

## CURRICULUM VITAE

**NAME:** BASEM SALEEM ATTILI. باسم سليم عتيلى

**DATE OF BIRTH:** 21, October 1954.

**ADDRESS:** College of Sciences-Mathematics Department, Sharjah University – P. O. Box 27272, Sharjah – United Arab Emirates.

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### **EDUCATION:**

- Ph. D. (Numerical Analysis) August 1984, Southern Methodist University, Dallas, Texas. Thesis: " Computation of Generalized Turning Points for Two Point Boundary Value Problems Using Multiple Shooting. "
- M. Sc. (Applied Mathematics) May 1981, Southern Methodist University, Dallas, Texas.
- B. Sc. (Mathematics) Feb. 1977, Jordan University.

### **AREAS OF INTEREST:**

Numerical analysis, Numerical solutions of O.D.E's and P.D.E's, Singularities, Numerical solutions of fractional differential equations, Generalized Turning Points and Optimization.

### **PROFESSIONAL SOCIETY MEMBERSHIP:**

Past member of Society of Industrial and Applied Math. and American Math. Society, Member of the IMACS.

### **AWARDS:**

- Best teacher award over the College of Science – UAEU, 2004-2005 (by student election).
- Received the merit award for best services in the year 2006-2007 from UAEU.

### **EXPERIENCE:**

- {Aug. 2008 –Present} Professor, Math Department, University of Sharjah.
- {Aug. 2010 – Aug. 2017} Professor and Dean of College of Graduate Studies and Research.
- {Aug. 2009-Aug. 2010} Professor and Head of Dept., University of Sharjah.
- {Summer 2008-09} American University of Sharjah
- {Dec., 2004 – Aug. 2008} Professor, Math. and Comput. Dept., UAEU.
- {Summer 2005-06} American University of Sharjah
- {Sept. 2002 – Dec. 2004} Associate Professor, Math. And Comput. Dept., UAEU.
- {Summer 1995-96} Amman University, Amman, Jordan.
- {Aug. 1992 - 2002} Associate Professor, Math. Sciences Dept., KFUPM.
- {1988 - Aug. 1992} Assistant Professor, Math. Sciences Dept., KFUPM.

- {1984 - 1988} Assistant Professor, Mathematics Department, University of Bahrain.
- {1979 - 1984} Teaching Assistant, SMU, Dallas, Texas.

**TEACHING:**

**Courses Taught at Mathematics Department at Sharjah University:**

Math 1440162	Business Math.
Math 1440098	Pre-Calculus
Math 1440131	Calculus I
Math 1440163	Calculus for Health Sciences
Math 1440132	Calculus II
Math 1440161	Calculus II for Engineering
Math 1440211	Linear Algebra
Math 1440241	Ordinary Differential Equations
Math 1440261	Differential Equations for Engineering
Math 1440371	Numerical Analysis I
Math 1440341	Partial Differential Equations
Math 1440471	Numerical Analysis II

**Courses Taught at the Mathematical Sciences Dept. at UAEU:**

Math 1052	Calculus I
Math 1402	Linear Algebra
Math 1754	Math. Eng. Appl. II
Math 1904	Math. Eng. Appl. I
Math 2003	Math. Eng. Appl. III
Math 2210	Ordinary Differential Equations for Engineers
Math 2220	Linear Algebra for Engineers
Math 2453	Set Theory and Logic
Math 2752	Ordinary Differential Equations
Math 3203	Numerical Analysis I
Math 3702	Math. Eng. Appl. IV
Math 372	Partial Differential Equations
Math 391	Financial Mathematics
Math 422	Numerical Analysis II
Math 470	Mathematical Modeling
Math 494	Practical Training
Math 495	Research Project
GESA210	Scientific Research Skills

**Courses Taught at the Math. Sciences Dept. at KFUPM:**

Math 001	Preparatory Math. I
Math 002	Preparatory Math. II
Math 101	Calculus I
Math 102	Calculus II
Math 131	Finite Mathematics
Math 132	Applied Calculus

Math 201 Calculus III  
Math 202 Elements of Differential Equations  
Math 321 Introduction to Numerical Computing  
Math 465 Ordinary Differential Equations  
Math 471 Numerical Analysis I  
Math 472 Numerical Analysis II  
Math 490 Seminar in Mathematics  
Math 574/Me510 Numerical Methods for P.D.E's  
Math 671 Numerical Solutions of Differential Equations I  
Math 672 Numerical Solutions of Differential Equations II

**Courses Taught at Math. Dept., Bahrain University:**

Math 006 Preparatory Math I for Engineers  
Math 009 Preparatory Math II for Engineers  
Math 004 Preparatory Math for Business  
Math 101 Calculus I  
Math 201 Calculus III  
Math 207 Introduction to Numerical Analysis for Computer Students  
Math 280 Linear Algebra  
Math 321 Numerical Analysis I

**Courses Taught at American U. of Sharjah:**

Math 201     Calculus I  
Math 202     Calculus II  
Math 203     Calculus III  
Math 221     Linear Algebra

