Daniel Condurache

Date of birth: 15/08/1955

Nationality: Romanian

CONTACT

📍 Bulevardul Profesor Dimitrie Mangeron, nr. 67
700050 Iași, Romania **(Work)**

✉ daniel.condurache@gmail.com

💼 (+40) 232242109

📞 (+40) 744615285

🌐 http://www.ac.tuiasi.ro/~dcondurache/

europass

WORK EXPERIENCE

2022

Member of the Romanian Academy Corresponding member

2022

Emeritus "Gheorghe Asachi" Technical University of Iaşi, Romania, Department of Theoretical Mechanics

2012 – 2020

Vice-rector "Gheorghe Asachi" Technical University of Iaşi, Romania

Informatization and digital communications

2005 – 2012

Head of Department "Gheorghe Asachi" Technical University of Iaşi, Romania, Department of Theoretical Mechanics

2001 – CURRENT

Professor "Gheorghe Asachi" Technical University of Iaşi, Romania, Department of Theoretical Mechanics

1996 – 2001

Associate professor "Gheorghe Asachi" Technical University of Iaşi, Romania, Department of Theoretical Mechanics

1990 – 1996

Lecturer "Gheorghe Asachi" Technical University of Iaşi, 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) "Gheorghe Asachi" Technical University of Iaşi (Romania)

National classification ISCED 4

1980 – 1985

Teacher of Mathematics „Alexandru Ioan Cuza" University of Iaşi, Romania, Faculty of Mathematics

National classification ISCED 4

1975 – 1980

Engineer Polytechnic Institute of Iași (Faculty of Electronics and Telecommunications)

National classification ISCED 4

LANGUAGE SKILLS

MOTHER TONGUE(S): Romanian

Other language(s):

English

Listening B2	**Spoken production** B1
Reading C1	**Spoken interaction** B2
Writing B1	

French

Listening C2	**Spoken production** C1
Reading C2	**Spoken interaction** C1
Writing C1	

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

NETWORKS AND MEMBERSHIPS

Memberships

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

JOB-RELATED SKILLS

Job-related skills

- Algebraic and geometric methods in dynamic systems
- Astrodynamics, Satellites formation flying
- Orbital mechanics
- Integral transformations on hypercomplex spaces, wavelets analysis
- Lie group and Lie algebra in Robot computational kinematics and dynamics

- CNATDCU member - Mechanical Engineering, Mechatronics, and Robotics
- CCCDI member-Ministry of Research, Innovation, and Digitalization
- Ph.D. supervisor (Mechanical Engineering)

- Courses taught: Theoretical Mechanics, Technical Mechanics, Modeling and Simulation of Mechanical Systems, Mathematical Foundations of Robotics.

OTHER SKILLS

Other skills

1999 - present - Editor of the weekly newspaper *Opinia studenţească* (both print and online)
Coordinator of the news agency *Cuzanet (part of the Alexandru Ioan Cuza University)* Courses taught: *Tehnici şi tehnologii media, Multimedia* şi *Canale media*, Departament of Journalism and Communication Sciences, Faculty of Letters, "Al. I. Cuza" University of Iaşi
Author of over 300 articles (news, reportages, interviews, investigations etc.) published in *Viaţa Studenţească, Opinia studenţească, 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 studenţească*
1982-1989 - deputy editor *Opinia studenţească*
1975-1980 - deputy editor *Opinia studenţească*
1974-1980 - deputy chief *Viaţa Studenţească*
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

COD RESEARCHER

Web of Science
ID: B-7153-2011 6
H index 12

Link https://publons.com/researcher/1423702/daniel-condurache/

Google academic
H index 18

Link https://scholar.google.ro/citations?user=nJq9n_oAAAAJ&hl=ro

SCOPUS AUTOR

Scopus autor
ID: 15841500000
H index 14

Link https://www.scopus.com/authid/detail.uri?authorId=15841500000

ORCID

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

Link https://orcid.org/0000-0001-9287-8387

PUBLISHED RESEARCH ARTICLES

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

ISI articles (selection)

