

Prof. E.A. Perdios
e-mail: eperdios@upatras.gr
tel.: +30-2610-996201

Personal Information

Date of Birth: 2-1-1955
Place of Birth: Kalamata, Greece.

Education and Positions Held

1973- High School Diploma, Kalamata, Greece.
1980- B.Sc. (Honours) in Mathematics, University of Patras, Greece.
1985- Ph.D. in Celestial Mechanics, University of Patras, Greece.
1987- Lecturer of Dept. of Engineering Sciences, University of Patras, Greece.
Since 1992 - Assistant Professor of Dept. of Engineering Sciences, University of Patras, Greece.
Since 1999 - Associate Professor of Dept. of Engineering Sciences, University of Patras, Greece.
Since 2004 - Professor of Dept. of Engineering Sciences, University of Patras, Greece.
Since 2013 - Professor of Dept. of Electrical and Computer Engineering, University of Patras, Greece.

Teaching Experience

He has taught “Mathematical Analysis”, “Numerical Analysis” and “Introduction to Computers and Programming Languages” to students of the Faculty of Engineering, University of Patras, for several years.

Research

He has published papers in the following areas: Numerical Methods, Dynamical Systems, Orbital Mechanics, Computational Mechanics. His work has over 650 citations.

Referee in the following journals

1. Astrophysics and Space Science.
2. Celestial Mechanics and Dynamical Astronomy.
3. Planetary and Space Science.
4. Advances in Space Research.
5. Journal of Mathematics.
6. Journal of Astrophysics.
7. Annali di Matematica Pura ed Applicata.
8. Advances in Astronomy.
9. Few-Body Systems.
10. Journal of Dynamical Systems and Geometric Theories.
11. Journal of the Astronautical Sciences.
12. Qualitative Theory of Dynamical Systems.
13. Astronomy & Astrophysics.
14. International Journal of Bifurcation and Chaos.
15. International Journal of Non-Linear Mechanics.
16. Monthly Notices of the Royal Astronomical Society (MNRAS)

Publications in Journal

1. **E.A. Perdios** and V.V. Markellos, 1988, *Stability and Bifurcations of Sitnikov Motions*, *Celest. Mech.* 42, 187-200.
2. K. Papadakis, **E.A. Perdios** and V.V. Markellos, 1987, *Nonlinear Approximation of Periodic Three-Body Motions Around Collinear Equilibrium Configurations*, *Astrophys. Space Sci.* 140, 373-383.
3. **E.A. Perdios**, A. Tsouroplis and C. Zagouras, 1988, *The Stability Parameters of Three-Body Periodic Orbits, Earth, Moon and Planets.* 42, 61-68.
4. **E.A. Perdios**, K. Papadakis and V.V. Markellos, 1988, *The Stability Parameters of Three-Dimensional Periodic Three-Body Orbits*, *Astrophys. Space Sci.* 146, 19-26.
5. **E.A. Perdios** and V.V. Markellos, 1990, *Symmetric Doubly-Asymptotic Periodic Orbits at Collinear Equilibria*, *Astrophys. Space Sci.* 166, 129-149.