**Courses Taught at Math. Dept., Amman University:**

Math 280 Linear Algebra

**Courses Taught at Math. Dept., SMU:**

Math 1307 Plane Trigonometry  
Math 1309 Finite Mathematics  
Math 2337 Calculus I

**Teaching Related Activities:**

- Coordinated Calculus I several times.
- Coordinated Calculus II several times.
- Coordinated Ordinary Diff. Equations several times.
- Served as undergraduate advisor during 1993-1996 and 2008-09.
- Graduate advisor for M. Sc./Ph. D. students in the department of Math Sciences - KFUPM during 1996-2000.
- Coordinated Math Engineering I, II, III and IV.
- Gave several workshops on Matlab for both students and instructors.
- Gave several workshops on Mathematica, Scientific workplace and Latex for both students and instructors (every semester 2002-2008).

- Gave workshops on cooperative learning for mathematics instructors at UAEU and for high school teachers-AIAin educational zone.
- Worked as a team leader of "5 members team on improving high school teaching in Sharjah" for a full year 2008-09
- Gave 8 workshops (on teaching methodology and technology uses in teaching mathematics) for high school teachers in Sharjah 2008-09
- Gave 12 workshops (on teaching methodology and technology uses in teaching mathematics) for high school teachers in Sharjah, Khorfakan 2009-10.
- Gave 6 workshops (on teaching methodology and technology uses in teaching mathematics) for middle school teachers in Sharjah 2009-10
- A team leader "9 members team on improving teaching of mathematics to 6-12 grades teachers". A total of 9 workshops were done for Sharjah teachers 2010-2012.

## **RESEARCH**

### **Papers in Refereed Journals and Conference Proceedings:**

1. Saka, M. P. and Attili, B. S., "Shape Optimization of Space Trusses", Proc. Intern. Conf. Design and Const. of Non-Conven. Structures, edited: B. H. Topping, 1(1987), pp 115-123.
2. Attili, B. S., " *Multiple Shooting and the Calculation of Some Types of Singularities in B.V.P's* ", Intern. J. Computer Math., vol.32 (1990), pp97 - 111.
3. Attili, B. S., " *A contribution to the Numerical Study of the Vapor Flow Characteristics of Slender Cylindrical Heat Pipes* ", Proceedings of 13th IMACS Congress on Computational and Applied Math., Dublin, vol.1 (1991), pp201 - 203.
4. Attili, B. S., " *Characterization and Computation of Bifurcation Points with Corank two* ", Proceedings of 13th IMACS Congress on Computational and Applied Math., Dublin, vol.3 (1991), pp1926-1928.
5. Attili, B. S., " *Characterization and Computation of Bifurcation Points with Corank two* ", In: Brezinski, C and Kulisch, U., Computational and Applied Mathematics, I. Algorithms and Theory, (1992), pp39-46.
6. Attili, B. S., " *A direct Method for the Characterization and Computation of Bifurcation Points with Corank Two* ", Computing, vol.48 (1992), pp149-159.
7. Abdalla, Y. A. and Attili, B. S., " *Daily and Hourly Wind Speed Distribution in Bahrain* ", Energy Conversion and Mang., vol.33 (1992), pp1 - 5.
8. Attili, B. S. and Shehadeh, Y. M. " *The use of Block Elimination for the Calculation of Some Types of Singularities in B.V.P's* ", Tech. Report #133, KFUPM(1992).
9. Attili, B. S. and Abdalla, Y. A., " *Numerical Models for the Correlation of Global Solar Radiation with Meteorological Data for Bahrain* ", Energy Conversion and Mang., vol.34 (1993), pp1-6.
10. Attili, B. S., " *Numerical Computation of Symmetry Breaking Bifurcation Points* " J. of the Aust. Math. Soci., vol.35 (1993), pp103-113.
11. Attili, B. S., " *On the Numerical Implementation of the Shooting Methods to the one-dimensional Singular Boundary Value Problems* ", Intern. J. Computer Math., vol.47 (1993), pp65-75.