Condurache D., *A Full-Body Relative Orbital Motion of Spacecraft Using Dual Tensor Algebra and Dual Quaternions*, *Mathematics* 2023, *11*(6), 1366; https://doi.org/10.3390/math11061366
Condurache, D., Popa, I. *A Minimal Parameterization of Rigid Body Displacement and Motion Using a Higher-Order Cayley Map by Dual Quaternions*, **Symmetry,** 2023, 15(11),2011; https://doi.org/10.3390/sym15112011
Cojocari M., **Condurache D.,** *High-Order Derivatives of Serial Manipulator Jacobians Using Multidual Differentiation Transform*, **BULETINUL INSTITUTULUI POLITEHNIC DIN IAȘI**. Secția Matematica. Mecanică Teoretică. Fizică. 2023;69(1-4): 7-20. https://doi.org/10.2478/bipmf-2023-0001
Condurache D., Cojocari M., Popa I., *Hypercomplex Quaternions and Higher-Order Analysis of Spatial Kinematic Chains,* **BULETINUL INSTITUTULUI POLITEHNIC DIN IAȘI**. Secția Matematica. Mecanică Teoretică. Fizică, vol.69, no.1-4, 2023, pp. 21 34. https://doi.org/10.2478/bipmf-2023-0002
Condurache D., *Higher-Order Relative Kinematics of Rigid Body, and Multibody Systems. A Novel Approach with Real and Dual Lie Algebras*, **Mechanism and Machine Theory,** vol. 176, 2022, 104999, ISSN 0094-114X, https://doi.org/10.1016/j.mechmachtheory.2022.104999
Condurache D.; David, A., *A tensor closed-form solution of two-body problem in rotating reference frame*, **Romanian Journal of Mechanics**, ISSN 2537 -5229, vol 6, nr 2 (July-December) 2021, pp. 31-45
Condurache D.; Șfatz, E., *Exact Closed-Form Solutions of the Motion in Non-Inertial Reference Frames, Using the Properties of Lie Groups SO(3) and SE(3)* *Symmetry* 2021, 1963(13):1-17
Condurache D., *Foucault-Like Properties in The Full-Bod Relative Spacecraft Motion,* **The Romanian Journal of Technical Sciences**. **Applied Mechanics** *Vol 63,* Nr.5, 2020, pp.209-233
Condurache D., *Editorial of the Special Issue Spaceflight Mechanics, and Astronautics -* **The Romanian Journal of Technical Sciences**. **Applied Mechanics** *Vol 63,* Nr.5, 2020, pp.162-164
Condurache, D.; Ciureanu, I.-A. *Baker–Campbell–Hausdorff–Dynkin Formula for the Lie Algebra of Rigid Body Displacements*. *Mathematics* 2020, *8*, 1185.
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.

Published research articles

ISI articles (selection)

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., *On six DOF relative orbital motion of spacecraft. A complete onboard solution.* **Journal of Engineering Sciences and Innovation,** Volume 2, Issue 4 / 2017, pp. 20-36

Condurache D., *Dual Algebra Solutions to the Extended Wahba Problem*. **Romanian Journal of Mechanics**, [S.l.], Volume1, Issue 1, July 2017. p. 31-44

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

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.

ARTICLES - INTERNATIONAL CONFERENCES PROCEEDINGS (SELECTION)

Articles - international conferences proceedings (selection)

Condurache, D., Cojocari, M., Popa, I. *Multidual Quaternions and Higher-Order Analysis of Lower-Pair Kinematic Chains*, **11th ECCOMAS Thematic Conference on MULTIBODY DYNAMICS**, 12-14 July 2023, Instituto Superior Tecnico-Lisbon, Portugal.

Condurache, D., *Dual Lie Algebra Representation of Rigid Body Displacement and Motion. An Overwiev (II)*, **AAS/AIAA Astrodynamics Specialist Conference,** 13–17 August 2023, at the Big Sky Resort in Big Sky, Montana, USA.

Condurache, D., *Advances Representation of Higher-Order Kinematics of Motion. Hypercomplex Lie Groups and Lie Algebras*, 25th International Symposium on **Measurement and Control in Robotics**, **Keynote**, Iasi, Romania, September 21 – 22, 2023.

