

## PERSONAL INFORMATION


## Daniel Condurache



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Date of birth 15/08/1955 | Nationality Romanian

## WORK EXPERIENCE

2012–2020

**Vice-rector**

“Gheorghe Asachi” Technical University of Iași, Romania

Informatization and digital communications

2005–2012

**Head of Department**

“Gheorghe Asachi” Technical University of Iași, Romania, Department of Theoretical Mechanics

2001–Present

**Professor**

“Gheorghe Asachi” Technical University of Iași, Romania, Department of Theoretical Mechanics

1996–2001

**Associate professor**

“Gheorghe Asachi” Technical University of Iași, Romania, Department of Theoretical Mechanics

1990–1996

**Lecturer**

“Gheorghe Asachi” Technical University of Iași, Romania, Department of Theoretical Mechanics

1984–1990

**Assistant Professor**

Polytechnic Institute of Iași, Department of Theoretical Mechanics

## EDUCATION AND TRAINING

1990–1995

**PhD. Mechanical Engineering (Magna Cum Laude)**

ISCED 4

“Gheorghe Asachi” Technical University of Iași (Romania)

1980–1985

**Teacher of Mathematics**

ISCED 4

„Alexandru Ioan Cuza” University of Iași, Romania, Faculty of Mathematics

1975–1980

**Engineer**

ISCED 4

Polytechnic Institute of Iași (Faculty of Electronics and Telecommunications)

## PERSONAL SKILLS

Mother tongue(s) Romanian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	C1	B2	B1	B1
French	C2	C2	C1	C1	C1

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

Job-related skills

- Algebraic and geometric procedures for dynamic systems
- Astrodynamics, Satellites formation flying
- Integral transformations on hypercomplex spaces, wavelets analysis
- Orbital mechanics
- Lie group and Lie algebra in computational kinematics and dynamics
- Courses taught : Theoretical Mechanics, Technical Mechanics, Modeling and Simulation of Mechanical Systems, Mathematical Foundations of Robotics.
- CNATDCU member - Mechanical Engineering, Mechatronics and Robotics
- CCDI member-Ministry of Education
- PhD supervisor (Mechanical Engineering)

Digital skills

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

Digital skills - Self-assessment grid

Proficient user of Matlab, Mathematica, QuarkXpress

Other skills

1999 - present - Editor of the weekly newspaper *Opinia studentească* (both print and online)  
 Coordinator of the news agency *Cuzanet* (part of the *Alexandru Ioan Cuza University*)  
 Courses taught: *Tehnici și tehnologii media, Multimedia și Canale media*, Departament of Journalism and Communication Sciences, Faculty of Letters, "Al. I. Cuza" University of Iași

Author of over 300 articles (news, reportages, interviews, investigations etc.) published in *Viața Studentească, Opinia studentească, Europa Liberă, BBC, Expres Magazin, Evenimentul Zilei*  
 1996-1999 - general manager of the newspaper network *Monitorul*

1993-1996 - deputy editor *Evenimentul Zilei* 1992-1993 - department head *Evenimentul Zilei* 1992-1996 - department head *Expres Magazin* 1990-1992 - reporter *Europa Liberă*

1989-1992 - editor *Opinia studentească*

1982-1989 - deputy editor *Opinia studentească*

1975-1980 - deputy editor *Opinia studentească*

1974-1980 - deputy chief *Viața Studentească*

Founding member of Association of Journalists from Romania

Honorary president of Association of Professional Journalists from Iasi

Member in the board of Center for Independent Journalism

Rotary International Public Image Coordinator - Evanston USA 2010-2014

District Governor Rotary International from Romania and Republic of Moldova 2009-2010

Driving licence B

## ADDITIONAL INFORMATION

Cod Researcher ID: B-7153-2011 6

Scopus autor ID: 15841500000

ORCID ID: orcid.org/0000-0001-9287-8387

Published research articles **Over 100 articles published in research databases and ISI web of knowledge**

**ISI articles (selection)**

**Condurache D.**, *A Davenport dual angles approach for minimal parameterization of the rigid body displacement and motion*, **Mechanism and Machine Theory**, vol. 140, 2019, pp 104-122.

