 2018, July 3-6,2018, Yerevan, Armenia.
63. 2018 – I. Malael, V. Dragan, G.B. Gherman, I. Porumbel, A.S. Serban, “Numerical Efficiency Evaluation of a High Pressure Ratio Screw Compressor”, 5th International Conference on Mathematics and Computers in Sciences and Industry, 25 – 27 August, Corfu, Greece.
64. 2019 – B.G. Gherman, I. Malael, F.G. Florean, I. Porumbel, “Experimental combustion chamber simulation at transient regimes”, E3S Web of Conferences, **85**, pp. 02006, EDP Sciences.
65. 2021 - A.V. Cojocea, D.E. Crunțeanu, I. Porumbel, „Studii experimentale ale unui arzător de hidrogen – aer folosind metoda Schlieren”, Sesiunea de comunicări științifice studentești, 14 mai, Facultatea de Inginerie Aerospațială, Universitatea Politehnica București, Romania
66. 2021 – A.V. Cojocea, M. Gall, T. Cuciuc, I. Porumbel, M. Botu, “Experimental Investigations of Hydrogen Ignition in Lab Scale Combustor”, 10th International Conference on Energy and Environment “Power Up Our Future”, October 14 – 15, Bucharest (on-line), Romania
67. 2021 – A.V. Cojocea, M. Gall, T. Cuciuc, I. Porumbel, G. Dediu, “Schlieren Visualization of Hydrogen Fuelled Detonation Flow”, 23rd International Conference “New Cryogenic and Isotope Technologies for Energy and Environment”, October 26 – 29, Baile Govora (on-line), Romania
68. 2021 – I. Porumbel, T. Ciuciuc, A.V. Cojocea, M. Gall, “Experimental Measurements in Hydrogen Fuelled Pulsed Detonation”, KAIST Carbon-Neutral Gas Turbine Symposium, November 17, Daejeon (on-line) South Korea
69. A.V. Cojocea, T. Cuciuc, I. Porumbel, M. Gall, B. Gherman, D.E. Crunțeanu, “Experimental Investigations of Hydrogen Fuelled Pulsed Detonation Combustion”, GT2022-82393, Proceedings of the ASME Turbo Expo 2022. Turbomachinery Technical Conference and Exhibition. June 13 – 17, 2022, Rotterdam, The Netherlands
70. I. Porumbel, T. Cuciuc, A.V. Cojocea, M. Gall, D. Asoltanei, “Schlieren Visualizations of Detonating Combustion”, GT2022-82393, 19th Israeli Symposium on Jet Engines and Gas Turbines, November 17, 2022, Haifa, Israel

Research Projects

1. Research on using biomass in gas turbine engine co-generation plants (UBICENT) – **scientific responsible**, Excellence Research Program CEEX. Module 1 – Complex research programs, Competition 2, Contract no. 272/2006, Duration: 13.09.2006 - 30.09.2008
2. New types of multi-fuelled combustion chambers operating in a pulsed regime (PULSOCAM) – **research team member**, Excellence Research Program CEEX. Module 1 – Complex research programs, Competition 2, Contract no. 281/2006, Duration 13.09.2006 - 12.09.2008
3. Elaboration, implementation and experimental validation on an original, operational combustion chamber model of a numerical computation algorithm for simulating complex turbulent reactive flows (LEMLES) – **project director**, PNCDI 2 – Programme 4: "Partnerships in priority domains", Contract no. 81-024/2007, Duration: 18.09.2007 - 17.09.2010
4. Aerosol generator for plan protection against pests and diseases, developed and manufactured based on aeronautical industry technologies (GAPP) – **research team member**, PNCDI 2 – Programme 4: "Partnerships in priority domains", Contract no. 51-063/2007, Duration: 14.09.2007 - 13.09.2010
5. Fog generation installation for plan protection against unfavorable environmental factors, using pulsed combustion chambers (PULSOPROTECT) – **research team member**, PNCDI 2 – Programme 4: "Partnerships in priority domains", Contract no. 51-043/2007, Duration: 14.09.2007 - 13.09.2010
6. Modernization and development of the research infrastructure in the field of efficient combustion in gas turbine engines (TURBOCOMB) – **research team member**, PNCDI 2 – PN-II-PT-PCCA-2013-4-1187, Contract no. 286/2014, Duration: 01.07.2014 - 30.09.2017
7. Research for development of CFD software and original operational afterburner system, with validation of results (POSTCOMB) – **scientific responsible**, PNCDI 2 – Programme 4: "Partnerships in priority domains", Contract no. 21-002/2007, Duration: 14.09.2007 - 13.09.2010
8. Turboshift engine exhaust noise identification (TEENI) – **partner team responsible**, FP7