Condurache, D., Pîslă, A, *Multidual Quaternions Based Dynamics Modelling for a Rigid-Flexible Coupling Spacecraft and Application*, Conference: **74th International Astronautical Congress** 2023, At: 2-6 October, Baku, Azerbaijan.

Condurache, D., *The Extended Wahba's Problem in Dual and Multidual Quaternions*, Conference: **74th International Astronautical Congress 2023,** At: 2-6 October, Baku, Azerbaijan.

Condurache D., *N-Body Problem in Non-Inertial Reference Frame. Application to Full Two-Body Stability Problem*, **73rd International Astronautical Congress**, September 2022, IAF Paris, France, ASTRODYNAMICS SYMPOSIUM, Paper ID: 70312.

Condurache D., *Higher-Order Kinematics of Lower-Pair Chains with Hyper-Multidual Algebra,* ASME 2022 **International Design Engineering Technical Conferences & Computers and Information in Engineering Conference** (IDETC/CIE2022, August 14 - 17, 2022 in St. Louis, Missouri

Condurache D., *Multidual and Dual Lie Algebra Representations f Higher-Order Kinematics,* 31st 2022 AAS/AIAA **Astrodynamics Specialist Conference**, August 7 - 11, 2022 in Charlotte, North Carolina, Paper AAS 22-659

Condurache D., *Hypercomplex universal variables approach for the state transition matrix in the* general keplerian relative orbital motion, **31st AAS/IAAA Spaceflight Mechanics Meeting**,Charlotte, North Carolina, USA, February 2021.

Articles - international conferences proceedings (selection)

Condurache D., *Dual lie algebra representations of rigid body displacement and motion. An overview (I)*, 2021 **AAS/AIAA Astrodynamics Specialist Conference**, Big Sky - Virtual, USA , 9-11 august, 2021, Paper AAS 21-627.

Condurache D., *The state transport and transition matrix in the general keplerian relative orbital motion*, **72nd International Astronautical Congress**, October 2021, IAF Dubai, United Arab Emirates, ASTRODYNAMICS SYMPOSIUM, Paper ID: 63271.

Condurache D., *Full-Body Relative Spacecraft Motion. A Minimal Parameterization using Cayley-like Transform*, **International Astronautical Congress** 2020, 12-14-October, Cyber Space Edition.

Burlacu and **Condurache D.**, A different approach to solving the PBVS control problem, 2020 **IEEE 29th International Symposium on Industrial Electronics (ISIE)**, Delft, Netherlands, 2020, pp. 1359-1364, doi: 10.1109/ISIE45063.2020.9152209.

Condurache D., *A Minimal Parameterization on Six D.O.F. Relative Orbital Motion Problem Using Dual Lie Algebra,* **AAS/AIAA Astrodynamics Specialist Conference,** 9-13 August 2020, Lake Tahoe, CALIFORNIA, USA.

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

Articles - international conferences proceedings (selection)

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 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., *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., 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., *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., *On Six D.O.F Relative Orbital Motion Parameterization using Rigid Bases ofDual 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.**

BOOKS AND CHAPTERS

Books and Chapters

Condurache D., (2024). *Advances Representation of Higher-Order Kinematics of Motion. Hypercomplex Lie Groups and Lie Algebras.* In: Doroftei, I., Kiss, B., Baudoin, Y., Taqvi, Z., Keller Fuchter, S. (eds) 25th International Symposium on Measurements and Control in Robotics. ISMCR 2023. Mechanisms and Machine Science, vol 154. Springer, Cham. https://doi.org/10.1007/978-3-031-51085-4_14

Condurache D., Cojocari, M., Popa, I. (2023). *Hypercomplex Dual Lie Nilpotent Algebras and Higher-Order Kinematics of Rigid Body*, Mechanisms and Machine Science, vol 127. Springer, Cham. https://doi.org/10.1007/978-3-031-25655-4_10

Condurache D., (2023). *Analysis of Higher- Order Kinematics on Multibody Systems with Nilpotent Algebra.* Mechanisms and Machine Science, vol 135. Springer, Cham. https://doi.org/10.1007/978-3-031-32606-6_35