12. Attili, B. S., " *Parallel Methods for Parameter Dependent Singular Boundary Value O.D.E's* ", Proceedings of 14th IMACS Congress on Computational and Applied Math., Atlanta, vol.3 (1994), pp1087 - 1091.
13. Attili, B. S. and Shehadeh, Y. M. " *The use of Block Elimination for the Calculation of Some Types of Singularities Efficiently* ", Math. and Computer in Simulation, vol.36 (1994) pp173-184.
14. Attili, B. S., " *Computation of Generalized Turning Points Using Collocation at Gauss Points* ", Annals of Numer. Math., vol.1 (1994), pp53-62.
15. Attili, B. S., " *Bifurcation Problems With Co-Rank Greater Than Two* " Proceedings of 14th IMACS Congress on Computational and Applied Math., vol.1 (1994), pp32 - 35.
16. Attili, B. S., " *Asymptotic Expansions for the Extended Systems Used in The Calculation of Some Types of Singularities in B.V.P's* ", Inter. Jour. of Computer Math., vol.51 (1994), pp193-204.
17. Attili, B. S., " *On the Numerical Study of the Vapor Flow Characteristics of Slender Cylindrical Heat Pipes*", Energy Conversion and Mang., vol.35 (1994), pp999 - 1008.
18. Attili, B. S., " *On the Use of Predictor Corrector Continuation to Trace Implicitly Defined Curves and Calculating Bifurcation* ", Inter. Jour. Of Computer Math., vol.65 (1997), pp149-159.
19. Attili, B. S., " *Tracing Implicitly Defined Curves and The Use of Singular Value Decomposition* ", Applied Numer. Math. , vol.25 (1997), pp1 - 11.
20. Attili, B. S., Elgindi, M. B. and El-Gebeily, M. A., " *Initial Value Methods for the Eigenelements of Singular Two Point Boundary Value Problems* ", AJSE vol.23C (1997), pp67-77.
21. Attili, B. S., " *A Numerical Study of Flow in a Narrow-Gap Annulus With Constant Heat Flux at the Inner Rotating Cylinder* ", Proceedings of 15th IMACS Congress on Scientific Computation, Modeling and Applied Math., Berlin, vol.3 (1997), pp91-95.
22. Attili, B. S., " *A direct Method to Investigate the Stability of Flow in a Narrow Gap Between Two Rotating Cylinders* ", Energ. Conversion and Mang., 40(1999), pp 459-466.
23. Attili, B. S., " *Numerical Solution of the Two Point Boundary Value Problems Arising in Modeling of Viscoelastic Flows*", Elaydi, S. (ed.) et al., Proceedings of the second Palestinian international conference on mathematics, Birzeit and Nablus, Palestine, August 19-23, 1998. Singapore: World Scientific. 43-52 (2000).
24. Attili, B. S., " *Initial Value Methods for the Primary Two Point Boundary Value Problems in Modeling Viscoelastic Flows* ", Intern. Jour. Of Computer Math., 74(2000), 379-390.
25. El-Gebeily, M. A. and Attili, B. S., " *An Iterative Method for Solving Singular Two Point Boundary Value Problems*" , Proceedings, international conference on biomathematics-bioinformatics and applications of functional differential equations., 1(1999), 197-205.
26. Attili, B. S., " *An Accurate Finite Difference Scheme for the Wave Instability Problem* ", Comput. Meth. In Appli. Mechan. And Engin., 190(2000), 845 – 852.

27. Attili, B. S., “ *Tracing Implicitly Defined Curves With the Help of Singular Value Decomposition*”, Proceedings of 16th IMACS Congress on Computational and Applied Math., Laussane, vol. C212 (2000), pp1 - 6.
28. Attili, B. S., “*Efficient Finite Differences for Parameter Dependent Singularities in Two Point Boundary Value Problems*”, Comput. Meth. In Appli. Mechan. And Engin., 190(2001), 5543 – 5549.
29. Attili, B. S., “*Numerical Study of the Wave Instability Problem With the Effect of the Transverse Velocity Component*“, Proceedings, 4<sup>th</sup> International Conference on Theoretical and Computational Acoustic-ICTCA '99, Treieste.
30. Attili, B. S. “*Existence of limit cycles in a predator-prey system with a functional response*” Int. J. Math. Math. Sci, 27(2001), 377 – 385.
31. Attili, B. S., “*Numerical Study of the Wave Instability Problem With the Effect of the Transverse Velocity Component*“, J. of Comput. Acoustics, 9(2001), 1055 – 1056.
32. Attili, B. S., “*An Iterative Method for Solving Nonlinear Operator Equations Using Generalized Divided Differences*”, Intern. J. Comput. Math., 79(2002), 367 – 377.
33. El-Gebeily M. A. and Attili B. S., “*An Iterative Shooting Method for a Certain Class of Singular Two-Point Boundary Value Problems*”, Comput. and Math. With applic., 45(2003), 69-76.
34. Attili, B. S. and Evans D. J., “*Potential of parallelism in the Computation of Simple Turning Points for Boundary Value Problems*”, Intrn. J. Comput. Math., 80(2003), 781-788.
35. Attili, B. S., “*Numerical Computation of Cusp Singularities for Operator Equations*”, J. Dynam. Sys. Geo. Theo., 2(2004), 57-64.
36. Syam, M. I. and Attili, B. S. “*Numerical Solution of Singularly perturbed 5th order two point boundary value problem*”, Applied Math. and Comput., 170(2005), 1085-1094.
37. Attili, B. S., “*Numerical Treatment of Fourth order Singularly Perturbed Boundary Value Problems*”, Lecture Notes in Comput. Sci., 3401(2005), 141-148.
38. Attili, B. S., Syam, M. I and Evans, D. J., “*Numerical Continuation Through Folds With Step Control*”, Intern. J. Comput. Math., 4(2005), 457-469.
39. Attili, B. S., “*The Adomain Decomposition Method for Computing Eigenlements of Sturm-Liouville Two Point Boundary Value Problems*”, Applied Math. and Comput., 168(2005), 1306-1316.
40. Attili, B. S., “*A Numerical Algorithm for Some Singularly Perturbed Boundary Value Problems*”, J. Comput. Appl. Math., 184(2005), 464-474.
41. Attili, B. S., “*The Use of Richardson Extrapolation in the Accurate Computation of Simple Turning and Bifurcation Points*”, Proceedings of 6<sup>th</sup> Annual Resaerch Conference, UAEU, April 24-26<sup>th</sup>, 2005.
42. Attili, B. S., “*An Effecient Method for Computing the Eigenlements of Sturm-Liouville Two Point Boundary Value Problems*”, Proceedings of 17<sup>th</sup> IMACS Congress on Computational and Applied Math., Paris, July 11-15<sup>th</sup>, 2005, pp 1-6.
43. Attili, B. S., “*Continuation Method for Computing Certain Singular Points for Index-1 Differential Algebraic Equations*”, Appl. Math. and Comput., 175(2006), 1026-1038.
44. Attili, B. S., “*Arclength Continuation With Finite Difference Method for Computing Cups Points of Differential-Algebraic Equations with Index-1*”, CUBO Math. J., 8(2006), 47-59.

