

Curriculum Vitae

Eman I. El-Awady, Associate Professor

1. PERSONAL DATA

Full Name: Eman Ibrahim Mohammed El-Awady

Citizenship: Egyptian (Egypt)

Born: 7 May 1982 in Port Said, Egypt

Permanent address (EGYPT):

Department of Physics,

Faculty of Science,

Port Said University,

Port Said City, Egypt

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Previous address; August 2007 - February 2008 (EGYPT):

Department of Physics,

Faculty of Education – Port Said,

Suez Canal University,

Port Said City, Egypt

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2. STUDIES

(In reverse chronological order)

– PhD in Theoretical Physics.

Registered in April 2011, Faculty of Science, Port said University, Egypt.

Field: Theoretical Plasma Physics.

Thesis: “*Analytical and Numerical Studies for Nonlinear Waves in Multicomponent Plasmas*”.

Thesis supervision: S. K. El-Labany & A. Raouf A. Mansour & W. M. Moslem.

Conferral date of the doctoral degree: the end of 2015

– M.Sc. in Theoretical Physics

Awarded in December 2010, Faculty of Science, Damietta, Mansoura University, Egypt.

Field: Theoretical Plasma Physics.

Thesis: “*On waves and instability in electron-positron plasma*”.

Thesis supervision: S. K. El-Labany & W. M. Moslem.

– B.Sc. in Physics

Awarded in May 2007, Faculty of Science, Suez Canal University, Egypt.

Distinction: Very good with honors (Average: 81.76%)

3. SKILLS

3.1. Language Skills

- Arabic: mother language
- English: very good (read/spoken/written)

3.2. Computer Skills

- Operating environment: Windows XP.
- Symbolic and numerical computation: Mathematica, basics of MatLab, C++ and Origin.
- Word/text processing software, e.g. MS Word.
- MS Office Tool.

4. PROFESSIONAL EXPERIENCE / EMPLOYMENT

(In reverse chronological order)

– November 2020 till now: (*current occupation/permanent position*) Associate Professor, Department of Physics, Faculty of Science, Port Said University, Egypt.

-- January 2014 – November 2020: Lecturer, Department of Physics, Faculty of Science, Port Said University, Egypt.

–March 2011- January 2014: Assistant Lecturer, Department of Physics, Faculty of Science, Port Said University, Egypt.

–March 2008- February 2011: Assistant Lecturer, Department of Physics, Faculty of Science, Port Said University, Egypt.

– August 2006-February 2008: Demonstrator, Department of Physics, Faculty of Education – Port Said, Suez Canal University, Egypt.

5. BRIEF STATEMENT OF RESEARCH INTERESTS

My research interests are located in the fields of Theoretical Plasma Physics, with emphasis on Nonlinear Dynamics, Waves and Instabilities in Classical and Quantum Plasmas.

The main focus points are summarized in the following:

Mathematical Modeling-Nonlinear Dynamics:

– Modeling of nonlinear wave propagation in dispersive media: nonlinearity & dispersion laws, forcing & dissipative effects.

– Soliton Theory: stability, effect of perturbations, Korteweg de Vries (KdV) equation, Kadomtsev-Petviashvili (KP) equation, Zakharov-Kuznetsov (ZK) equation, and nonlinear Schrödinger (NLS) equation.

– Direct k -expansion method: instability of ZK equation.

Linear and Nonlinear Waves Propagating in Plasmas:

- Nonlinear excitations: solitons and double layers (shocks).
- Electrostatic excitations in: electron-positron-ion plasmas, dusty plasma, and superthermal plasma.
- Rotating magnetized plasma: linear and nonlinear excitations in astrophysical objects.

Dusty Plasmas (Complex plasmas):

- Basic properties: charging effect and dispersion properties.
- Electrostatic excitations: dust-acoustic solitary waves and shocks.
- Strongly coupled plasma.

6. KEYWORDS

- *Mathematical Physics*: Dynamical systems, nonlinear partial differential equations, reductive perturbation technique, renormalization method, direct k -expansion method, KdV, KP, ZK, and NLS equations.
- *Nonlinear Dynamics*: Coherent structures (solitons) and shocks (double layers).
- *Plasma Physics*: Linear and nonlinear waves, electrostatic, and instabilities in plasma.
- *Dusty Plasmas (Complex Plasmas)*: Basic properties, waves, solitons, shocks, and strongly coupled plasma.
- *Astrophysics*: Electron-positron-ion classical plasma, Active Galactic Nuclei (AGN), white dwarfs, neutron stars, and interstellar clouds.

7. ACADEMIC REFERENCES – COLLABORATIONS

1. Salah Kamel EL-LABANY, Professor;
Relation: Supervisor of my MSc and PhD and Research collaborator.
Department of Physics, Faculty of Science, Damietta University, Egypt.
Tel. +20 50 223 1658 (home); +20 1007340911 (mobile) Fax. +20 57 240 3866
Email: skellabany@hotmail.com

2. Waleed M. MOSLEM, Professor;
Relation: Supervisor of my MSc and PhD and Research collaborator.

International Centre for Advanced Studies in Physical Sciences, Faculty of Physics and Astronomy,
Ruhr University Bochum, D-44780 Bochum, GERMANY
Institut für Theoretische Physik, Fakultät für Physik und Astronomie,
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3. Prof Dr. Mourad Djebli Professor;
Faculty of Physics, University of Sciences and Technology HOUARI BOUMEDIENE, Algeria.
Email: mdjebli06@yahoo.com

8. CITATIONS OF THE PUBLISHED WORK

– Total of **241** citations; data as of 1 March 2020,
H-index: 9,
ISI Web of Knowledge,
Search key: EL-AWADY E. I.

