Curriculum Vitae

Dec 24, 2019

Personal Data

Name	Elbaz
Surname	Abouelmagd
Full name	Elbaz Ibrahim Mohamed Abouelmagd
Nationality	Egyptian
Date of Birth	06/05/1973
Place of Birth	Egypt
Gender	Male
Marital Status	Married
Address	Building 2036 – Zahraa Nacer City 11528 – Nacer City – Cairo – Egypt
Mob. & Whats	002 010 2097 6040
E-mail	eabouelmagd@gmail.com & elbaz.abouelmagd@nriag.sci.eg
Languages	Arabic (Mother Tongue) English (Fluent reading, Speaking and Writing)

Scientific Information

Scientific Name of Publications:		Elbaz I. Abouelmagd
ID Research	Scopus ID:	5520814160
	Researcher ID:	I-1780-2012
	Orcid ID:	0000-0002-2800-4527

H – Index and Citations	Scopus H-index:	13
	Scopus Citation:	418
	Clarivate H-index:	13
	Clarivate Citation:	403

Specialist	**Major: Applied Mathematics** **Minor: Celestial Mechanics and Space Dynamics**

Current Affiliation	National Research Institute of Astronomy and Geophysics (NRIAG) Helwan 11421 – Cairo – Egypt.
Org. website	http://www.nriag.sci.eg/

Educational Qualifications

2005 – 2010 : Ph.D. In Applied Mathematics, Ain Shams University.

2001 – 2005 : M.Sc. In Applied Mathematics, Ain Shams University.

2001 – 2002 : Aerospace Diploma, Astronomy Depart, Cairo University.

1992 – 1996 : B.Sc. Mathematics Department, El-Mansoura University.

PhD. Title

Semi–analytical solution for the perturbed
N–body problem under mutual gravitational force with numerical applications

MSc. Title

The Effect of Oblateness of the massive primary on the stability of Lagrangian
points in the restricted three body problem

Experience

- **Aug / 2015 – at P.T**

  Degree: Associate Professor

  Affiliation : Astronomy Department

  National Research Institute of Astronomy and Geophysics

  (NRIAG).

  Helwan 11421 - Cairo - Egypt.

- **Jun / 2015 – Aug / 2015**

  Associate Professor in Mathematics Department – Faculty of Science,

  Jeddah University – Jeddah – Kingdom of Saudi Arabia.

Sept / 2010 – Jun / 2015

  Assistant Professor in Mathematics Department – Faculty of Science –

  King Abdulaziz University – Jeddah, Kingdom of Saudi Arabia.

- **Sept / 2007 – Aug / 2009**

  Lecturer in the Higher Institute of Electronics Libya.

- **Sept / 2005 – Aug / 2007**

  Lecturer in Mathematics Department – Teachers College – 7th October

  University – Libya.

Awards

- National Research Institute of Astronomy and Geophysics Award for Scientific Abundance, 2019

- National Research Institute of Astronomy and Geophysics Award for Scientific Abundance, 2018

Societies and Unions Membership

- Individual membership of International Astronomical Union (IAU) – Vienna. https://www.iau.org/administration/membership/individual/17668/
- Space Science and Astronomy of Scientific Society – Egypt
- Egyptian Mathematical Society – Egypt

Committees Membership

- National Committee of Astronomy and Space Sciences – Academy of Scientific Research & Technology – Egypt

- Specialized Scientific Council of Space and Remote Sensing – Academy of Scientific Research & Technology – Egypt

- A member of International Advisory Committee of Center of fundamental research in celestial mechanics and space dynamics (CFRSC) – India. http://www.cfrsc.in/international.php

International Scientific Committees of Conferences

- A member of Organization Committee of The fourth ArAs School for Astrophysics, Oct. 19 - 26, 2019, Kottamia Astronomical Observatory, Cairo – Egypt
http://awsa.ar-as.org/sfa4/committees.html