**Condurache D.**, *A MINIMAL PARAMETERIZATION ON SIX D.O.F. RELATIVE ORBITAL MOTION PROBLEM USING DUAL LIE ALGEBRA*, **Advances in the Astronautical Sciences**, Volume 167, 2019, pp. 783-800.

**Condurache D.**, *Higher-Order Accelerations On Rigid Bodies Motions. A Tensors And Dual Lie Algebra Approach*, **Acta Technica Napocensis – Series: Applied Mathematics, Mechanics and Engineering**, Vol. 61, Nr. 1, 2018.

**Condurache D.**, *Poisson-Darboux problem's extended in dual Lie algebra*, **Advances in the Astronautical Sciences**, Volume 162, 2018, pp. 3345-3364.

**Condurache D.**, Burlacu A., *Fractional Order Cayley Transforms for Dual Quaternions based Pose Representation*, **Advances in the Astronautical Sciences**, Vol.165, 2016, pp. 1317-1339.

**Condurache D.**, Burlacu A., *Onboard Exact Solution to the Full-Body Relative Orbital Motion Problem*, **AIAA Journal of Guidance, Control, and Dynamics**, Vol. 39, no.12, 2016, pp. 2638-2648.

**Condurache D.**, Burlacu A., *Orthogonal dual tensor method for solving the  $AX = XB$  sensor calibration problem*, **Mechanism and Machine Theory**, Vol 104, 2016, pp. 382-404.

**Condurache D.**, Burlacu A., *On Six D.O.F Relative Orbital Motion Parameterization using Rigid Bases of Dual Vectors*, **Advances in the Astronautical Sciences**, Vol.150, pp. 2293-2312.

**Condurache D.**, Burlacu A., *Dual Tensors based Solutions for Rigid Body Motion Parameterization*, **Mechanism and Machine Theory**, Vol. 74, 2014, pp. 390-412.

**Condurache D.**, Martinusi V., *Universal Functions in the Study of the Relative Orbital Motion*, **Advances in the Astronautical Sciences**, Vol. 145, 2012, pp.881-893 (AAS 12-359).

**Condurache D.**, Martinusi V., *A Closed form Solution of the Two Body Problem in Non-Inertial Reference Frames*, **Advances in the Astronautical Sciences**, Vol. 143, 2012, pp. 1649-1668 (AAS 12-213).

**Condurache, D.**; Martinusi, V., *Quaternionic Exact Solution to the Relative Orbital Motion Problem*, **AIAA Journal of Guidance, Control, and Dynamics**, Vol. 33, no. 4, 2010, pp. 1035-1047.

**Condurache, D.**, Martinusi, V., *Hypercomplex Eccentric Anomaly in the Unified Solution to the Relative Orbital Motion*, **Advances in the Astronautical Sciences**, Vol. 135, 2010, pp. 281-300. (AAS 09-321).

**Condurache, D.**, Martinusi, V., *Exact Solution to the Relative Orbital Motion in Eccentric Orbits*, **Solar System Research**, Volume 43, Issue 1, 2009, pp. 41-52.

**Condurache, D.**, Martinusi, V., *TOChNOEREShENIEZADACHi OTNOSITEL'NOGO ORBITAL'NOGO DVIZhENIYa PO EKSTsENTRICHESKOI ORBITE*, **Astronomicheskii Vestnik/Astronomy Review**, Vol. 43, No. 1, 2009, pp. 44–55.

**Condurache D.**, Martinusi, V., *Foucault Pendulum-like problems: A Tensorial Approach*, **International Journal of Non-linear Mechanics**, vol. 43, issue 8, 2008, pp. 743-760.

**Condurache D.**, Martinusi, V., *A Complete Closed Form Solution to the Kepler Problem*, **Meccanica**, Vol. 42, no.5, 2007, pp. 465-476.

**Condurache D.**, Martinusi, V., *Relative Spacecraft Motion in a Central Force Field*, **AIAA Journal of Guidance, Control, and Dynamics**, vol. 30, no. 3, 2007, pp. 873-876.

**Condurache D.**, Martinusi, V., *Kepler's Problem in Rotating Reference Frames. Part I : Prime Integrals, Vectorial Regularization*, **AIAA Journal of Guidance, Control and Dynamics**, Vol. 30, no. 1, 2007, pp. 192-200.