9. PUBLICATIONS IN JOURNALS

9.1 REFEREED INTERNATIONAL JOURNALS

Year 2009

- 1- S. K. El-Labany, W. M. Moslem, and **E. I. El-Awady**, Nonlinear electrostatic excitations in a weakly relativistic electron-positron-ion rotating magnetoplasma, Physics of Plasmas, 16, 102305, 2009, American Institute of Physics, USA, English.

Year 2010

- 2- S. K. El-Labany, W. M. Moslem, and **E. I. El-Awady**, Nonlinear Langmuir structures: Soliton and shock in a rotating weakly relativistic electron-positron magnetoplasma with stationary positive ions, Physics of Plasmas, 17, 062304, 2010, American Institute of Physics, USA, English.
- 3- **E. I. El-Awady**, S.A. El-Tantawy, W.M. Moslem, P. K. Shukla, Electron–positron–ion plasma with kappa distribution: Ion acoustic soliton propagation, Physics Letters A, 374, 3216, 2010, Elsevier Publisher, Holland, English.
- 4- S. K. El-Labany, W. M. Moslem, and **E. I. El-Awady**, P. K. Shukla, Nonlinear dynamics associated with rotating magnetized electron–positron–ion plasmas, Physics Letters A, 375, 159, 2010, Elsevier Publisher, Holland, English.

Year 2011

- 5- **E. I. El-Awady**, and W. M. Moslem, On a plasma having nonextensive electrons and positrons: rogue and solitary wave propagation, Physics of Plasmas, 18, 082306, 2011, American Institute of Physics, USA, English.
One of the Most Cited Articles in 2012 Published in Physics of Plasmas

Year 2012

- 6- **E. I. El-Awady**, and M. Djebli, Dust acoustic waves in strongly coupled dusty plasmas with nonextensive electrons and ions, Canadian Journal of Physics, 2012, English.
- 7- **E. I. El-Awady**, and M. Djebli, Dust acoustic waves in a collisional strongly coupled dusty plasmas, Astrophysics and Space Science, 2012. Springer Publisher, Germany.

Year 2014

- 8- **E. I. El-Awady**, H. Rizvi, W. M. MOSLEM, S. K. El-Labany, A. Raouf, and M. Djebli, Magnetosonic rogons in electron-ion plasma, Astrophysics and Space Science, 349, 5, 2014, Springer, Netherlands, English.

Year 2015

- 9- S. A. El-Tantawy, **E. I. El-Awady**, and M. Tribeche, On the rogue waves propagation in non-Maxwellian complex space plasmas, Physics of Plasmas 22, 11, 2015, American Institute of Physics, USA, English.
- 10- S. A. El-Tantawy, **E. I. El-Awady**, and R. Schlickeiser, Freak waves in a plasma having Cairns particles, Astrophysics and Space Science, 360, 2, 2015, Springer, Netherlands, English.

Year 2018

- 11- S. A. El-Tantawy, **E. I. El-Awady**, Cylindrical and spherical Akhmediev breather and freak waves in ultracold neutral plasmas Physics of Plasmas 25, 012121, 2018, American Institute of Physics, USA, English.

Year 2019

- 12- Salemah Almutalk, S. A. El-Tantawy, **E. I. El-Awady**, S. K. El-Labany, On the numerical solution of nonplanar dust-acoustic super rogue waves in a strongly coupled dusty plasma, Physics Letters A, doi.org/10.1016/j.physleta.2019.03.011, Elsevier Publisher, Holland, English.

- 13- **E. I. El-Awady**, S. A. El-Tantawy, A. Abdikian, DISSIPATIVE CYLINDRICAL MAGNETOSONIC SOLITARY WAVES IN A MAGNETIZED QUANTUM DUSTY PLASMA, Romanian Reports in Physics 71, 2019, EDITURA ACAD ROMANE.
- 14- **E. I. El-Awady**, Generation of freak waves in non-Maxellian dusty plasmas in the domain of Gardner equation, Astrophysics and Space Science, In press, Springer, Netherlands, English.
- 15- S. A. El-Tantawy, Alvaro H. Salas, Ma'mon Abu Hammad, Shreif M. E. Ismaeel, D. M. Moustafa and **E. I. El-Awady**, Impact of dust kinematic viscosity on the dust-acoustic breathers: Numerical solution of a damped nonlinear Schrödinger equation, Waves in Random and Complex Media

9.2 REFEREED INTERNATIONAL CONFERENCES PROCEEDINGS

- 1- S. K. El-Labany, W. M. Moslem, and **E. I. El-Awady**, Langmuir Shock Pulses in a Rotating Electron-Positron-Ion Magnetoplasma, NEW FRONTIERS IN ADVANCED PLASMA PHYSICS Book series: AIP Conference Proceedings, 1306, 111, 2010, American Institute of Physics, USA, English.