CURRICULUM VITAE

Personal

Name:	Fadi Awawdeh
Place and Date of Birth:	Irbid, Jordan, August 13, 1975
Nationality:	Jordanian
Sex:	Male
Marital Status:	Single
Telephone:	
Address:	Department of Mathematics Hashemite University PO Box: 2509 Zarqa 13115, Jordan
E-mail:	awawdeh@hu.edu.jo
Sabbatical Leave:	Mathematics and Sciences Department Dhofar University Salalah 211, Oman fawawadeh@du.edu.om

Education

1. Ph.D. in Mathematics, University of Jordan, 2006.
2. M.Sc. in Mathematics, Yarmouk University, 1999.
3. B.Sc. in Mathematics, Yarmouk University, 1997.

Title of Ph.D. Thesis: Differential Equations in Banach Spaces with Applications.
Title of M.Sc. Thesis: On Properties of Graded Rings.

Experience

1. Associate professor, Sabbatical Leave, Dhofar University, September 2014-current.
2. Associate professor, Hashemite University, January 2013-current.
3. Assistant professor, Hashemite University, September 2007-January 2013.
4. Assistant professor, Al-Ahliya Amman University, September 2006-September 2007.

5. Teacher, Hashemite University, 2000–2006.

6. Lecturer, Al-Isra University, part-time, 2002.

7. Programmer and teacher of the mathematical software MATLAB, Hashemite University, 2000–2006, 2007–current.

Teaching Record

I have taught the following courses.

1. Calculus I
2. Calculus II
3. Calculus III
4. Mathematics for Engineering I
5. Mathematics for Engineering II
6. Statistics for Economics and Business
7. Mathematics for Economics and Business
8. Discrete Mathematics
9. Set Theory
10. Statistical Methods I
11. Ordinary Differential Equations I
12. Mathematical Software
13. Partial Differential Equations I
14. Numerical Analysis I
15. Linear Programming
16. Introduction to Numerical Methods
17. Computer Mathematics Applications I
18. Computer Mathematics Applications II

Field of Specialization and Areas of Research Interest

My principal research interests lie in the field of Applied Analysis and Applied Mathematics, including Ordinary and Functional Differential Equations, Numerical Methods, Inverse Problems, and Boundary Value Problems.

Furthermore, I am interested in Mathematical Physics, in particular the theory of integrable systems. My research activity concerns symmetries, coherent structures (solitons), algebraic structures of integrable equations, and their applications to physics and selected biophysical systems.

Most of my research accomplishments are related to the analysis of nonlinear PDEs (both from a theoretical view point and for applications). My contribution to this area has been to classify special algebraic and rational solutions of integrable equations in order to produce new examples of this class of nonlinear differential equations and study the asymptotic behavior of their solutions.

Variable-coefficient nonlinear evolution equations have attracted considerable attention for their ability to reflect the inhomogeneities of media, the nonuniformities of boundaries, and external forces. My research is concerned with variable-coefficient PDEs, which can be used to model shallow water waves, nonlinear optical pulses, currents in electrical networks, nerve pulses, waves in the atmosphere, etc. I have developed a simplified bilinear method to obtain the N-soliton solutions of such equations. My current work deals with the explicit functions that describe the evolution of the amplitude, phase, and velocity of the waves, the dynamical behaviors for nonautonomous waves in periodic distributed and dispersion decreasing systems, and propagation characteristics and interactions among the waves.

While direct formulations consist of determining the effect of a given cause, the situation is completely or partially reversed in inverse formulations. My interest is in the research of inverse problems for partial differential equations governing phenomena in fluid flow, elasticity, acoustics, heat transfer, mechanics of aerosols, etc. Typical practical applications relate to flows in porous media, heat conduction in materials, thermal barrier coatings, heat exchangers, corrosion, etc. My future research plans include investigating the existence, uniqueness, and stability of the solution to the problem that mathematically models a physical phenomenon under investigation, as well as developing new convergent, stable, and robust algorithms in order to obtain the desired solution. The analyses concern inverse boundary value problems, inverse initial value problems, parameter identification, inverse geometry, and source determination problems.

I am a professional in programming and teaching MATLAB software, and I use it both in my research and for teaching applied courses and mathematics for engineering applications.