**Condurache D.**, Martinusi, V., *Kepler's Problem in Rotating Reference Frames. Part II: Relative Orbital Motion*, **AIAA Journal of Guidance, Control and Dynamics**, Vol. 30, no. 1, 2007, pp. 201-213.

**Condurache D.**, Martinusi, V., *Vectorial Regularization and Temporal Means in Keplerian Motion*, **Journal of Nonlinear Mathematical Physics**, Vol. 13, No. 3, 2006, pp.420-440.

**Condurache D.**, Matcovschi M.H, *Computation of angular velocity and acceleration tensors by direct measurements*, **Acta Mechanica**, Vol. 153, No. 3-4, 2002, pp. 147-167.

**Condurache D.**, Matcovschi M.H, *Algebraic computation of the twist of a rigid body through direct measurements*, **Computer Methods in Applied Mechanics and Engineering**, Vol. 190, No. 40-41, 2001, pp. 5357-5376

#### Indexed articles

Martinusi, V., **Condurache, D.**, *Remarks on the Hamiltonian of A Particle in A Rotating Reference Frame*, **Bul. Inst. Polit. Iasi, LV(LIX)**, 4, Sect. Mathematics, Theoretical Mechanics, Physics, 2009, pp. 19-24.

**Condurache D.**, Martinusi, V., *A Novel Hypercomplex Solution to Kepler's Problem*, **PADEU, Astronomy Department. of the Eötvös University.**, vol. 19, 2007, pp. 65-80.

**Condurache D.**, Martinusi, V., *A Closed Form Vectorial Solution to the Relative Orbital Motion*, **PADEU, Astronomy Department. of the Eötvös University.**, vol. 19, 2007, pp. 49-64.

**Condurache D.**, Martinusi, V., *A Short Solution to the Keplerian Ballistic Problem Using the Velocity Hodograph*, **Bul. Inst. Polit. Iasi, LII(LVI)**, 1-2, Sect. Mathematics, Theoretical Mechanics, Physics, 2007.

#### Articles - international conferences proceedings (selection)

**Condurache D.**, *SINGULARITY-FREE EXTRACTION OF A DUAL QUATERNION FROM FEATURE-BASED REPRESENTATION OF MOTION*, **AAS/AIAA Astrodynamics Specialist Conference**, 11 - 15 August, 2019, Portland, USA

**Condurache D.**, *Closed Form of the Baker-Campbell-Hausdorff Formula for the Lie Algebra of Rigid Body Displacements*, **ECCOMAS Multibody Dynamics Conference**, 15th - 18th July 2019, Duisburg, Germany

**Condurache D.**, *Higher-Order Cayley Maps for Minimal Parameterization of Rigid Body Motion*, **15th IFToMM World Congress**, June 30 – July 4, 2019, Krakow, Poland

**Condurache D.**, *A novel solution for  $AX=YB$  sensor calibration problem using dual Lie algebra*, **6th International Conference on Control, Decision and Information Technologies (CODIT'19)**, April 2019, Paris, France

**Condurache D.**, *Higher-Order Cayley Transform For Relative Pose Parameterization Of Spacecraft*, **69-th International Astronautical Congress 2018**, Oct. 2018, Bremen, Germany.

**Condurache D.**, *A Minimal Parameterization On Six D.O.F. Relative Orbital Motion Problem Using Dual Lie Algebra*, **AAS/AIAA Astrodynamics Specialist Conference – Snowbird**, August 19 – 23, 2018, UT, USA.

**Condurache D.**, *Higher-order Rodrigues dual vectors. Kinematic equations and tangent operator*, **The 5th Joint International Conference on Multibody System Dynamics**, June 24 – 28, 2018, Lisbon, Portugal.

**Condurache D.**, *Higher-order acceleration centers and kinematic invariants of rigid body*, **The 5th Joint International Conference on Multibody System Dynamics**, June 24 – 28, 2018, Lisbon, Portugal.

**Condurache D.**, *Higher-Order Kinematics Of Rigid Bodies. A Tensors Algebra Approach*, **IAK 2018 – Third Conference on Interdisciplinary Applications in Kinematics**, March 5-7, 2018, Lima, Peru.

