

Europass Curriculum Vitae



Personal information

First name(s) / Surname(s) Emilia Abadjieva
Address(es) Institute of Mechanics, Acad. G. Bonchev Str., block 4, 1113 Sofia, Bulgaria
Telephone(s)
Fax(es)
E-mail abadjieva@gmail.com
Nationality Bulgarian
Date of birth 17.08.1973
Gender female

Desired employment / Occupational field

Researcher and Associate Professor

Work experience

Dates March 1998 onwards
Occupation or position held Researcher and Assistant Professor
Main activities and responsibilities Researching of the body systems performing regular and random processes, oriented to the synthesis of mechanical transmissions and reconstruction of vehicle collisions
Name and address of employer Institute of Mechanics, Bulgarian Academy of Sciences, Acad. G. Bonchev Str., block 4, 1113 Sofia, Bulgaria
Type of business or sector Scientific Researches in the Field of Mechanics and Nano-technologies

Dates September 2000- September 2004
Occupation or position held Lecturer of Computer Networks and Internet Application
Main activities and responsibilities Teaching students, to use Internet applications, and to create and administrate network
Name and address of employer Education Centre, Faculty of Economic, Sofia University; 125 Tsarigradsko Shose Blvd., bl.3, 1113 Sofia, Bulgaria
Type of business or sector Education

Education and training

2012 -2014 -Post. Doctoral Research Grant in Gifu University -Japan
 Theme: „Mathematical modeling for synthesis of spatial gear mechanisms, oriented to integration in precision mechanical systems

Dates 2010
 Title of qualification awarded PhD
 Principal subjects/occupational skills covered Thesis Title: *"Mathematical Models of the Kinematic Processes in Spatial Rack Mechanisms and Their Application"*
 Name and type of organisation providing education and training Institute of Mechanics, Bulgarian Academy of Sciences

Dates 1993-1998
 Title of qualification awarded Master of Science of Applied Mathematics (Analytical Mechanics)
 Principal subjects/occupational skills covered Thesis Title: *"Dependence of coefficients and directions of the sensitivity of kinematic robot manipulator of its additional degrees of freedom"*
 Name and type of organisation providing education and training Faculty of Mathematics and Informatics, Sofia University

Dates 1995-1998
 Title of qualification awarded Bachelor of Pedagogic of Informatics and Mathematics
 Principal subjects/occupational skills covered Teaching students in mathematics and informatics
 Name and type of organisation providing education and training Faculty of Mathematics and Informatics, Sofia University

Personal skills and competences

Mother tongue(s) **Bulgarian**

Other language(s)

Self-assessment
European level ()*

English

Russian

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient user	B2	Independent user	B2	Independent user	C1	Proficient user	C1	Proficient user
C1	Proficient user	B2	Independent user	B1	Independent user	B2	Independent user	B1	Independent user

(*) [Common European Framework of Reference for Languages](#)

Organisational skills and competences -Secretary of General Assembly of Institute of Mechanics, Bulgarian Academy of Sciences;
 -Secretary of "Dynamics and Optimization of Controlled Mechanical Systems" Department at Institute of Mechanics, Bulgarian Academy of Sciences

Computer skills and competences Microsoft Office Programmes, HTML/CSS, MATLAB, C++, Mathematics, Adobe Photoshop, Corel Draw, Adobe Illustrator, AutoCAD

Other skills and competences Published nearly 48 articles in the fields of mechano-mathematical modelling of spatial transmissions and in the field of mathematical modelling of the dynamics processes of vehicles crashes;
 Participation in Grants;

Additional information

Scientific Interests

Applied Mechanics; Mathematical Modelling of Spatial Gear Transmissions;
 Internet Applications and Networks

Personal Interests

Web and Graphic Design

Membership in Organizations ASME (American Society of Mechanical Engineers), 2011

List of Publications

Mag. Mech. Ph. D. Emilia Abadjieva, Associate Professor at
Institute of Mechanics, Bulgarian Academy of Science
Acad. G. Bonchev Str. block 4, 1113, Sofia, Bulgaria