6. **E.A. Perdios** and C. Zagouras,1991, *Vertical Stability of Periodic Solutions Around the Triangular Equilibrium Points*, *Celes.Mech.and Dynam.Astron.* 51, 75-81.
7. O. Ragos, C. Zagouras and **E.A. Perdios**,1991, *Periodic Motion Around Stable Collinear Equilibrium Point in the Photogravitational Restricted Problem of Three Bodies*. *Astrophys. Space Sci.* 182, 313-336.
8. **E.A. Perdios**, C. Zagouras and O. Ragos,1991, *Three-Dimensional Bifurcations of Periodic Solutions Around the Triangular Equilibrium Points of the Restricted Three-Body Problem*, *Celes. Mech.and Dynam.Astron.* 51, 349-362.
9. **E.A. Perdios** and V.V.Markellos,1992, *Mass Ratios of Three Bodies for Stable Low-Inclination Three-Dimensional Periodic Motion*, *Astrophys. Space Sci.* 192, 291-297.
10. V.V. Markellos, **E.A. Perdios** and P. Labropoulou,1992, *Linear stability of the Triangular Equilibrium Points in the Photo-gravitational Elliptic Restricted Problem,I*,*Astrophys. Space Sci.* 194, 207-213.
11. V.V. Markellos, **E.A. Perdios** and C. Georghiou,1993, *Linear stability of the Triangular Equilibrium Points in the Photo-gravitational Elliptic Restricted Problem,II*,*Astrophys. Space Sci.* 199, 23-33.
12. V.V. Markellos, **E.A. Perdios** and K. Papadakis,1993, *The Stability of Inner Collinear Equilibrium Points in the Photo-gravitational Elliptic Restricted Problem*, *Astrophys. Space Sci.* 199, 139-146.
13. **E.A. Perdios**, 1993,*Non-Symmetric Doubly-Asymptotic Orbits at the Outer Collinear Equilibrium Point L_3* , *Astrophys. Space Sci.* 199, 185-188.
14. N.I. Ioakimidis, **E.A. Perdios** and K. Papadakis,1991, *Numerical Estimation of the Coefficient of the Homogeneous Riemann-Hilbert Problem on the Basis of Boundary Data*, *Applied Math. & Computation* 41, 21-33.
15. N.I. Ioakimidis, K. Papadakis and **E.A. Perdios**,1991, *Numerical Evaluation of Analytic Functions by Cauchy's Theorem*, *BIT* 31, 276-285.
16. **E.A. Perdios**,1996, *Asymptotic Orbits and Terminations of Families in the Copenhagen Problem*, *Astrophys. Space Sci.* 240, 141-152.
17. C. Zagouras, **E.A. Perdios** and O. Ragos,1996, *New Kinds of Asymmetric Periodic Orbits in the Restricted Three-Body Problem*, *Astrophys. Space Sci.* 240, 273-293.
18. V.V. Markellos, K. Papadakis and **E.A. Perdios**,1996, *Non-Linear Stability Zones Around Triangular Equilibria in the Plane Circular Restricted Three-Body Problem with Oblateness*, *Astrophys. Space Sci.* 245, 157-164.
19. **E.A. Perdios** and K. Papadakis,1997 *Vertical-Critical Periodic Orbits in the General Three-Body Problem*, *Astrophys. Space Sci.*, 253, 73-85.
20. **E.A. Perdios**, K. Papadakis and V.V. Markellos,1997 *A Note on Parameter Values for Stable Low-Inclination Periodic Motion in the Restricted Three-Body Problem with Radiation*, *Astrophys. Space Sci.*, 254,151-153.
21. **E.A. Perdios**, 1997 *Asymptotic Orbits and Terminations of Families in the Copenhagen Problem, II*, *Astrophys. Space Sci.*, 254,61-66.
22. **E.A. Perdios**, S. S.Kanavos and V.V. Markellos,1999 *Bifurcations of Planar to 3D Periodic Orbits in the Restricted Three-Body Problem with Oblateness*, *Astrophys. Space Sci.*, 262,75-87.
23. **E.A. Perdios**, O.Ragos, A.E. Perdiou, and M.N. Vrahatis, 2001 *Symmetric Doubly Asymptotic Orbits in the Photogravitational Restricted Three-Body Problem*, *Nonlinear Analysis, Theory, Methods & Applications* 47,3443-3448.
24. O. Ragos, **E.A. Perdios**, V.S. Kalantonis, and M.N. Vrahatis, 2001 *On the Equilibrium Points of the Relativistic Restricted Three-Body Problem*, *Nonlinear Analysis, Theory, Methods & Applications*, 47,3413-3418.
25. V.S. Kalantonis, **E.A. Perdios**, A.E. Perdiou, and M.N. Vrahatis, 2001 *Computing with Certainty Individual Members of Families of Periodic Orbits of a Given Period*. *Celes. Mech.and Dynam.Astron.* 80,81-96.
26. **E.A. Perdios**, 2001 *Parameter Values for Stable Low-Inclination Periodic Motion in the Restricted Three- Body Problem with Oblateness*. *Astrophys. Space Sci.*, 278,403-405.
27. V.V. Markellos, A.E. Roy, **E.A. Perdios**, and C.N. Douskos, 2001 *A Hill Problem with Oblate Primaries and Effect of Oblateness on Hill Stability of Orbits*. *Astrophys. Space Sci.*, 278,295-304.