45. Attili, B. S., "The Adomian Decomposition Method for Solving the Boussinesq Equation Arising in Water Wave Propagation", Numer. Meth. Partial Diff. Equ., 22(2006), 1337-1347.
46. Syam M. I. and Attili, B. S., "Weighted Residual Method for Obtaining Positive Solutions of Two-Point Nonlinear Boundary Value Problems", Applied Math. and Comput., 176(2006), 775-784.
47. Attili B., Furati, K. and Syam M., "An Efficient Implicit Runge-Kutta Method for Second Order Systems", Applied Math. Comput., 178(2006), 229-238.
48. Attili, B. "An Iterative Method for the Computation of Eigenpairs of Singular Sturm-Liouville Problems", In: Funct. Integ. Diff. Equat.-Euler's Volume, Inter. J. Appl. Math. Stat, 9(2007), 6-19.
49. Attili, B. and Mallak, S., "Existence of Limit Cycles in a Predator-Prey System With a Functional Response of the form  $\arctan(ax)$ ", Comm. Math. Anals., 1(2006), 27-33.
50. M. Syam, M. Anwar and B. Attili, "An Easy and Efficient Way for Solving A class of Singular Two Point Boundary Value Problems", Aust. J. Math. Anals. Applic., 3(2006), 341-353.
51. Attili, B., "Numerical Computing of Certain Singular Points for Index-1 Differential Algebraic Equations", Proceedings of 7<sup>th</sup> Annual Resaerch Conference, UAEU, April 22-24<sup>th</sup>, 2006.
52. Attili, B., "The Secant Method and the Generalized Divided Differences for Solving Nonlinear Operator Equations", Advanc. Stud. in Contemp. Math., 13(2006), 115-129.
53. Attili, B., "Superconvergence and the Computation of Generalized Turning Points for B.V.P's", Applied Math. Comput., 183(2006), 885-889.
54. Attili, B. and Syam, M., "Efficient Shooting Method for Solving Two Point Boundary Value Problems", J. Fract. Chaos and Solit., 35(2008), 895-903.
55. Attili, B. S. and Lesnic, D., "An efficient method for computing eigenelements of Sturm-Liouville fourth-order boundary value problems", Applied Math. Comput., 182(2006), 1247-1254.
56. Attili, B., "Using Generalized Divided Differences for Solving Nonlinear Operator Equations", Proceedings of 8<sup>th</sup> Annual Resaerch Conference, UAEU, April 23-25<sup>th</sup>, 2007.
57. Attili, B. S. and Syam, M. I., "The homotopy perturbation method for the eigenelements of a class of two-point boundary value problems", Advanc. Stud. in Contemp. Math., 14(2007), 83-102.
58. Attili, B., "Numerical Treatment of Differential-Algebraic Equations with Index 2", Amer. Instit. Phys., 936(2008), 61 - 65.
59. Lesnic, D. and Attili, B. S., "An Efficient Method for Higher-order Sturm-Liouville Problems" Inter. J. Sci. Tech., 2(2007), 119-124.
60. Attili, B. S. "An Efficient Fourth Order Implicit Runge-Kutta Algorithm for Second Order Systems", Lecture Notes in Artef. Inteleg., 5081(2008), 169-178.
61. Attili, B. S., "Numerical Computation of Pitchfork Bifurcation Points Arising in Applied Sciences", Advanc. Stud. in Contemp. Math., 17(2008), 69-84.
62. Attili, B., Abu-Hatab, A., Ayoub, A., Ismail, A. and Abu-Ghneim, Sh., "Numerical Treatment of Differential Algebraic Equations with Index 2 by Reducing the Order", J. Dynamic. Syst. Geom. Th., 6(2008), 49-60.