I. Research of the processes of regular spatial motions transformation

1. Abadjiev V., E. Abadjieva. Sliding Velocity Vectors Field in a Case of Spatial Rack Mechanisms. Journal of Theoretical and Applied Mechanics, Sofia, vol. 30, No 1, 2000, pp. 22-28.
2. Abadjiev V., E. Abadjieva. Some Spatial Rack Set Characteristic, J. Engineering Mechanics, Brno, vol. 8, No 4, 2001, pp. 233-239.
3. Abadjieva E., V. Abadjiev. On the Synthesis of Spatial Rack Mechanisms, Inzenyrska Mechanika, 13-16 May 2002, Svatka, Ceska Republika, 2002, Published on CD.
4. Abadjieva E. Active Flanks Geometry of the Spatial Rack Set Teeth, In 6-th International Conference "Dynamics of Gear Drives", 19-22 June 2002, Zavazna Poruba, Slovak Republic, 2002, Published on CD.
5. Abadjiev V., E. Abadjieva. Kinematical Correspondence of Spatial Transformations "Rotation to Rotation" and "Rotation to Translation", International Conference on Manufacturing Systems, 7-8 October 2004, Bucharest, Romania, ISSN 0035-2074, 2004, pp. pp. 147-150.
6. Abadjiev V., D. Petrova, E. Abadjieva. Geometric Conditions for Existing of Hyperbolic Gears Pitch Circles, In: Proc. The 2nd Int. Conf. "Power Transmissions 2006", Faculty of Technical Sciences, Novi Sad, 25-26. April. 2006, pp. 111-116.
7. Abadjiev V., D. Petrova, E. Abadjieva. An Optimization of Type Wildhaber Gear Sets Based on Loading Capacity. Kinematic Approach to Criteria Construction, In Proc.: 15th Int.l Conf. on Manufacturing Systems ICMaS 26-27 October 2006, Proceedings, Editura Academia Romane, Bucharest, 2006, pp. 421-424.
8. Abadjiev V., D. Petrova, E. Abadjieva. An Optimization of Type Wildhaber Gear Sets Based on Loading Capacity. A Software Estimate of the Hydrodynamic Loading Capacity, In Proc.: 15th Int. Conf. on Manufacturing Systems ICMaS 26-27 October 2006, Proceedings, Editura Academia Romane, Bucharest, 2006, pp. 425-428.
9. Abadjiev V., D. Petrova, E. Abadjieva. Mathematical Modelling for Synthesis and Design of Non-Orthogonal Wormgears with a Straight-Line Tooth Contact, III European Conference on Computational Mechanics Solids, Structures and Coupled Problems in Engineering, C.A. Mota Soares et.al. (eds.) Lisbon, Portugal, 5-8 June 2006.
10. Abadjiev V., Abadjieva E., Vector Analysis of the Sliding Velocity Function of Rack Drives, Theoretical and Applied Mechanics J., Sofia, vol. 37, No 4, 2007, pp. 15-24.

11. Abadjieva E., Abadjiev, V. On the Kinematic Theory of Spatial Rack Drives. *Comptes Rendus De L'Academie Bulgare Des Sciences*, Sofia, vol. 61, No 12, 2008, pp. 1525 – 1534, ISSN: 1310-1331
12. Abadjieva, E. Mathematical Modelling Oriented to Kinematic Synthesis of Spatial Rack Drives, *Proceedings of 3rd International Conference Power Transmission'09*, ISBN 978-960-243-662-2, Greece, 30.09-3.10.2009, pp. 27-34
13. Abadjieva, E. Mathematical Models of the Kinematic Processes in Spatial Rack Mechanisms and Their Application. Ph. D. Thesis, Institute of Mechanics- BAS, 165 pp. (in Bulgarian).
14. Abadjiev, V., E. Abadjieva, D. Petrova. Pitch Configurations: Definitions, Analytical and Computer Synthesis. *Proceedings of ASME 2011 International Power Transmissions and Gearing Conference, IDETC/CIE 2011*, 28-31 August 2011 Washington DC, USA (published on CD)
15. Abadjiev V., E. Abadjieva, D. Petrova. Non-orthogonal Hyperboloid Gears. Synthesis and Visualization of Pitch Configurations with Inverse Orientation. *Comptes Rendus De L'Academie Bulgare Des Sciences*, Sofia 2011, vol. 64, No 8, 2011, pp. 1171-1178.
16. Abadjiev V., E. Abadjieva, D. Petrova. Non-orthogonal Hyperboloid Gears. Synthesis and Visualization of Pitch Configurations with Normal Orientation. *Comptes Rendus De L'Academie Bulgare Des Sciences*, Sofia 2011, vol. 64, No 9, 2011, pp. 1311-1319.
17. Abadjieva, E. Spatial Rack Drives. Mathematical Modelling for Synthesis. VDM Verlag Dr. Müller e.K., 2011, 72 pp., ISBN 978-3-639-24045-0
18. Abadjiev V., E. Abadjieva, D. Petrova. Pitch Configurations of Hyperboloid Gear Sets with Internal Mating Gears. Definitions and Mathematical Model. *Comptes Rendus De L'Academie Bulgare Des Sciences*, Sofia 2012, vol. 65, No 2, 2012, pp. 307-314.
19. Abadjiev V., E. Abadjieva, D. Petrova. Pitch Configurations of Hyperboloid Gear Sets with Internal Mating Gears. Analytical and Computer Synthesis. *Comptes Rendus De L'Academie Bulgare Des Sciences*, Sofia 2012, vol. 65, No 4, 2012, pp. 449-456.
20. Abadjiev V., E. Abadjieva, D. Petrova. Synthesis of Hyperboloid Gear Sets Based on the Pitch Point Approach. *Journal Mechanism and Machine Theory*, vol. 55, Pergamon, 2012, pp. 51-66.
21. Abadjieva, E., V. Abadjiev, H. Kawazaki, T. Mouri. On the Synthesis of Hyperboloid Gears and Technical Application, *Proceedings of the ASME 2013 International Power Transmission and Gearing Conference*, Portland, Oregon, USA on August 4-7, 2013 (published on CD)
22. Abadjieva, E., V. Abadjiev, H. Kawasaki, T. Mouri. Application of the Gearing Primitives to Skew-Axes Gear Set Synthesis. Part. 1. Principles of the Synthesis of Skew-Axes Gears Upon a Pitch Contact Point, *Proceedings of 12th National Congress on Theoretical and Applied Mechanics 23-26 September 2013*, Saints Constantine and Helena, Varna, Bulgaria, (published on CD)