28. **E.A. Perdios**, S.S. Kanavos, and V.V. Markellos, 2001 *Bifurcations of Plane to 3D Periodic Orbits in the Photogravitational Restricted Three- Body Problem*. *Astrophys. Space Sci.*, 278,407-413.
29. C.N. Douskos, and **E.A. Perdios**, 2002 *On the Stability of Equilibrium Points in the Relativistic Restricted Three-Body Problem*. *Celes. Mech.and Dynam.Astron.*,82,317-321.
30. M.N. Vrahatis , A.E. Perdiou ,V.S. Kalantonis, **E.A. Perdios**, K. Papadakis, R. Prosmiiti, and S.C. Farantos, 2001 Application of the Characteristic Bisection Method for Locating and Computing Periodic Orbits in Molecular Systems. *Computer Physics Communication (C.P.C.)*, 138,53-68.
31. **E.A. Perdios**, V.S. Kalantonis, and M.N. Vrahatis, 2002 *Efficient Method for Computing with Certainty Periodic Orbits on a Surface of Section*. *Celes. Mech.and Dynam.Astron.*, 84,231-244.
32. A.E. Perdiou ,V.S. Kalantonis, **E.A. Perdios**, and M.N. Vrahatis, 2002 Application of Efficient Composite Methods for Computing with Certainty Periodic Orbits in Molecular Systems. *Computer Physics Communication (C.P.C.)*, 148,227-235.
33. S.S. Kanavos, V.V. Markellos, **E.A. Perdios**, and C.N. Douskos, 2002 *The Photogravitational Hill Problem: Numerical Exploration*. *Earth, Moon and Planets* 91, 223-241.
34. **E.A. Perdios**, and V.S. Kalantonis, 2002 Symmetric Doubly Asymptotic Periodic Orbits at Collinear Equilibrium Points in the General Three-Body Problem. *Astronomy & Astrophysics.*,394,323-328.
35. V.S. Kalantonis, **E.A. Perdios**, A.E. Perdiou, O. Ragos, and M.N. Vrahatis, 2002 On the Application of Optimization Methods to the Determination of Members of Families of Periodic Solutions. *Astrophys. Space Sci.* 288, 581-590.
36. V.S. Kalantonis, **E.A. Perdios**, A.E. Perdiou, O. Ragos, and M.N. Vrahatis, 2002 Deflation Techniques for the Determination of Periodic Solutions of a Certain Period. *Astrophys. Space Sci.* 288, 591-599.
37. **E. A. Perdios**, and O. Ragos, 2004 Asymptotic and Periodic Motion around Collinear Equilibria in Chermnykh's Problem: *Astronomy & Astrophysics.*,414,361-371.
38. **E.A. Perdios**, 2003 Critical Symmetric Periodic Orbits in the Photogravitational Restricted Three-Body Problem, *Astrophys. Space Sci.* 286, 501-513.
39. V.S. Kalantonis, V.V. Markellos, **E.A. Perdios**,2005 Computing Periodic Orbits of the Three- Body Problem: Effective Convergence of Newton's Method on the Surface of Section, *Astrophys. Space Sci.* 298, 441-551.
40. V.S. Kalantonis, **E.A. Perdios**, and O. Ragos, 2006 Asymptotic and Periodic Orbits Around L_3 in the Photogravitational Restricted Three-Body Problem. *Astrophys. Space Sci.* 301, 157-165.
41. V.S. Kalantonis, C.N. Ntouskos, **E.A. Perdios**, 2006 Numerical Determination of Homoclinic and Heteroclinic Orbits at Collinear Equilibria in the Restricted three- Body Problem with Oblateness. *Celes. Mech .and Dynam.Astron.*,94, 135-153.
42. **E.A. Perdios**, V.S. Kalantonis,2006 *Critical Periodic Orbits in the in the Restricted three- Body Problem with Oblateness*. *Astrophys. Space Sci.*, 305, 331-336.
43. G.A. Tsirogianis, C.N. Douskos, and **E.A. Perdios**, 2006 *Computation of the Liapunov Orbits in the Photogravitational RTBP with Oblateness*. *Astrophys. Space Sci.*, 305, 389-398.
44. **E.A. Perdios**, 2007 *The manifolds of families of 3D periodic orbits associated to Sitnikov motions in the restricted three- body problem*. *Celestial mech Dyn Astr.*, 99, 85-104.
45. **E.A. Perdios**, V,S,Kalantonis and C.N. Douskos, 2008 *Straight- line oscillations generating three- dimensional motions in the photogravitational restricted three- body problem*, *Astrophys. Space Sci.*, 314, 199-208.
46. V.S. Kalantonis, **E.A. Perdios** and A.E. Perdiou, 2008 *The Sitnikov Family and the Associated of 3D Periodic Orbits in the Photogravitational RTBP with Oblateness*, *Astrophys. Space Sci.*, 315, 323-334.
47. G.A. Tsirogianis, **E.A. Perdios** and V.V Markellos, 2009 *Improved Grid search Method: An efficient Tool for Global Computation of Periodic Orbits Application to Hill's Problem*, *Celestial mech Dyn Astr.*, 103, 49-78.
48. C. Douskos,V. Kalantonis, P. Markellos and **E.A. Perdios**, 2012 *On Sitnikov- like motions generating new kind of 3d periodic orbits in the R3BP With prolate primaries*, *Astrophys. Space Sci*, 337, 99-106.
49. **E.A. Perdios**, V.S. Kalantonis, 2012 *Self- Resonant Bifurcations of the Sitnikov Family and the Appearance of 3D Isolas in the Restricted Three- Body Problem* *Celestial mech Dyn Astr.*, 113: 377-386.
50. A.E. Perdiou, **E.A. Perdios** and V.S. Kalantonis, 2012 *Periodic orbits of the Hill problem with radiation and oblateness*, *Astrophys. Space Sci*, 342, 19-30.