- A member of International Scientific Committee of An International Conference on Physics, Society and Technology (ICPST), Jan 17-19, 2019, in University of Delhi, Delhi – India

- A member of International Scientific Committee of An International Conference on Nonlinear Dynamics and Complexity, May 11 - 15, 2015, La Manga – Spain.
http://ndc.lhscientificpublishing.com/

Editorial Member

- Applied mathematics & Nonlinear science
http://journals.up4sciences.org/applied_mathematics_and_nonlinear_sciences.html (2016 - 2018)
- Expert Opinion on Astronomy and Astrophysics (EOAA)
http://ojs.whioce.com/index.php/eoaa/about/editorialTeam
- International Journal of Mathematics and Systems
http://systems.enpresspublisher.com/index.php/IJMSS/about/editorialTeam

Research Interest

Main research interests are studying the models of Astronomical dynamical systems concerning to the problems of celestial mechanics and space dynamics. The studying and analysis of motion for the infinitesimal bodies under the effects of various perturbing forces, the stability of motion and using some perturbing methods to find the periodic solutions or numerical techniques for constructed the possible solutions.

Scientific Activity

1- Some Publications

1. Abouelmagd E. I., Guirao J. L.G., Pal A. K. Periodic solution of the nonlinear Sitnikov restricted three-body problem. **New Astronomy (2020) 75: 101319.**

2. **Pathak N., Abouelmagd E. I.** Higher Ordered Resonant Periodic Orbits in Perturbed Sun-Mars System. **Research & Reviews: Journal of Physics (2019)** 8 (2): 130-136.

3. **Pathak N., Abouelmagd E. I., Thomas V. O.** On higher order of resonant periodic orbits in the photogravitational restricted three body problem. **The Journal of the Astronautical Sciences (2019)** 66 (4), 475 – 505.

4. **Abouelmagd E. I., Ansari A. A.** The motion properties of the infinitesimal body in the framework of bicircular Sun perturbed Earth-Moon system. **New Astronomy (2019)** 73: 101282.

5. **Suraj M. S., Abouelmagd E. I., Aggarwal R., Mittal A.** The analysis of restricted five–body problem within frame of variable mass. **New Astronomy (2019)** 70: 12 – 21.

6. **Abouelmagd E. I., Guirao J. L.G., Llibre J.** Periodic orbits for the perturbed planar circular restricted 3-body problem. **Discrete and Continuous Dynamical Systems - Series B (DCDS-B) (2019) 24 (3) 1007 – 1020.**

7. **Pathak N., Thomas V. O., Abouelmagd E. I.** The photogravitational restricted three-body problem: Analysis of resonant periodic orbits. **Discrete and Continuous Dynamical Systems - Series S (DCDS-S) (2019) 12 (4&5), 849 – 875.**

8. **Selim H. H., Guirao J. L.G., Abouelmagd E I.** Libration points in the restricted three-body problem: Euler angles, existence and stability. **Discrete and Continuous Dynamical Systems - Series S (DCDS-S) (2019) 12 (4&5): 703 – 710.**

9. **Abouelmagd E. I.** Periodic solution of the two-body problem by KB averaging method within frame of the modified Newtonian potential. **The Journal of the Astronautical Sciences (2018) 65 (3): 291 – 306.**

10. **Abouelmagd E. I., Jaume Llibre, Guirao J. L.G.** Periodic orbits of the planar anisotropic Kepler problem. **International Journal of Bifurcation and Chaos (2017) 27 (3): 1750039.**

11. **Alzahrani F., Abouelmagd E. I., Guirao J. L.G., Hobiny A.** On the libration collinear points in the restricted three–body problem. **Open Physics (2017) 15 (3): 58 – 67.**

12. **Elshaboury S. M., Abouelmagd E. I., Kalantonis V.S., Perdios E. A.** The planar restricted three-body problem when both primaries are triaxial rigid bodies: Equilibrium points and periodic orbits. **Astrophysics Space Science (2016) 361 (9): 315.**