63. Attili, B., *A direct Method for the Numerical Computation of Bifurcation Points Underlying Symmetries*, J. Fract. Chaos and Solit., 40 (2009) 1545–1551
64. Attili, B. S., "The Hilber-Hughes-Taylor- $\alpha$  (HHT- $\alpha$ ) Method Compared to an Implicit Runge-Kutta for Second Order Systems", Intern. J. Comput. Math., 87(2010), 1755-1767.
65. Attili, B., Tabash, I., Dhaheri, M., Salhi, Sh. and Hassan, Sh., "The Differential Transform Method for the Numerical Treatment of Differential Algebraic Equations with Index-2", J. Dynamic. Syst. Geom. Th., 7(2009), 147-160.
66. Attili B., "A Second Order Finite Difference Scheme for Some Singularly Perturbed Boundary Value Problems". Proc. Jangjeon Math. Soc., 13(2010), 231-241.
67. Attili, B., "Numerical Treatment of Singularly Perturbed Two Point Boundary Value Problems Exhibiting Boundary Layers", Commu. Nonlin. Sci. and Numer. Simul., 16(2011), 3504-3511.
68. Attili, B., "A Second-Order Difference Scheme for a Singularly Perturbed Reaction-Diffusion Problem", Springer-Differential and Difference Equations with Applications, 239-249 (2013).
69. Attili, B., "Numerical Treatment of Two-Point Boundary Value Problems of Fractional Deferential Equations", Proc. Jangjeon Math. Soc., 18(2015), 403-416.
70. Attili, B., Numerical Treatment of Second Order Fuzzy Two-Point Boundary Value Problems, Proceedings, Inter. Conf. on Recent Advanc. in Pure and Appli. Math. (ICRPAM2018), Karadeniz Technical University – Trabzon-Turkey July, 23-27, 2018.
71. Attili, B., "The Shooting Method for Solving Second Order Fuzzy Two-Point Boundary Value Problems", Intern. J. Appli. Math., 32(2019), 663-676.
72. Attili, B., "Investigation of the Stability and the Anti-Synchronization of the Brusselator Chemical Reaction Model", Nonln. Func. Analy. Applic., 25(2020), 189-197.
73. Attili, B., "Numerical Solution of a Third Order Falkner-Skan Like Equation Arising in Boundary Layer Theory", Chaos, 30, 073119 (2020); doi: 10.1063/1.5130579.
74. B. Attili, Numerical Solution of the Falkner-Skan Equation Arising in Boundary Layer Theory Using the Sinc-Collocation Method, New Methods of Numerical Analysis - Festschrift in Honor of Frank Stenger's 80th birthday, Edt. Gerd Baumann, Chapter 7, pages 147-162, Springer April 2021.
75. B. Attili, Initial Value Methods for the Numerical Simulation of Fuzzy Two-Point Boundary Value Problems using General Linear Method, Intern. J. Fuzzy Systems Applications, 10(2021), 94-126.

### **BOOKS:**

1. Scientific Research Skills ( **مهارات البحث العلمي** ), jointly with Prof. N. Hassadi and Prof. K. Al-Heet – Published by UAEU.
2. A first Course in Ordinary Differential Equations with Applications, 1<sup>st</sup> Edition, University of Sharjah, 2012
3. A first Course in Ordinary Differential Equations with Applications, 2<sup>nd</sup> Edition, University of Sharjah, 2016.



4. E'quations Diffe'rentielles Ordinaries Avec Applications – Cours et Exercices Corrige's – In French, published by Ellipses Publisher, 2016.