51. A.E. Perdiou, A.A. Nikaki and **E.A. Perdios**, 2013 *Periodic motions in the spatial Chermnykh restricted three- body problem*, *Astrophys. Space*, 345, 57-66.
52. **E.A. Perdios**, V.S. Kalantonis, E.A. Perdiou and A.A. Nikaki, 2015 *Equilibrium points and related periodic motions in the restricted three body problem with angular velocity and radiation effects*, *Advances in Astronomy*, Volume 2015, Article ID 473482, 21 pages
53. S.M. Elshaboury, Elbaz. I. Abouelmagd, V.S. Kalantonis and **E.A. Perdios**, 2016, *The planar restricted three- body problem when both primaries are triaxial rigid bodies: Equilibrium points and periodic orbits*, *Astrophys. Space Sci. Volume 36, Issue 9, 315, PP:18*
54. Jagadish, A.E. Perdiou, Jessica Mrumun Gyegwe and **E.A. Perdios**, 2018, *Periodic solutions around the collinear equilibrium points in the perturbed restricted three-body problem with triaxial and radiating primaries for binary HD 191408, Kruger 60 and HD 155876 systems*, *Applied Mathematics and Computation*, Volume 325, PP: 358-374.
55. Kalantonis, V.S., Perdiou, A.E. and **Perdios, E.A.**: 2019, *On the stability of the triangular equilibrium points in the elliptic restricted three-body problem with radiation and oblateness*, in Rassias T. and Pardalos, P. (eds) *Mathematical Analysis and Applications*, Springer Optimization and Its Applications, to appear, Springer, Cham.