13. **Abouelmagd E. I., Guirao J. L. G.,** On the perturbed restricted three-body problem. **Applied Mathematics and Nonlinear Sciences (2016) 1 (1): 118 – 139.**

14. **Abouelmagd E. I., Elshaboury S. M., Selim H. H.,** Numerical integration of a relativistic two-body problem via a multiple scales method. **Astrophysics Space Science (2016) 361 (1): 38.**

15. **Abouelmagd E. I., Alzahrani F., Guiro J. L. G., Hobiny A.,** Periodic orbits around the collinear libration points. **J. Nonlinear Sci. Appl. (JNSA). (2016) 9 (4): 1716 – 1727.**

16. **Abouelmagd E. I., Mortari D., Selim H.,** Analytical study of periodic solutions on perturbed equatorial two-body problem. **International Journal of Bifurcation and Chaos. (2015) 25 (14): 1540040.**

17. **Abouelmagd E. I., Mostafa A., Guiro J. L. G.,** A first order automated Lie transform. **International Journal of Bifurcation and Chaos. (2015) 25 (14): 1540026.**

18. **Abouelmagd E. I., Guirao J. L. G., Hobiny A., Alzahrani F.,** Dynamics of a tethered satellite with variable mass. **Discrete and Continuous Dynamical Systems -Series S (DCDS-S) (2015) 8 (6): 1035 – 1045.**

19. **Abouelmagd E. I., Alzahrani F., Guirao J. L. G., Hobiny A.,** Stability of equilibria points for a dumbbell satellite when the central body is oblate spheroid. **Discrete and Continuous Dynamical Systems- Series S (DCDS-S) (2015) 8 (6): 1047 – 1054.**

20. **Abouelmagd E. I., Mostafa A.,** Out of plane equilibrium points locations and the forbidden movement regions in the restricted three-body problem with variable mass. **Astrophysics Space Science (2015) 357 (1): 58.**

21. **Abouelmagd E. I.,** **Alhothuali M. S., Guirao J. L. G., Malaikah H. M.,** On the periodic structure in the planar photogravitational Hill problem**. Applied Mathematics & Information Science. (2015) 9 (5): 2409 – 2416.**

22. **Abouelmagd E. I.,** **Alhothuali M. S., Guirao Juan L. G., Malaikah H. M.,** The effect of zonal harmonic coefficients in the framework of the restricted three-body problem**. Advances in Space Research (2015) 55 (6): 1660 – 1672.**

23. **Zhu Z., Zhu Y., Zhang L., Al-Yami M, Abouelmagd E. I.,** **Ahmad B.,** Mode-mismatched estimator design for Markov jump genetic regulatory networks with random time delays**. Neurocomputing. (2015) 168: 1121 – 1131.**

24. **Abbas I. A., Marin M., Abouelmagd E. I.,** **Kumar R.,** A Green and Naghdi model in a two-dimensional thermoelastic diffusion problem for a half space**. Journal of Computational and Theoretical Nanoscience (2015) 12 (2): 280 – 286**.

25. **Abouelmagd E. I.,** **Alhothuali M. S., Guirao Juan L. G., Malaikah H. M.,** Periodic and secular solutions in the restricted three–body problem under the effect of zonal harmonic parameters**. Applied Mathematics & Information Science. (2015) 9 (4): 1 – 11.**

26. **Abouelmagd E. I.,** **Guirao Juan L. G., Vera Juan A.,** Dynamics of a dumbbell satellite under the zonal harmonic effect of an oblate body**. Communications in Nonlinear Science and Numerical Simulation (2015) 20 (3): 1057 – 1069.**

27. **Hayat T., Ashraf B., Shehzad S. A., Abouelmagd E. I.,** Three-dimensional flow of Eyring Powell nanofluid over an exponentially stretching sheet**. International Journal of Numerical Methods for Heat & Fluid Flow (2015) 25 (3): 593 – 616.**