no. 212367, Call FP7-AAT-2007-RTD-1, Duration: 01.04.2008 - 31.03.2013

9. Efficient systems and propulsion for small aircraft (ESPOSA), - **partner team co-responsible**, FP7 no. 284859, Call FP7-AAT-2011-RTD-1, Duration: 01.10.2011 - 30.06.2016

10. Development of helicopter exhaust engine noise reduction technologies (HEXENOR) – **partner team responsible**, FP7 (Clean Sky) no. 296551 Call SP1-JTI-CS-2011-01, Duration: 01.02.2012 - 31.07.2014

11. Optimization of air jet pump design for acoustic application (OPA) – **project coordinator**, FP7 (Clean Sky) no. 325977, Call SP1-JTI-CS-2012-02, Duration: 01.04.2013 - 31.07.2015

12. Tangential impulse detonation engine (TIDE) - **project coordinator**, FP7 no. 335091, Call FP7-AAT-2012-RTD-L0, Duration: 01.08.2013 - 30.04.2016

13. Gas turbine using in-situ combustion (TURIST) – **research team member**, PNCDI 2 – PN-II-PT-PCCA-2013-4-1187, Contract no. 286/2014, Duration: 01.07.2014 - 30.09.2017

14. Turbulent flame combustion chamber experimental model fuelled by Hydrogen enriched natural gas (HIDROCOMB) – **research team member**, PNCDI 2 – PN-II-PT-PCCA-2013-4-0466, Contract no. 76/2014, Duration: 01.07.2014 - 30.09.2017

15. Green thruster for attitude control and orbital manoeuvres of small satellites (GREENTH) – **research team member**, European Space Agency, RFQ/3-8153/15/NL/CBi, E/0907-07-K: NMS Romania, Duration: 15.04.2016 - 14.04.2017

16. Microlauncher based on detonation engine (MILADEE) - **project director**, Romanian Space Agency, Contract no. 124/2017, Duration: 01.04.2017 - 31.12.2019

17. Research and development of a mobile, wind, renewable energy generation installation (MECDI) – **implementation team member**, European Regional Development Fund, Operational Program Competitiveness, Contract no. 105890, 9 / 01.09.2016, Duration: 01.09.2016 - 3.08.2021

18. Subsidiary contract for industrial research and / or experimental development in effective collaboration between the research organization and the enterprise – **project director**, European Regional Development Fund, Operational Program Competitiveness, Contract no. 2 / 20.10.2017 (subsidiary of Contract no. 105890), Duration: 01.11.2017 - 01.08.2021

19. Development of research infrastructure for emerging advanced composite materials dedicated to innovative stator OGV technologies for aircrafts engine noise reduction (REMASTER) – **work package leader**, European Regional Development Fund, Operational Program Competitiveness, Contract no. 12/axa1/1.1.3H/28.04.2020, Duration: 01.05.2020 – 30.12.2022.

20. Pulsed detonation thruster (PDT), - **partner team responsible**, European Space Agency, Contract no. 1000027451-8000015065-3, Duration: 01.06.2020 – 31.12.2021

21. Pulsed detonation combustor (PDC) – **project director**, Programme 2 – Increase of Romanian economy competitiveness through research, development and innovation. Sub-programme 2.1 - Competitiveness through research, development and innovation. Experimental Demonstration programme, Contract no. 454PED/2020, Duration: 23.10.2020 – 22.10.2022.

22. Rotating detonation engine (RDE), - **partner team responsible**, European Space Agency, Contract no. 4000138669/22/NL/MG,, Duration: 01.09.2022 – 31.03.2024