23. Abadjieva, E., V. Abadjiev, H. Kawasaki, T. Mouri. Application of the Gearing Primitives to Skew-Axes Gear Set Synthesis. Part. 2. Mathematical Model for Synthesis and Applications, Proceedings of 12th National Congress on Theoretical and Applied Mechanics 23-26 September 2013, Saints Constantine and Helena, Varna, Bulgaria, (published on CD)
24. Abadjieva E., V. Abadjiev, H. Kawasaki. Pitch Configurations- An Innovative Solution to the Synthesis of Hyperboloid Gears. Part 1. Essence and Basic Characteristics of the Innovative Solutions, Advances in Education Research, 2013 The 2nd International Conference on Social Science and Education (ICSSE 2013), December 24-25,2013, Hong Kong, China, Vol. 47, pp. 511-517, ISSN: 2160-1070
25. Abadjieva E., V. Abadjiev, H. Kawasaki. Pitch Configurations - An Innovative Solution to the Synthesis of Hyperboloid Gears. Part 2. Analytical and Software Content of Pitch Configurations, Advances in Education Research, 2013 The 2nd International Conference on Social Science and Education (ICSSE 2013), December 24-25, 2013, Hong Kong, China Vol. 47, pp. 518-525, ISSN: 2160-1070
26. Abadjiev, V., E. Abadjieva, H. Kawasaki, T. Mouri, D. Petrova. Some Principles of Mathematical Modelling and Computer Synthesis of Hyperboloid Gears with a Conjugate Linear Contact. 2014 International Conference on Information Science, Electronics and Electrical Engineering, ISEEE 2014, April 26-28. 2014. Sapporo City, Hokaido, Japan (published on CD)
27. Abadjieva E., V. Abadjiev, H. Kawasaki. On the Synthesis of Spatial Rack Mechanisms: Mathematical Modelling and Software Teeth Generating of the Moving Links Teeth. Proceedings of the Eight International Symposium KOD 2014 “Machine and Industrial Design in Mechanical Engineering”, 12-15 June, 2014 Balatonfured, Hungary, Faculty of Technical Sciences, Novi Sad, Faculty of Mechanical Engineering, Bratislava, pp. 163-170, ISBN: 978-86-7892-615-0
28. Abadjiev V., E. Abadjieva, H. Kawasaki, T. Mouri. Approaches to the Computer Synthesis of Hyperboloid Gear Drives with Linear Contact, Journal of Theoretical and Applied Mechanics, Institute of Mechanics, Sofia, 2014, vol. 44, No. 3, pp. 101–118
29. Ignatova, D., E. Abadjieva, V. Abadjiev, Al. Vatzkichev. Walking Robot Locomotion System Construction Conception. Journal of Theoretical and Applied Mechanics, Institute of Mechanics, Sofia, 2014, vol. 44, No. 3, pp. 101-110.

II. Mathematical modeling of the behavior of the high-velocity forging machines, driven by industrial rockets

30. Abadjiev, V., E. Abadjieva. Research of the Pile Foundation Process Dynamics. Mathematical Modelling of the Pile Tamping Dynamics. Comptes Rendus De L’Academie Bulgare Des Sciences, Sofia 2010, vol. 63, No 11, 2010, pp. 1651-1658. (ISSN 1310-1331), IF=0.204
31. Abadjiev, V., E. Abadjieva. Research of the Pile Foundation Process Dynamics.. Simulation Results. Comptes Rendus De L’Academie Bulgare Des Sciences, Sofia, 2010, vol. 63, No 12, 2010, pp. 1795-1806. (ISSN 1310-1331), IF=0.204

32. Abadjiev, V., E. Abadjieva, D. Petrova. Mathematical Modelling of the Dynamic Processes of a High-Velocity Forging Machine, Machine Design, Vol. 3, No 3, Faculty of Technical Science, University of Novi Sad, 2011, pp.151-156, (ISSN 1821- 1259)

III. Mathematical modeling of car's crashes, oriented to reconstruction of the occurred dynamic processes

33. Abadjiev V., P. Gospodinov, E. Abadjieva. Car Crash Passenger Place Identification, Journal Archives of Transport, Warsaw, vol. 13, issue 1, 2001, pp. 5-14. (ISSN: 0866-9546)

34. Abadjiev, V., E. Abadjieva. Aspects of the Mathematical Modelling of Rear - Impact Car Crash Processes, International Body Engineering Conference & Exhibition and Automotive & Transportation Technology Congress, July 2002, Paris, FRANC, Session: Rear Crash, Bumpers & Pedestrian Safety, Paper Number 2002-01-2107. (**DOI:** 10.4271/2002-01-2107)