28. **Abouelmagd E. I.,** **Guirao Juan L. G., Mostafa A.,** Numerical integration of the restricted thee-body problem with Lie series**. Astrophysics Space Science (2014) 354 (2):369 – 378.**

29. **Abouelmagd E. I.,** **Awad M. E., Elzayat E. M. A., Abbas I. A.,** Reduction the secular solution to periodic solution in the generalized restricted three-body problem**. Astrophysics Space Science (2014) 350 (2): 495 – 505.**

30. **Abouelmagd E. I.,** **Asiri H. M., Sharaf M. A.,** The effect of oblateness in the perturbed restricted three-body problem. **Meccanica (2013) 48 (10): 2479 – 2490.**

31. **Abouelmagd E. I.,** Stability of the triangular points under combined effects of radiation and oblateness in the restricted three-body problem. **Earth Moon and Planets (2013) 110 (3-4): 143 – 155.**

32. **Abouelmagd E. I.,** The effect of photogravitational force and oblateness in the perturbed restricted three-body problem. **Astrophysics Space Science (2013) 346 (1): 51 – 69.**

33. **Abouelmagd E. I.,** **Sharaf M. A.,** The motion around the libration points in the restricted three-body problem with the effect of radiation and oblateness. **Astrophysics Space Science (2013) 344 (2): 321 – 332.**

34. **Sharaf M. A.,** **Abouelmagd E. I.,** The equations of motion for photogravitational and oblateness in elliptic restricted three body problem in terms of regularized levi-civita variables. **Bulletin of Pure & Applied Sciences-Mathematics and Statistics (2012) 31(1): 129 – 135.**

35. **Abouelmagd E. I.,** Existence and stability of triangular points in the restricted three-body problem with numerical applications. **Astrophysics Space Science (2012) 342 (1): 45 – 53.**

36. **Abouelmagd E. I.,** **El-Shaboury S. M.,** Periodic orbits under combined effects of oblateness and radiation in the restricted problem of three bodies. **Astrophysics and Space Science (2012) 341 (2): 331 – 341.**

2 - Some papers under publications

1. Abouelmagd E. I., Guirao J. L.G., Llibre J., The dynamics of the relativistic Kepler problem.

2. Pal A. K., Abouelmagd E. I., Dynamical substitutes and energy surfaces in the bicircular Sun-Earth-Moon system.

3. Euaggelos E. Z., Chen W, Abouelmagde E. I., Hang H., Basins of convergence of equilibrium points in the restricted three-body problem with modified gravitational potential.

4. And more than 8 under construction

4 - Projects

1. Projects under development

1. **Title:** Modeling of science and engineering problems through dynamical systems.

   P. I.: Juan Luis García Guirao (Email: juan.garcia@upct.es)

   Co. I. Elbaz I. Abouelmagd

   Period: July, 2019 – March, 2022.

   Reference: 20783/PI/18.

   Source: Fundación Séneca (Spain).

   Money: 45000 EUR.

2. **Title:** Discrete, Continuous and Hamiltonian Dynamical Systems with Applications.

   P. I.: Juan Luis García Guirao (Email: juan.garcia@upct.es)

   Co. I. Elbaz I. Abouelmagd

   Period: January, 2018 – December, 2021.

   Reference: PGC2018-097198-B-100.

   Source: Ministry of Science, Innovation and Universities (Spain).

   Money: 60.000 EUR.

2. Projects have been developed

1. **Title:** Discrete and continuous dynamical system with emphasis on the periodic structure and their applications.

   P. I.: Juan Luis García Guirao (Email: juan.garcia@upct.es)

   Co. I. Elbaz I. Abouelmagd

   Period: 2014 – 2017.

   Reference: MTM2014 – 51891 – p.

Source: Ministry of Economy and Competitiveness (Spain)

Money: 52756 EUR.