Condurache D., (2023). *Product of Exponential Formula of Multidual Quaternions and Higher-Order Kinematics,* 2023 9th International Conference on Control, Decision, and Information Technologies (CoDIT), Rome, Italy, 2023, pp. 537-542, 10.1109/CoDIT58514.2023.10284240

Condurache, D., Sofan, M., Pisla, D. (2023). "Representations of Higher-Order Kinematics with Hypercomplex Commutative Nilpotent Algebra". In: Okada, M. (eds) Advances in Mechanism and Machine Science. IFToMM WC 2023. Mechanisms and Machine Science, vol 147. Springer, Cham. https://doi.org/10.1007/978-3-031-45705-0_53

Condurache D., *Dual Lie Algebra Representations of Rigid Body Displacement and Motion. An Overview (I),* AAS 21-627**,** October 2022**,** In book: Advances in the Astronautical Sciences, Edition: Vol 177, 2022, pp. 1302-1320, ISBN 978-0-87703-683-8

Condurache D., *Hyper-multidual Algebra and Higher-Order Kinematics*. Advances in Robot Kinematics 2022. ARK 2022. Springer Proceedings in Advanced Robotics, vol 24. Springer, Cham. https://doi.org/10.1007/978-3-031-08140-8_7, ISBN 978-3-031-081139-2

Condurache D., *Hypercomplex Universal Variables Approach for The State Transition Matrix in The General Keplerian Relative Orbital Motion,* AAS 21-363**,** July 2022**,** In book: Advances in the Astronautical Sciences, Edition: Vol 176, 2022, pp. 2351-2363, Chapter: AAS 21-363.

Condurache D., *Higher-Order Accelerations Field with Multidual Algebra*. Acoustics and Vibration of Mechanical Structures – AVMS-2021. Springer Proceedings in Physics, vol 274. Springer, Cham. https://doi.org/10.1007/978-3-030-96787-1_5, ISBN 978-3-030-96786-4

Burlacu Adrian**, Condurache Daniel,** Corneliu Lazăr**,** *Motion Parameterization, and Control: Advances and Application*s**,** MATRIX ROM, 2021, ISBN 978-606-25-0653-7

Condurache D., *Singularity-Free Extraction of a Dual Quaternion from Orthogonal Dual Tensor*. Springer Proceedings in Advanced Robotics, vol 15. 2021, Springer, Cham. https://doi.org/ 10.1007/978-3-030-50975-0_18, ISBN 978-3-030-50974-3.

Books and Chapters

Condurache D., *Higher-Order Kinematics in Dual Lie Algebra*, Advances on Tensor Analysis and their Application, Intech, 2020, DOI: 10.5772/intechopen.91779, Print ISBN 978-1-83962-555-8 Online ISBN 978-1-83962-556-5 eBook (PDF) ISBN 978-1-83962-557-2

Condurache D., *Multidual Algebra and Higher-Order Kinematics*. New Trends in Mechanism and Machine Science. EuCoMeS 2020. Mechanisms and Machine Science, vol 89, 2020, Springer, Cham. https://doi.org/ 10.1007/978-3-030-55061-5_7, ISBN 978-3-030-55060-8

Condurache D. The Full-Body Kepler's Problem in a Non-Inertial Reference Frame. A Dual Lie Algebra Approach, **AAS 20-660,** July 2020, In book: Advances in the Astronautical Sciences, Edition: Vol 175, 2021, Chapter: AAS 20-660, Publisher: Univelt, Incorporated, P.O. Box 28130, San Diego, California 92198

Condurache D., *Higher-Order Kinematics of Rigid Bodies. A Tensors Algebra Approach, In*: Kecskeméthy 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. pg. 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 a *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 Daniel, *Capitole speciale de mecanică teoretică* – Iași : Polirom, 2010. ISBN: 973-9476-22-8

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

Books and Chapters

Condurache D. (2019) *Higher- Order Cayley Maps for Minimal Parameterization of Rigid Body Motion*. In: Uhl T. (eds) Advances in Mechanism and Machine Science. IFToMM WC 2019. Mechanisms and Machine Science, vol 73., pp 2521-2530 Springer Cham, https://doi-org.am.e-nformation.ro/ 10.1007/978-3-030-20131-9_249, ISBN 978-3-030-20130-2