Selected Publications

1. H.M. Jaradat, M.M. Jaradat, Fadi Awawdeh, Z. Mustafa, O. Alsayyed, A new numerical method for heat equation subject to integral specifications, Journal of Nonlinear Science and Applications. vol. 9, no. 5, pp. 2117-2125, 2016.

2. A.K. Alomari, Fadi Awawdeh, S. Abbasbandy, O. Alsayyed, F. Bani Ahmad, Analysis of steady three-dimensional hydromagnetic stagnation point flow towards a stretching sheet with heat generation, To appear in Italian Journal of Pure and Applied Mathematics, vol. 36, 2016.

3. M. Alquran, S. Al-Shara', H.M. Jaradat, Fadi Awawdeh, A new simplified bilinear method for the N-soliton solutions for a generalized FmKdV equation with variable coefficients, International Journal of Nonlinear Sciences and Numerical Simulation, vol. 16, no. 6, pp. 259-269, 2015.

4. H.M. Jaradat, Fadi Awawdeh, S. Al-Shara', M. Alquran, Shaher Momani, Controllable dynamical behaviors and the analysis of fractal

Burgers hierarchy with the full effects of inhomogeneities of media, Romanian Journal of Physics, vol. 60, no. 3-4, pp. 324-343, 2015.

5. Fadi Awawdeh, S. Al-Shara', H.M. Jaradat, A.K. Alomari, R. Alshorman, Symbolic computation on soliton solutions for variable-coefficient quantum Zakharov-Kuznetsov equation in magnetized dense plasmas, International Journal of Nonlinear Sciences and Numerical Simulation, vol. 15, no. 1, pp. 35-45, 2014.
6. A.K. Alomari, Fadi Awawdeh, N. Tahat, F. Bani Ahmad, W. Shatanawi, Multiple solutions for fractional differential equations; analytic approach, Applied Mathematics and Computation, vol. 219, no. 17, pp. 8893-8903, 2013.

7. Fadi Awawdeh, H.M. Obiedat, Identification problems for degenerate parabolic equations, Applications of Mathematics, vol. 58, no. 4, pp. 389-404, 2013.

8. Fadi Awawdeh, S. Abbasbandy, Toward a new algorithm for nonlinear fractional differential equations, Advances in Applied Mathematics and Mechanics, vol. 5, no. 2, pp. 222-234, 2013.

9. W. Shatanawi, Fadi Awawdeh, Some fixed and coincidence point theorems for expansive maps in cone metric spaces, Fixed Point Theory and Applications, vol. 19, pp. 1-10, 2012.

10. Fadi Awawdeh, H.M. Jaradat, S. Al-Shara', Applications of a new simplified bilinear method to ion-acoustic solitary waves in plasma, European Physical Journal D, vol. 66, no. 40, pp. 1-8, 2012.

11. Fadi Awawdeh, New exact solitary wave solutions of the Zakharov-Kuznetsov equation in the electron-positron-ion plasmas, Applied Mathematics and Computation, vol. 218, no. 13, pp. 7139-7143, 2012.

12. H.M. Jaradat, S. Al-Shara', Fadi Awawdeh, M. Alquran, Variable coefficient equations of the Kadomtsev-Petviashvili hierarchy: multiple soliton solutions and singular multiple soliton solutions, Physica Scripta, vol. 85, pp. 1-7, 2012

13. M. Khandaqji, Fadi Awawdeh, J. Jawdat, Simultaneous proximinality of vector valued function spaces, Turkish Journal of Mathematics, vol. 36, no. 3, pp. 437-444, 2012.

14. Fadi Awawdeh, H.M. Obiedat, Source identification problem for degenerate differential equations, Scientific Bulletin Series A- Applied Mathematics and Physics, vol. 73, no. 3, pp. 61-72, 2011.

15. Fadi Awawdeh, Perturbation method for abstract second-order inverse problems, Nonlinear Analysis Theory, Methods & Applications, vol. 72, no. 3-4, pp. 1379-1386, 2010.

16. Fadi Awawdeh, On new iterative method for solving systems of nonlinear equations, Numerical Algorithms, vol. 54, no. 3, pp. 395-409, 2010.

17. Fadi Awawdeh, M. Khandaqji, Z. Mustafa, A new approach for the solution of the electrostatic potential differential equations, Journal of Mathematical Problems in Engineering, vol. 2009, pp. 1-11, 2009.