**Condurache D.**, Ciureanu A., *Higher Order Cayley Transforms for  $SE(3)$* , **12th IFTOMM International Symposium on Science of Mechanisms and Machines, SYROM 2017**, November 02-03, Iasi, Romania.

**Condurache D.**, *Higher-Order Kinematics of Rigid Bodies Motions. A Dual Lie Algebra Approach*, **41th International Conference on Mechanics of Solids, Acoustics and Vibrations “Prof. P.P. Teodorescu”**, October, 26-27, 2017, Cluj- Napoca, Romania, Keynote Lecture.

**Condurache D.**, *On Board Complete Solution to the Full- Body Relative Orbital Motion Problem*, **68th International Astronautical Congress**, 25–29 September, 2017, Adelaide, Australia.

**Condurache D.**, *Poisson-Darboux Problem’s Extended in Dual Lie Algebra*, **AAS/AIAA Astrodynamics Specialist Conference**, August, 20-24, 2017, Columbia River Gorge, Stevenson, WA, USA.

**Condurache D.**, *Coordinate-Free Decomposition of the Rigid Body Displacement: A Davenport Dual Angles Approach*, **ECCOMAS Thematic Conference on Multibody Dynamics**, June 19 – 22, 2017, Prague, Czech Republic.

**Condurache D.**, Burlacu A., *Dual Tensor Solution To The Extended Wahba Problem*, **67th International Astronautical Congress (IAC)**, Guadalajara, Mexico, 26-30 September 2016.

**Condurache D.**, Burlacu A., *Iterative closest point problem: A tensorial approach to finding the initial guess*, **20th International Conference on System Theory, Control and Computing (ICSTCC)**, October 2016, Sinaia, Romania.

**Condurache D.**, Burlacu A., *Wahba Problem in  $SO(3)$  Dual Algebra*, **AAS/AIAA Astrodynamics Specialist Conference**, 13–16 September 2016, Long Beach Convention Center, Long Beach, California.

**Condurache D.**, *A New Parametrization of Motion using Hypercomplex Algebra*, **The 6th International Conference on Advanced Composite Materials Engineering, COMAT2016 & ICMSAV2016**, October, 2016, Brasov, Keynote Lecture.

**Condurache D.**, Burlacu A., *General rigid body motion parameterization using modified Cayley transform for dual tensors and dual quaternions*, **The 4th Joint International Conference on Multibody System Dynamics**, May 29 - June 2, 2016, Montreal, Canada.

**Condurache D.**, *Relative Orbital Motion Analysis using Dual Lie Algebra Representation*, **66th International Astronautical Congress (IAC) 2015: Space - The Gateway for Mankind's Future**, IAC 2015; Jerusalem; Israel; 12 October 2015-16 October 2015; Code 122921, pp. 6097-6100.

**Condurache D.**, Burlacu A., *Fractional Order Cayley Transforms for Dual Quaternions based Pose Representation*, **AAS/AIAA Astrodynamics Specialist Conference**, Vail, CO, Aug 9-13, 2015.

Burlacu A., **Condurache D.**, Clim E., *Kinematic Evaluation of Articulated Rigid Objects*, **18th Int. Conference on System Theory, Control and Computing**, pp. 175-180, Oct. 17-19 2014, Sinaia, Romania.

**Condurache D.**, Burlacu A., *On Board Exact Solution to the Full Body Relative Orbital Motion Problem*, **AIAA Space and Astronautics Forum and Exposition: AIAA/AAS Astrodynamics Specialist Conference**, 4-7 August 2014, San Diego, USA.

**Condurache D.**, Burlacu A., *Dual Lie Algebra Representations of the Rigid Body Motion*, **AIAA Space and Astronautics Forum and Exposition: AIAA/AAS Astrodynamics Specialist Conference**, 4-7 August 2014, San Diego, USA.

**Condurache, D.**, Burlacu A., *Recovering Dual Euler Parameters from Feature-Based Representation of Motion*, **14th Int. Symposium on Advances in Robot Kinematics**, June 29 – July 3, 2014, Ljubljana, Slovenia.

**Condurache, D.**, Martinusi, V., *Analytical Orbit Propagator Based on Vectorial Orbital Elements*, **AIAA Guidance, Navigation and Control Conference**, 19-21 August 2013, Boston, MA, USA. Paper AIAA-2013-5188.