**CONFERENCE PRESENTATIONS, TALKS AND SEMINARS:**

1. Attili, B. S., "*Numerical Computation of Cubic Turning Points and Cusps*", General Meeting of the Texas - Oklahoma Section of SIAM, April 1984.
2. Attili, B. S., "*On the Characterization and Computation of Generalized Turning Points*", Symposium on the Numerical Calculation of Singularities, Dallas, August 1983.
3. Attili, B. S., "*On the Regularization of Singular Points With Rank Deficiency one*", Bahrain University, Bahrain, 1986.
4. Saka, M. P. and Attili, B. S., "*Shape Optimization of Space Trusses*", International Conference on Design and Construction of Non-Conventional Structures, London, 1987.
5. Attili, B. S., "*Multiple Shooting and the Numerical Calculation of Simple Turning and Bifurcation Points*", KFUPM, Saudi Arabia, 1988.
6. Attili, B. S., "*On the Numerical Study of the Vapor Flow Characteristics of Slender Cylindrical Heat Pipes*", 13th IMACS Congress, Dublin, July 1991.
7. Attili, B. S., "*On the Calculation of Bifurcation Points With A drop in Rank by 2*", 13th IMACS Congress, Dublin, July 1991.
8. Attili, B. S. "*The Numerical Computation of Generalized Turning Points and Cusps Using Finite differences Efficiently*", Bressanone, Italy, Sep. 1992.
9. Attili, B. S., "*The Numerical Computation of Generalized Turning Points Using Collocation at Gauss Points*", Auckland, New Zealand, Jan. 1993.
10. Attili, B. S., "*Parallel Methods for Parameter Dependent Singular Boundary Value O.D.E's*", 14th IMACS Congress, Atlanta, July 1994.
11. Attili, B. S., "*Bifurcation Problems With Co-Rank Greater Than Two*", 14th IMACS Congress, Atlanta, 1994.
12. Attili, B. S., "*On the Use of Predictor-Corrector Continuation to Trace Implicitly Defined Curves and Calculating Bifurcation*", International Conference on Applied and Pure Mathematics, Bahrain, Nov. 1995.
13. Attili, B. S., "*On the Use of Singular Value Decomposition for Computing Multiple Bifurcation Points via Extended Systems*", 3rd Jordanian Math. Conference, Sept. 1996.
14. Attili, B. S., "*A Numerical Study of Flow in a narrow-Gap Annulus With Constant Heat Flux at the Inner Rotating Cylinder*", 15th IMACS Congress, Berlin, August 1997.
15. Attili, B. S., Elgindi, M. B. and El-Gebeily, M. A., "*Initial Value Methods for the Eigenelements of Singular Two Point Boundary Value Problems*", Functional Differential Equations and Applications, Antalya-Turkey, August 1997.
16. Attili, B. S., "*Shooting Methods for the Primary Two point Boundary Value Problems in Modeling Visco Elastic Flows*", 2nd Palestinian International Conference on Mathematics, Nablus-Palestine, August 1998.
17. Attili, B. S., "*Numerical Study of the Wave Instability Problem With the Effect of the Transverse Velocity Component*", 4<sup>th</sup> International Conference on Theoretical and Computational Acoustic-ICTCA '99, Trieste, Italy, May 1999.

18. Elegebeily M. A. and Attili, B. S., “*An Iterative Method for Solving Singular Two-Point Boundary Value Problems*“, International Conference on Biomathematics-Bioinformatics and Applications of Functional Differential Difference Equations, Antalya, Turkey, July 1999.
19. Attili, B. S., “*Two Parameter Bifurcation and Global Stability in a Predator-Prey System With a Functional Response*“, 2000 SIAM annual meeting, San Juan, U.S.A., July 2000.
20. Attili, B. S., “*Tracing Implicitly Defined Curves With the Help of Singular Value Decomposition*”, 16th IMACS Congress on Computational and Applied Math., Laussane, August 2000.
21. Attili, B. S., “*Numerical Computation of Cusp Points for Operator Equations*”, Mathematics Day, May 2003, University of Sharjah.
22. Attili, B. S., “*A Numerical approach for Some Singularly Perturbed Boundary Value Problems*”, Math. Day, American U. of Sharjah, April 1st., 2004.
23. Attili, B. S., “*Numerical Treatment of Fourth order Singularly Perturbed Boundary Value Problems*”, 3rd International Conference on Numerical Analysis and Applications, July, 2004, Rousse, Bolgaria.
24. Attili, B. S., “*Numerical Treatment of a Certain Class of Fourth Order Singularly Perturbed Boundary Value Problems*”, Second International Conference on Mathematics, 12-14 Dec. 2004, UAEU, Al-Ain, UAE.
25. Anwar M., Attili, B., Idris I., and Syam M., “*Toward A Student Based Learning Mathematics*”, Second International Conference on Mathematics, 12-14 Dec. 2004, UAEU, Al-Ain, UAE.
26. Attili, B. S., “*The Use of Richardson Extrapolation in the Accurate Computation of Simple Turning and Bifurcation Points*”, Proceedings of 6<sup>th</sup> Annual Resaerch Conference, UAEU, April 24-26<sup>th</sup> , 2005.
27. Attili, B. S., “*The Use of Cooperative Learning and Problem Based Learning in Teaching Calculus*”, KEYNOTE SPEAKER, Middle East Teachers of Science, Mathematics and Computing Conference”, April 27<sup>th</sup> – 29<sup>th</sup>, Officers Club, Abu-Dhabi.
28. Attili, B. S., ” *An Effecient Method for Computing the Eigenelements of Sturm-Liouville Two Point Boundary Value Problems*”, Proceedings of 17<sup>th</sup> IMACS Congress on Computational and Applied Math., Paris, July 11-15<sup>th</sup> , 2005.
29. Attili, B. S., “*Numerical Computation of Singular Sturm-Liouville Two Point Boundary Value Problems*”, November 14<sup>th</sup>, 2005, American U. at Sharjah.
30. Attili, B. S., ”*Making Connections*”, Middle East Teachers of Science, Mathematics and Computing Conference, March 14<sup>th</sup> – 16<sup>th</sup>, Abu-Dhabi.
31. Attili, B., “*Numerical Computing of Certain Singular Points for Index-1 Differential Algebraic Equations*”, The 7<sup>th</sup> Annual Resaerch Conference, UAEU, April 22-24<sup>th</sup> , 2006.
32. Attili, B., “*Numerical Computation of Cusp Point Singular Points for Index-1 Differential Algebraic Equations*”, The 4<sup>th</sup> UAE Math Day, U. of Sharjah, April 27<sup>th</sup> , 2006.
33. Attili, B., Alaa A., Aseel A., Ayat T. and Shefa A., “*Numerical Computation of index-1 and index-2 Differential Algebraic Equations*”, 5<sup>th</sup> UAE Mathday, An Annual Conference and Celebration of Mathematics, EUC-Sharjah, April 28-29, 2007.