2. Title: Dynamics of constrained and unconstrained mechanical systems: Periodic orbits using the averaging theory.

P. I.: Mohammed Shabab Alhuthali

Co. I.: Elbaz I. Abouelmagd

Period: 9 Months (2014).

Reference: Grant No: 59 – 130 – 35 - RG

Source: Deanship of Scientific Research, King Abdulaziz University, Kingdom of Saudi Arabia.

Money: 150000 RS.

3. Title: Out-of-plane equilibrium points in the restricted three-body problem with variable mass.

P. I.: Elbaz I. Abouelmagd

Period: : 9 Month, 2014

Reference: Grant No: 857-71-D1434.

Source: Deanship of Scientific Research, King Abdulaziz University, Kingdom of Saudi Arabia.

Money: 20000 RS.

4. Title: The effect of photogravitational force and oblateness in the restricted three-body problem.

P. I.: Elbaz I. Abouelmagd

Period: 9 Month,   2013

Reference: Grant No: 857-003-D1433.

Source: Deanship of Scientific Research, King Abdulaziz University, Kingdom of Saudi Arabia.

Money: 20000 RS.

5. Title: Unperturbed and Perturbed Restricted Three Body Problem.

P. I.: Elbaz I. Abouelmagd

Co. I.: Mohamed Aadel Sharaf

Period: 2013 – 2014.

Reference: Grant No: 116/130/1432.

Source: Deanship of Scientific Research, King Abdulaziz University, Kingdom of Saudi Arabia.

Money: 104000 RS.

4 – <u>Scientific Supervision</u>

NO.	Title	Deg.	S. Date	Institute	Status
1- Abylay Kushekbay	Secular Perturbations in the Three-Body Problem with Variable Masses and Sizes	Ph.D.	28 /11 / 2018	Al-Farabi Kazakh National University, kazakhstan	Under development
2- Mohamed Shaabn Mostafa	Dynamics of spacecraft relative motion for rendezvous maneuvers perturbed orbit	MSc.	26 /10 / 2016	Al-Azhar University, Egypt	Completed, Jun 2019
3 – Ahmed Atia Elsaid	Periodic solution of the restricted three-body problem under the gravitational potential effect of the asteroids belt	MSc.	10 / 4 / 2016	Al-Azhar University Egypt	Completed, Sep 2019

5 - <u>Referees Activity</u>

I review more than 60 paper in JCR Journal, some of these journal are listed:

NO.	Journal Title	Publisher	I.F 2015
1	**Chaos, Solitons & Fractals**	**Elsevier**	**1.611**
2	**Few-body Systems**	**Springer**	**0.558**
3	**Astrophysics Space Science**	**Springer**	**1.678**
4	**International Journal of Bifurcation and Chaos**	**World Sci.**	**1.355**
5	**Advances in Space Research**	**Elsevier**	**1.409**
6	**Physics Letters A**	**Elsevier**	**1.677**
7	**Aerospace Science and Technology**	**Elsevier**	**1.751**
8	**International Journal of Non-Linear Mechanics**	**Elsevier**	**2.163**
9	**Journal of Astrophysics & Astronomy**	**Springer**	**0.329**
10	**Celestial Mechanics and Dynamical Astronomy**	**Springer**	**1.584**
11	**Open Physics**	**De Gruyter**	**0.755**
12	**New Astronomy**	**Elsevier**	**0.920**

6 - <u>Scientific Visit</u>

- 2017   Universitat Autònoma de Barcelona, Barcelona – Spain. Prof. Jaume Llibre (Email: jllibre@mat.uab.cat)

- 2016   Universitat Autònoma de Barcelona, Barcelona – Spain. Prof. Jaume Llibre (Email: jllibre@mat.uab.cat)

- 2014 Technical University of Cartagena, Cartagena – Spain. Prof Juan Luis García Guirao (Email: juan.garcia@upct.es)