18. Fadi Awawdeh, H.M. Jaradt, O. Alsayyed, Solving system of DAEs by homotopy analysis method, Chaos, Solitons & Fractals, vol. 42, no. 3, pp. 1422-1427, 2009.

19. Fadi Awawdeh, A. Adawi, Z. Mustafa, Solutions of the SIR models of epidemics using HAM, Chaos, Solitons & Fractals, vol. 42, no. 5, pp. 3047-3052, 2009.

20. Fadi Awawdeh, A. Adawi, S. Al-Shara', Analytic solution of multi-pantograph equation, Journal of Applied Mathematics and Decision Sciences, vol. 2008, pp. 1-10, 2008.

21. M. Khandaqji, Fadi Awawdeh, Uniform convexity of Köthe Bochner function spaces, Acta Mathematica Academiae Paedagogicae Nyíregyháziensis, vol. 24, pp. 385-390, 2008.

22. Z. Mustafa, H.M. Obiedat, Fadi Awawdeh, Some fixed point theorems for mapping on complete G-metric spaces, Journal of Fixed Point Theory and Applications, vol. 2008, pp. 1-12, 2008.

Submitted Papers

1. *Identification of time-dependent source terms and control parameters in parabolic equations from overspecified boundary data*
   Submitted to Journal of Computational and Applied Mathematics.

2. *Identification of Source Terms in Degenerate Identification Problems with Smoothing Overdetermination*
   Submitted to Applicable Analysis and Discrete Mathematics.

3. *Analysis of higher-order Burgers hierarchy with the full effects of inhomogeneities of media*
   Submitted to Mathematical Problems in Engineering.

Academic Awards and Honors

- An Honor Certificate and Prize from Yarmouk University for graduating first in B.S. in my Mathematics Department graduating class (1994).

- Fellowship from Yarmouk University, 1998.

- My research “Variable coefficient equations of the Kadomtsev-Petviashvili hierarchy: multiple soliton solutions and singular multiple soliton solution‘’ has been featured in the Physica Scripta Highlights of 2013 collection.

Presentations and Conferences

- 2nd International Conference on Mathematical Sciences and Statistics ICMSS 2016, January 26-28, 2016, Kuala Lambur, Malaysia. A talk in the meeting entitled "A Numerical Scheme for the One-Dimensional Wave Equation subject to an Integral Conservation".

- 17th International Conference on Mathematical Modelling, Analysis and Computation, April 27-28, 2015, Paris, France. A talk in the conference entitled "Analysis of a Generalized Sharma-Tasso-Olver Equation with Variable Coefficients".

- International Conference on Scientific Computing, May 19-20, 2014, Paris, France. A talk in the conference entitled "Methods for Solving Identification Problems".

- International Conference on Mathematical, Statistical and Computational Sciences, March 28-29, 2013, Madrid, Spain. A talk in the conference entitled "New exact solutions for the (2+1)-dimensional B-type Kadomtsev-Petviashvili equation".

- International Conference on Computational and Applied Mathematics ICCAM, April 11-13, 2012, Venice, Italy. A talk in the conference entitled "New exact three-wave solutions for the (2+1)-dimensional asymmetric Nizhnik-Novikov-Veselov system".

- International Conference on Applied Mathematics and Engineering Mathematics ICAMEM 2010, November 24-26, 2010, Italy. A talk in the conference entitled "Identification Problem for Degenerate Differential Equations".

- 7th International Conference of Numerical Analysis and Applied Mathematics ICNAAM 2009, September 18-22, 2009, Greece. A talk in the conference entitled "Perturbation Method for Abstract Inverse Problems".

- Conference on Analysis, Computational Mathematics and Statistics, September 18-19, 2008, Notre Dame University, Lebanon. A talk in the conference entitled "Homotopy Analysis Method for Solving Systems of Nonlinear Algebraic Equations".

- Seminar/Colloquium talk. Hashemite University, "On New Iterative Method for Solving Nonlinear Algebraic Equations", 2008.

- Seminar/Colloquium talk. Hashemite University, "Perturbation Method for Solving First-order Inverse Problems in Banach Spaces", 2007.

Academic Activities

- Reviewer for Mathematical Reviews (MR).
  Mathematical Reviews is an online database published by the American Mathematical Society (AMS) that contains brief synopses (and occasional evaluations) of many articles related to mathematics, statistics, and theoretical computer science.