**Condurache D.**, Burlacu A., *On Six D.O.F Relative Orbital Motion Parameterization using Rigid Bases of Dual Vectors*, **AAS/AIAA Astrodynamics Specialist Conference, Hilton Head, South Carolina, August 11-15, 2013.**

**Condurache, D.**, Burlacu A., *Rigid Body Pose Estimation using Dual Quaternions Computed from Direct Measurements*, **43rd International Symposium on Robotics, May 29-31, Taiwan, Taipei, 2012.**

**Condurache, D.**, Martinusi, V., *State Space Analysis for the Relative Spacecraft Motion*

in *Geopotential Fields*, **AIAA Guidance, Navigation, and Control Conference, 8 – 11 Aug 2011, Portland, Oregon, USA.**

**Condurache, D., Martinusi, V., Super-integrability in the unperturbed relative orbital motion problem, AIAA/AAS Astrodynamics Specialist Conference, Toronto, Canada, 2-5 August 2010.**

**Condurache, D; Martinusi, V., Analytic Solution to the Relative Orbital Motion Around an Oblate Planet, AIAA Guidance, Navigation and Control Conference and Exhibit, Chicago, Illinois, 10-13 Aug. 2009.**

**Condurache, D; Martinusi, V., Hypercomplex Eccentric Anomaly in the Unified Solution to the Relative Orbital Motion, AAS/AIAA Astrodynamics Specialist Conference, Pittsburgh, Pennsylvania, 9-13 Aug. 2009 (paper AAS-09-321).**

**Condurache, D.; Martinusi, V., Exact solution to the relative orbital motion in a central force field, IEEE/AIAA 2nd International Symposium on Systems and Control in Aerospace and Astronautics, Shenzhen, China, 10-12 Dec. 2008, DOI: 10.1109/ISSCAA.2008.4776296.**

**Condurache, D.; Martinusi, V., A Quaternionic Exact Solution to the Relative Orbital Motion, AIAA/AAS Astrodynamics Specialist Conference and Exhibit, Honolulu, Hawaii, 18-21 Aug. 2008, AIAA Paper 2008-6764.**

**Condurache, D., Martinusi, V., Exact Solution to the Relative Orbital Motion in Eccentric Orbits, International Conference “Analytical Methods of Celestial Mechanics”, Sankt-Petersburg, Russia, 2007.**

**Condurache, D., Martinusi, V., A Novel Hypercomplex Solution to Kepler's Problem, CMDA 2006 – International Workshop on Actual Problems in Celestial Mechanics and Dynamical Astronomy, Babeş-Bolyai University Cluj-Napoca, Romania, 2006.**

**Condurache, D., Martinusi, V., A Closed Form Vectorial Solution To the Relative Orbital Motion, CMDA 2006 - International Workshop on Actual Problems in Celestial Mechanics and Dynamical Astronomy, Babeş-Bolyai University Cluj-Napoca, România, 2006.**

#### Books and Chapters

**Condurache D., Higher-Order Kinematics of Rigid Bodies. A Tensors Algebra Approach, In: Kecskevényi A., Geu Flores F., Carrera E., Elias D. (eds) Interdisciplinary Applications of Kinematics. Mechanisms and Machine Science, vol 71. Springer, Cham, 2019, ISBN 978-3-030-16422-5**

**Condurache D., Higher-Order Relative Kinematics of Rigid Body Motions: A Dual Lie Algebra Approach, Advances in Robot Kinematics 2018 . ARK 2018, Lenarcic J., Parenti-Castelli V. (eds), Vol 8. pag. 83-91, Springer Proceedings in Advanced Robotics, June 2018, ISBN 978-3-319-93188-3.**

**Condurache D., On Six DOF Relative Orbital Motion of Satellites, Space Flight, Pag. 78-100, June 20th 2018, INTECH, ISBN: 978-1-78923-283-7.**

**Condurache, D., Ciureanu, I.-A., Higher-order Cayley transforms for SE(3), Mechanisms and Machine Science, Volume 57, 2018, Pages 331-339, ISBN: 978-3-319-79110-4.**

**Condurache D., Burlacu A., Recovering Dual Euler Parameters from Feature-Based Representation of Motion, Advances in Robot Kinematics, Jadran Lenarcic and Ousama Khatib (Eds), pp.295-305, Springer International, 2014, ISBN: 978-3-319-06697.**