34. Attili, B., "Numerical Computation of Generalized Turning Points for Two Point Boundary Value Problems", KEYNOTE SPEAKER, 5<sup>th</sup> UAE Mathday, An Annual Conference and Celebration of Mathematics, EUC-Sharjah, April 28-29, 2007.
35. Attili, B., "An Efficient Fourth Order Implicit Runge-Kutta Algorithm for Second Order Systems", The 8<sup>th</sup> Asian Symposium on Computer Mathematics, Singapore, Dec. 14-16, 2007.
36. Attili, B., "The Hilber-Hughes-Taylor- $\alpha$ (HHT- $\alpha$ ) Method for Differential Algebraic Systems of Index 2", ICM 2008, March 3-6, 2008, Al-Ain-UAEU.
37. Attili, B., "An Efficient Fourth Order Implicit Runge-Kutta Algorithm for Second Order Systems ", 7<sup>th</sup> UAE MathDay, April 25<sup>th</sup>, 2009, Sharjah U.
38. Attili, B., "Numerical Treatment of Differential Algebraic Systems of Index 2 Using the Hilber-Hughes-Taylor- (HHT-) Method", 18<sup>th</sup> IMACS World Congress, August 3-7, U. of Georgia.
39. Attili, B., " Numerical Treatment of Singularly Perturbed Two Point Boundary Value Problems Exhibiting Boundary Layers", 8<sup>th</sup> UAE MathDay, Zayed University, April 9<sup>th</sup>, 2010.
40. Attili, B., "A Second-Order Difference Scheme for a Singularly Perturbed Reaction-Diffusion Problem", Inter. Conf. on Differential & Difference Equ's and Applic., Azores University, Ponta Delgada, Portugal, July 4 - 8, 2011.
41. Attili, B., "Numerical Treatment of Two-Point Boundary Value Problems of Fractional Differential Equations", SciCADE 2013, Inter. Conf. on Sci. Comput. and Diff. Equ's, September 16-20, 2013, Valladolid (Spain).
42. Attili, B., Numerical Treatment of Singular Boundary Value Problems – Parameter and Non-parameter Dependent Types, KEYNOTE SPEAKER ,The 2nd Abu-Dhabi U. Annual Inter. Conf.: Math. Sci. and its Applic., Nov. 29-Dec.01, 2013, Abu Dhabi, UAE.
43. Attili, B., The Status Quo of Graduate Studies in the Region: Challenges and Difficulties, The Conf. on Graduate Studies and Scientific Research in the States of the Arabian Gulf, Nov., 1-3, 2016, Kuwait University, Kuwait.
44. Attili, B., 'Efficient Shooting Method for Two-Point Boundary Value Problems of Fractional Differential Equations', 20th IMACS WORLD CONGRESS, 10-15, Dec. 2016, Xiamen, China.
45. Attili, B., Numerical Treatment of Second Order Fuzzy Two-Point Boundary Value Problems, International Conference on Recent Advances in Pure and Applied Mathematics (ICRPAM2018), Karadeniz Technical University – Trabzon-Turkey JULY 23-27 2018
46. Attili, B., Approximating the solution of the second order Fuzzy Two-Point Boundary Value Problems Using the Shooting Method, Sixth Palestinian Conference on Modern Trends in Mathematics and Physics (PCMTMP-VI), Palestine Technical University, August 05-08, 2018
47. Attili, B., On the Solution of Some Singularly Perturbed Two Point Boundary Problems, Sixth Palestinian Conference on Modern Trends in Mathematics and Physics (PCMTMP-VI), Palestine Technical University, August 05-08, 2018

**Funded Research Projects:**

- B. Attili, M. Syam and M. Anwar, “Innovation in teaching Calculus entitled “Problem Based Learning and the Use of Modern Technology in Teaching Calculus” supported by UAEU 2003 (completed).
- B. Attili, M. Syam and M. Anwar, “Innovation in teaching numerical analysis I entitled “The Use of Modern Technology in Teaching Numerical Analysis I” supported by UAEU 2004 (completed).
- B. Attili, M. Syam and M. Anwar, “An Easy and Efficient Way for Solving A class of Singular Two Point Boundary Value Problems”, Approved 2005 (completed).
- B. Attili, M. Anwar and M. Syam, “Smoothing of Finite Difference Scheme for Valuation of Financial Options”, Approved 2006 (completed).

### **On Going Research:**

1. Numerical treatment of Fractional Differential Equations.
2. Numerical treatment of Fuzzy Differential Equations
3. Numerical Treatment of Predator Prey Models of Fractional Order.
4. Numerical Computation of bifurcation points with some symmetries.