- Reviewer for many international journals, such as International Journal of Computer Mathematics, Journal of Computational and Applied Mathematics, Journal of Applied Mathematics and Computation, Journal of Computers and Mathematics with Applications, Mathematical Methods in the Applied Sciences, Applied Mathematics Letters, Physica Scripta, Chinese Physics Letters, Journal of Mathematical and Computer Modelling, Abstract and Applied Analysis, Bulletin of the Belgian Mathematical Society, Automatica, Fixed Point Theory and Applications, International Journal of Applied and Computational Mathematics, and British Journal of Mathematics & Computer Science.

- Reviewer of book chapters for some international publishers, such as Pearson and Addison-Wesley.

- Peer reviewer to the Research Council of Oman.

- Reviewer of ICNAAM 2009 (International Conference of Numerical Analysis and Applied Mathematics), Greece.

- Member of the Arab Network of Applied and Computational Mathematicians ANACM.

- Co-supervisor for the following PhD student:

  - Ali Jaradat, Methods for Solving Inverse Problems, The National University of Malaysia (UKM), Malaysia, 2014-current.

- Supervisor for the following M.S. student:

  - Mohammad Odeh, Soliton Solutions of Nonlinear Systems and Hirota's Method, University of Jordan, 2013.

- Co-supervisor for the following M.S. student:

  - Fatma Almbruk, Inverse Problems in Abstract Spaces, Al al-Bayt University, 2010.

- Co-supervisor for the following M.S. student:

- Teber Mohammed Ali, Soliton Solutions of Integrable Systems and Hirota's Bilinear Method, Al al-Bayt University, 2012.

- Member of the examining committee for a number of M.S. students.

- Lecturer in many high schools about mathematics and its applications.

- A coordinator of many foundation mathematics and applied mathematics courses at Hashemite University and Dhofar University.

- Member in many committees of the faculty of sciences at Hashemite University and Dhofar University.

- The Young Arab Voices (YAV) Coordinator for Hashemite University. The YAV project was jointly implemented by the British Council and the Anna Lindh Foundation from October 2011-March 2014. The project started in Egypt, Tunisia, and Jordan in October 2011 and spread into Morocco, Algeria, and Libya in April 2012. Its main activities included: regional training of instructors on the facilitation and management of debate societies/clubs, cascade training at the national level, running a program of debates by each partner, national debate programs and competitions, regional debates on issues that are important to the transition to democracy in the region.

- Assistant Dean of the faculty of science at Hashemite University for the 2009/2010 – 2010/2011 academic years.

- Head of the Department of Basic Sciences at Hashemite University for the 2011/2012 academic year.

- Vice Dean of Student Affairs, Deanship of Students Affairs, Hashemite University for the 2012/2013 – 2013/2014 academic years.

Training Courses

- COACH Workshop, 13-14 October 2015, Salalah, Oman. Distinguished experts from the U.S. were invited by the Research Council in Oman to train researchers about managing project funds.

- A training course titled: "Learning Management, Virtual Class Room, Class Capturing System and Authoring Tool", held in the e-Learning Center at Hashemite University from 16-20 January 2011.

- E-learning Training Course: Blackboard Learning Management System, Elluminate Virtual Class Room, Lectora Authoring Tool, held in the e-Learning Center at Hashemite University, 2011.

- A training course titled: "Educational Technology", Hashemite University, 2007.

References

1. Associate Professor Linda Smail, Mathematics and Statistics Departent, Zayed University, Dubai, UAE. Email: linda.smail@zu.ac.ae

2. Prof. Wasfi Shatanawi, Dean of the Faculty of Sciences, Hashemite University, Zarqa, Jordan. E-mail: swasfi@hu.edu.jo

3. Prof. Mohammad Syam, Department of Mathematical Sciences, United Arab Emirates University, Al Ain, UAE. E-mail: m.syam@uaeu.ac.ae

4. Prof. Ali Elkarmi, Vice-president for scientific colleges, Hashemite University, Zarqa, Jordan. Email: karmi@hu.edu.jo

5. Prof. Ahmad Al-Rhayyel, Department of Mathematics, Yarmouk University, Irbid, Jordan. E-mail: Al-Rhayyel@yu.edu.jo