**Condurache D., Spacecraft Relative Orbital Motion, Advances in Spacecraft Systems and Orbit Determination, Dr. Rushi Ghadawala (Ed.), Intech, 2012, ISBN: 978-953-51-0380-6.**

**Condurache D., A New General investigation of the Kinematics of the Rigid Bodies, Polirom, 2010, ISBN 973-9476-21-X.**

**Condurache D., Reprezentări simbolice. Aplicații în teoria semnalelor și studiul sistemelor dinamice (Symbolic Representations. Applications in Signal Theory and Dynamical Systems), Nord-Est, Iași, 1996, ISBN 973-97101-8-2.**

**Condurache, D., Matcovschi M. H., Fundamentele matematice ale mecanicii roboților (Mathematical Fundamentals of Robot Mechanics), 2000**

**Rusu, E., Condurache D., Culegere de probleme de mecanica si aplicatii in proiectare de utilaj textil (Collection of Mechanical Problems and Applications in Textile Machinery Design), Editura Universității Tehnice “Gheorghe Asachi”, Iași, 1994.**

#### Research grants (selection)

**2019: Principal Investigator** CNFIS-FDI- 2019-0273 “CONNECT@TUIASI: Infrastructura Wireless Smart Campus pentru susținerea procesului didactic și de cercetare și asigurarea securității cibernetice a comunicațiilor

**2018-2019: Principal Investigator** CNFIS-FDI-2018-0570 WIRELESS-CAMPUS: Extinderea

infrastructurii wireless Smart Campus pentru susținerea activităților didactice și de cercetare

**2018:** CNFIS-FDI-2018-0006 Acces Direct prin Internaționalizarea Digitală- DIGITALin TUIAȘI

**2018:** CNFIS-FDI-2018-0351 Instrumente pentru susținerea cercetării de excelență la TUIASI-Expert

**2017-2018: Principal Investigator** CNFIS-FDI-2016-0047 Implementarea Registrului Matricol Unic în Universitatea Tehnică "Gheorghe Asachi" din Iași – RMU-TUIASI

**2015-2016:** CNFIS-FDI-2016-0047 Implementarea Registrului Matricol Unic în Universitatea Tehnică "Gheorghe Asachi" din Iași – RMU-TUIASI

**2014:** PROIECT COMMIT-Expert

**2014-2015:** POSDRU/155/1.2/S/141884 ACAD-INOV "Comunitate virtuală pentru asigurarea calității și perfecționării managementului strategic și inovativ în universitățile tehnice și compozite, în vederea creșterii relevanței învățământului superior pentru piața muncii"

**2007-2009: Principal Investigator:** *Exact solutions in relative orbital dynamics. Applications in formation flying spacecraft guidance and control* (CNCSIS code 200).

**2006:** *Susținerea integrării cercetării românești în domeniul poluării electromagnetice în rețele, programe și parteneriate europene de profil (Supporting the Integration of Romanian Research in Electromagnetic Pollution in European networks, programs and partnerships)*, CEEEX 2006.

#### Conferences (selection)

*Relative Orbital Motion Analysis Using Dual Lie Algebra Representations*, 66th International Astronautical Congress 2015, Astrodynamics Symposium, 12-16 October 2015, Jerusalem, Israel.

*Fractional Order Cayley Transforms For Dual Quaternions Based Pose Representation*, AAS/AIAA Astrodynamics Specialist Conference, 9-13 August 2015, Vail, Colorado, USA.

*On Board Exact Solution to the Full Body Relative Orbital Motion Problem*, AIAA Space and Astronautics Forum and Exposition: AIAA/AAS Astrodynamics Specialist Conference, 4-7 August 2014, San Diego, USA.

*Dual Lie Algebra Representations of the Rigid Body Motion*, AIAA Space and Astronautics Forum and Exposition: AIAA/AAS Astrodynamics Specialist Conference, 4-7 August 2014, San Diego, USA.

*Recovering Dual Euler Parameters from Feature-Based Representation of Motion*, 14th Int. Symposium on Advances in Robot Kinematics, June 29 – July 3, 2014, Ljubljana, Slovenia.