Rusu, E., **Condurache D**., *Culegere de probleme de mecanică și aplicații (Collection of mechanical problems and applications)*, Editura Universității Tehnice "Gheorghe Asachi", Iași, 1994

RESEARCH GRANTS (SELECTION)

Research grants (selection)

2021-2023: Principal Investigator POC/398/1/1-Cod SMIS 2014+124998

2019: Principal Investigator CNFIS-FDI- 2019-0273 "CONNECT@TUIASI: Infrastructura Wireless Smart Campus pentru susținerea procesului didactic și de cercetare si 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- DIGITAL in 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 Iasi – RMU-TUIASI

2015-2016: CNFIS-FDI-2016-0047 Implementarea Registrului Matricol Unic în Universitatea Tehnică "Gheorghe Asachi" din Iasi – 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)*, CEEX 2006.

- **1998-2002**: **Director de proiect**: Noi modele pentru medii continuu deformabile și aplicații la interacțiunea dintre mediile compozite, granulare, viscoelastice și structura, (CNCSIS code 8, Grant tip 4C — Banca Mondială și Guvernul României, number 46769/1998).

- **1996**: Metode numerice de identificare și optimizare în studiul sistemelor dinamice.

  - Faza 50.1: Studierea, determinarea și optimizarea parametrilor constructivi și funcționali ai unor sisteme mecanice și caracteristici ale structurilor (Contract nr. 5002/1996, Tema 50/Grant 498).

- **1994-1996**: Studiul vibrațiilor sistemelor mecanice cu aplicații în construcția de mașini.
  - Faza de execuție: Condițiile de apariție a efectelor oscilațiilor neliniare în funcționarea mașinilor (Contract nr. 5002, Grant nr. 497, Tema nr. 49, 1996).
  - Faza III: Modelarea matematică a fenomenelor specifice de vibrații neliniare ce intervin în diverse clase de mașini (Contract nr. 4002, Tema A23, grant nr. 761, 1995).
  - Faza II: Aspecte noi în teoria modelării, identificării și optimizării sistemelor mecanice și structurilor (Contract nr. 4002/1995, Tema B22, grant nr. 765, 1995).
  - Faza I: Studiu monografic și cercetări preliminare privind vibrațiile în construcția de mașini (Contract nr. 4002, Tema A23, grant nr. 761, 1994).

CONFERENCES (SELECTION)

● **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 ofDual 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.
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.

SCIENTIFIC ADVISOR

● **Scientific advisor**

Acta Astronautica
Advances in Applied Clifford Algebras
Advances in Space Research
Aerospace Science and Technology
Antimicrobial Agents and Chemotherapy
Astrophysics and Space Science
Celestial Mechanics and Dynamical Astronomy
Heliyon
IEEE Robotics & Automation Letters
Information and Computation
International Journal of Non-linear Mechanics
Journal of Guidance, Control, and Dynamics
Journal of Mechanical Design
Journal of the Franklin Institute
Mathematical Methods in the Applied Sciences
Mathematical Problems in Engineering
Mathematics
Meccanica
Measurement
Mechanical Sciences
Mechanism and Machine Theory

Oyo rikigaku ronbunshu
Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences
Robotica
Symmetry
Physics
The Journal of the Astronautical Sciences

International Advisory Committee

Bulletin of the Polytechnic Institute of Iași ISSN 1223-8139
Editor in Chief
ROMANIAN JOURNAL OF TECHNICAL SCIENCES - APPLIED MECHANICS ISSN 2601-5811
International Advisory Committee
Parana Journal of Science and Education (PJSE), ISSN 2447-6153
Member of the editorial team
Romanian Journal of Mechanics ISSN 2537 -5229
Editorial board member
Mechanical Sciences ISSN 2191-9151
Topical editor for Robotics, Dynamics, and Control

HONOURS AND AWARDS

Honours and awards

Academy of Technical Sciences in Romania Award "Constantin C. Teodorescu"- 22 October 2021
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

Iași, 09/05/2024

Daniel Condurache