7 - Training Courses

- 03 – 04 Feb. 2014: Method of enhancing self-confidence of college student. *Center for Teaching & Learning Development - King Abdulaziz University*

- 10 – 11 Feb. 2014: Cognitive skills for effective negotiation. *Center for Teaching & Learning Development - King Abdulaziz University*

- 17 – 18 Feb. 2014: Six steps approach for the effective student assessment. *Center for Teaching & Learning Development - King Abdulaziz University*

- 24 – 25 Jun. 2014: Blackboard essential training E-Learning. *Center for Teaching & Learning Development - King Abdulaziz University*

8 - Teaching Courses

I have a big experiences in teaching of many different courses in mathematics, some of these are:

N0.	Course Title	Course Code.
1	Differential Equations	MATH
3	Partial Differential Equations	MATH
4	Complex Analysis	MATH
5	Analytic Geometry	MATH
6	Numrtical Analysis	MATH
7	Celestial Mechanics	ASTRO
8	General Relativity	PHYS
9	Mathematical Statistics	STAT
10	Mathematical Softwear	COMP

9 - Administrative Activities

- Chairman of the Scientific Activity: Follow-Up Committee of the Astronomy Department, National Research Institute of Astronomy and Geophysics (NRIAG). (2016 – up to now)
- Participating in the establishment of Mathematics Department in the Faculty of Science and arts (Khulais), Jeddah University (2013).
- Member of the General Committee of Sports Activity King Abdulaziz University (2010 – 2013).
- Chairman of the Committee schedules in Mathematics Department, Faculty of Science and arts (Khulais), King Abdulaziz University (2010 – 2015).
- A member of the Quality Committee in Mathematics Department, Faculty of Science and arts (Khulais). King Abdulaziz University (2010 – 2015).
- A member of the Curriculum Development Committee in Mathematics Department, Faculty of Science and arts (Khulais). King Abdulaziz University (2010 – 2015).
- A Member of the Academic Advising Committee in Mathematics Department, Faculty of Science and arts (Khulais), King Abdulaziz University (2010 – 2015).
- 6 - Pioneer Committee of the Sports Activity in the Faculty of Science and Arts (Khulais), King Abdulaziz University (2010 – 2015).

10 - Conferences

- Artificial Intelligence and Recent IT Technologies Impact for Building Egyptian Knowledge and Innovation Society, First International Conference, 8 – 9 Sep 2019. Cairo – Egypt
- The Arab Conference on Astronomy and Geophysics, Sixth Assembly ACAG6, Oct 15 – 17, 2018, Cairo – Egypt

- The Arab Conference on Astronomy and Geophysics Fifth Assembly ACAG5, Oct 17 – 20, 2016, Cairo – Egypt.
- International Conference on Nonlinear Dynamics and Complexity, May 11 - 15, 2015, La Manga – Spain.
- 5th Saudi Science Conference, Umm Al Qura University, April 16 - 18, 2012, Makkah Saudi Arabia

Appreciation certificates

Award of Excellence in Scientific Research from King Abdulaziz University for Publishing the Papers:

- The motion around the libration points in the restricted three-body problem with the effect of radiation and oblateness. **Astrophysics and Space Science (2013) 344 (2), 321-332.**
- Stability of the triangular points under combined effects of radiation and oblateness in the restricted three-body problem. **Earth, Moon, and Planets (2013) 110 (3-4), 143-155.**
- The effect of oblateness in the perturbed restricted three-body problem. **Meccanica (2013) 48 (10), 2479-2490.**
- The effect of photogravitational force and oblateness in the perturbed restricted three-body problem**. Astrophysics and Space Science (2013) 346 (1), 51-69**
- Existence and stability of triangular points in the restricted three-body problem with numerical applications. **Astrophysics Space Science (2012) 342: 45-53.**
- Periodic orbits under combined effects of oblateness and radiation in the restricted problem of three bodies. **Astrophysics and Space Science (2012) 341: 331-341.**