*Analytical Orbit Propagator Based on Vectorial Orbital Elements*, AIAA Guidance, Navigation and Control Conference, 19-21 August 2013, Boston, MA, USA. Paper AIAA-2013-5188.

*On Six D.O.F Relative Orbital Motion Parametrization using Rigid Bases of Dual Vectors*, AAS/AIAA Astrodynamics Specialist Conference, Hilton Head, South Carolina, USA, August 11-15, 2013.

*Rigid Body Pose Estimation using Dual Quaternions Computed from Direct Measurements*, 43rd International Symposium on Robotics, 29-31 May, Taiwan, Taipei, 2012.

*State Space Analysis for the Relative Spacecraft Motion in Geopotential Fields*, AIAA Guidance, Navigation, and Control Conference, 8 -11 August 2011, Portland, Oregon, USA.

*Super-integrability in the unperturbed relative orbital motion problem*, AIAA/AAS Astrodynamics Specialist Conference, Toronto, Canada, 2-5 August 2010.

*Analytic Solution to the Relative Orbital Motion Around an Oblate Planet*, AIAA Guidance, Navigation and Control Conference and Exhibit, Chicago, Illinois, USA, 10-13 Aug. 2009.

*Hypercomplex Eccentric Anomaly in the Unified Solution to the Relative Orbital Motion*; AAS/AIAA Astrodynamics Specialist Conference, Pittsburgh, Pennsylvania, USA, August 2009 (paper AAS-09-321).

*Analytic Solution to the Relative Orbital Motion Around an Oblate Planet*; AIAA Guidance, Navigation and Control Conference and Exhibit, Chicago, Illinois, August 2009 (paper AIAA 2009-6098).

*Exact Solutions in Relative Orbital Dynamics*; 3rd International Conference on Computational mechanics and virtual engineering, COMEC, Brasov, October 2009.

*A Quaternionic Exact Solution to the Relative Orbital Motion*, AIAA/AAS; Astrodynamics Specialist Conference and Exhibit, Honolulu, Hawaii, 18-21 August 2008, AIAA Paper 2008-6764.

*Exact Solution to the Relative Orbital Motion in a Central Force Field*; The 2nd IEEE/AIAA International Symposium on Systems and Control in Aeronautics and Astronautics, Shenzhen, China, 10-12 December 2008.

*Exact Solution to the Relative Orbital Motion in Eccentric Orbits*; International Conference "Analytical Methods of Celestial Mechanics", Sankt-Petersburg, Russia, July 2007.

*A Novel Hypercomplex Solution to Kepler's Problem*, PADEU, Astronomy Department. of the Eötvös University, 19, June 2007.

**Honours and awards** Romanian Academy Award "Traian Vuia" -12 December 2019  
Doctor Honoris Causa of „Dunărea de Jos” University of Galați, 14 October 2016  
Honorary citizen of Iași town - 14 October 2014  
Winner of the Romanian Press Club Gala - 2003, for best editorial project

**Scientific advisor** Acta Astronautica  
Advances in Space Research  
Advances in Applied Clifford Algebras  
Astrophysics and Space Science  
Celestial Mechanics and Dynamical Astronomy  
IEEE Robotics and Automation Letters  
International Journal of Non-linear Mechanics  
Journal of Guidance Control and Dynamics  
Journal of Mechanical Design  
Mathematical Methods in the Applied Sciences  
Mathematical Problems in Engineering  
Measurements  
Meccanica  
Mechanical Sciences (Topical Editor)  
Mechanism and Machine Theory  
The Journal of the Franklin Institute  
The Journal of the Astronautical Sciences

#### Memberships

Senior Member AIAA (American Institute of Aeronautics and Astronautics) ID 268679 Member AAS (American Astronautical Society) ID 12690  
Member ASME (American Society of Mechanical Engineering) ID 9012220  
Member IEEE (The Institute of Electrical and Electronics Engineers-USA)  
Member IEEE Robotics and Automation Society ID 80605322  
Member IEEE Aerospace and Electronic Systems Society ID 80605322  
Member AMS (American Mathematical Society USA) code CNDCXK  
Founding member of Romanian Society of Theoretical and Applied Mechanics  
Corresponding member of the Academy of Technical Sciences in Romania  
Member The New York Academy of Science ID 11012654