Publications in Conferences

1. **E.A. Perdios**, 1983, *Doubly Asymptotic Orbits at the Unstable Equilibrium in the Elliptic Restricted Problem*, in V.V. Markellos and Y. Kozai (eds.) *Dynamical Trapping and Evolution in the Solar System*, 339-350, D. Reidel.
2. V.V. Markellos, K. Papadakis and **E.A. Perdios**, 1995, *Non-Linear Stability Zones Around the Triangular Lagrangian Points*, *From Newton to Chaos*, Edited by A.E. Roy and B.A. Stevens, Plenum Press, New York, 371-377.
3. V.V. Markellos, **E.A. Perdios** and K. Papadakis, 1995, *Asymptotic Orbits as Terminations of Families of Periodic Orbits in the Copenhagen Problem with and without Radiation Pressure*, *From Newton to Chaos*, Edited by A.E. Roy and B.A. Stevens, Plenum Press, New York, 395-405.
4. V.V. Markellos, K. Papadakis and **E.A. Perdios**, 1997 *The restricted Five-Body Problem: Some First Results*, 6th European and 3rd Hellenic Astronomical Society Conference 2-5 July 1997, Thessaloniki, Greece.
5. **E.A. Perdios** and S. Kanavos, 1996, *Bifurcations of Plane to 3-D Periodic Orbits in the Photogravitational Restricted Three-Body Problem*, 2nd Astronomical Conference, Hellenic Astronomical Society, Thessaloniki, Greece, 544-547.
6. **E.A. Perdios**, 1996, *On the Linear Stability of Core Positions*, 2nd Astronomical Conference, Hellenic Astronomical Society, Thessaloniki, Greece, 551-554.
7. V.V. Markellos, C.N. Douskos, and **E.A. Perdios**, 2002 *A Hill Problem with Oblate Primary and Radiating Secondary: Zero- Velocity Curves, Hill Stability of Orbits and Global Solutions*. In Proceedings of the 4th GRACM Congress on Computational Mechanics, edited by D. Tsahalis (University of Patras, Patras, 2002)., Vol. I, 112-117.
8. V.V. Markellos, K.E. Papadakis, **E.A. Perdios**, and C.N. Douskos, 2002 *The Restricted Five-Body Problem: Regions of Motion, Equilibrium Points and Related Periodic Orbits*. In Proceedings of the 4th GRACM Congress on Computational Mechanics, edited by D. Tsahalis (University of Patras, Patras, 2002)., Vol. IV, 1579-1584.
9. V.S. Kalantonis, A.E. Perdiou, and **E.A. Perdios**, 2002 *On Regions of Convergence of Newton's Method for Computing Periodic Orbits on a Surface of Section*. In Proceedings of the 4th GRACM Congress on Computational Mechanics, edited by D. Tsahalis (University of Patras, Patras, 2002)., Vol. III, 1288-1293.
10. **E.A. Perdios**, V.V. Markellos, and G.A. Katsiaris, 2003 *Moulton- Goudas Periodic Orbits in the Restricted Five- Body Problem* RECENT ADVANCES IN MECHANICS AND RELATED FIELDS In Honour of Professor Constantine L. Goudas, 57-63.
11. V.V. Markellos, C.N. Douskos, K.P. Dimitriadis and **E.A. Perdios**, 2003 *Lyapunov Orbits and Asymptotic Connections in the Hill Problem with Oblateness*. RECENT ADVANCES IN MECHANICS AND RELATED FIELDS In Honour of Professor Constantine L. Goudas, 49-56.
12. C.N. Ntouskos, **E.A. Perdios** and V.V. Markellos, 2006 *On the RTBP with Oblate Primary and Radiating Secondary*. In: *Solomos, N.H. (ed) Recent advances in Astronomy and Astrophysics. AIP Conf., vol.848, pp.748*

13. C.G. Zagouras, O. Ragos, and **E.A. Perdios**, 2003 A Manifold of Periodic Solutions in the Restricted Three- Body Problem. RECENT ADVANCES IN MECHANICS AND RELATED FIELDS In Honour of Professor Constantine L. Goudas, 347-357.
14. **E.A. Perdios**, V.S. Kalantonis, 2005 Sitnikov Motions in the Photogravitational Restricted Three-Body Problem. In: Solomos, N.H. (ed) *Recent advances in Astronomy and Astrophysics. AIP Conf.,vol.848, pp.743.*
15. V.S. Kalantonis, **E.A. Perdios**, and A.E. Perdiou, 2006 *An Effect of Oblateness on Families of Periodic Orbits in the Restricted three- Body Problem. 2nd International Conference "From Scientific Computing to Computational Engineering", Athens, Greece 5-8 July, 200.*
16. G.A. Tsirogianis, **E.A. Perdios** and V.V Markellos, 2008 *Global Data clustering for Periodic Orbits, Dynamics of Celestial Bodies, In honor of Prof. John. D. Hadjidemetriou, 181-184.*
17. C. Douskos, M. Markakis and **E.A. Perdios**, 2011 *Exotic Equilibrium of Restricted Three- Body Problem Variants and Fractal Basins of Convergence ,2nd International Symposium Ra'11 on Rare Attractor and Rare Phenomena in Nonlinear Dynamics. Riga- Jurmala, Latvia, 16-20 May, 2011.*
18. V.S. Kalantonis, N,D. Caranikolas and **E.A. Perdios**, 2011 *Periodic Orbits and Chaos in the Restricted three- Body Problem with Oblate Primary,10th Hellenic Astronomical Conference. Ioannina, 5-8 September, 2011.*