### **EDITORIAL BOARD MEMBERSHIP:**

#### **I am in the editorial board of the following journals:**

1. *Editor (Jan 2017-present)*- Applied Numerical Mathematics, Elsevier.
2. *Associate Editor (2010-2014)* – International Journal of Computer Mathematics (IJCM)  
<http://www.tandf.co.uk/journals/titles/00207160.asp>
3. *Editor in Chief* - UOS Journal of Humanities & Social Sciences (2010-2014)  
[http://www.sharjah.ac.ae/English/About\\_UOS/UOSPublications/SciencesHumanities/Pages/EditorialBoard.aspx](http://www.sharjah.ac.ae/English/About_UOS/UOSPublications/SciencesHumanities/Pages/EditorialBoard.aspx)
4. *Editor in Chief* - UOS Journal of Shari'a & Law Sciences (2010-2014)  
[http://www.sharjah.ac.ae/English/About\\_UOS/UOSPublications/Sharia\\_and\\_Law/Pages/EditorialBoard.aspx](http://www.sharjah.ac.ae/English/About_UOS/UOSPublications/Sharia_and_Law/Pages/EditorialBoard.aspx)
5. *Ex-Editor in Chief* (2005-2008) - Pacific Asian Journal of Mathematics (PAJM)  
<http://www.serialspub.com/ourjournals.asp>
6. *Associate Editor* – Canadian Journal of Pure and Applied Sciences  
<http://www.cjpas.org/contact.html>
7. *Associate Editor* (2003-2008) - International Journal of Scientific Research (IJSR) – UAEU, College of Science. <http://www.fsc.uaeu.ac.ae/>
8. *Associate Editor* (2006-2012) - Global Journal of Pure and Applied Mathematics (GJPAM) <http://www.ripublication.com/gjpam.htm>
9. *Associate Editor* - Advances in Theoretical and Applied Mathematics (ATAM)  
[http://www.ripublication.com/editorial\\_board\\_of\\_atam.htm](http://www.ripublication.com/editorial_board_of_atam.htm)
10. *Associate Editor* - International Journal of Computational and Applied Mathematics (JCAM) <http://www.ripublication.com/ijcam.htm>
11. *Associate Editor* - Journal of Dynamical Systems and Geometric Theories (JDSGT)  
<https://www.tandfonline.com/loi/tdsg20>

12. *Associate Editor* (2006-2009) - Communications in Mathematical Analysis (CMA) <http://www.commun-math-anal.org/>
13. *Associate Editor* (2011-2013)- The Global Journal of Applied Mathematics and Mathematical Sciences (GJ-AMMS) <http://www.serialspub.com/ourjournals.asp>

### **PROFESSIONAL ACTIVITIES:**

- Co-organized a workshop on "*Matrix Theory and Applications*", 13-17 Dec. 1997, at KFUPM.
- Served as a member of the organizing committee of "*The International Conference on Theory of Difference and Differential Equations with Applications to Biomathematics-Bioinformatics*" held in Akdeniz University, Antalya, Turkey, July 13-22, 1999.
- Served as a member of both the organizing and scientific committee of "*International Conference: 2004 - Dynamical Systems and Applications*" July 05 - 10, 2004, Antalya - Kapadokya, Turkey
- Served as a *technical editor* in a theme issue of the Arabian Journal of Science and Engineering on Numerical Solutions of Boundary value problems, Volume 22-2c, 1997.
- *Supervised the M. Sc. thesis* of Mr. Shehadeh in Numerical Analysis (graduated Aug. 1992).
- Served as a *member in the Ph. D. committee* of Mr. Al-Hamouze in E.E. Dept. (graduated June 1994).
- Served as a *member in the M. Sc. committee* of Mr. Al-Absi in Math. Dept. (graduated 1993).
- Served as an *external examiner* for Mrs. Rabab Al-Bar, Math. Dept., KAU-Jeddah (M. Sc. Thesis 1996).
- Served as a *member in the M. Sc. committee* of Mr. Al-Humaidi in Math. Dept. (graduated 2000).
- Served as an *external member and examiner* of the M. S. thesis of Mr. Said Al-Qarni, Math. Dept., KFUPM (M. Sc. Thesis 2003).
- Served as an *external member and examiner* of the M. S. thesis of Mr. Mohammed Al-Shahran, Math. Dept., KFUPM (M. Sc. Thesis 2003).
- External examiner of the M. S. thesis of Mrs. Laila Al Sakkaf, Physics Dept., UAEU, April 2018.
- *Refereed* research proposals for the College of Graduate Studies - KFUPM several times (Awards, Conferences, Projects, ... ).
- *Refereed papers* for "Mathematics Reviews-AMS"
- *Refereed papers* for the "Journal of Computational and Applied Mathematics".
- *Refereed papers* for "Physics Letters A".
- *Refereed papers* for "Autosoft Journal".
- *Refereed papers* for "International Journal of Computer Mathematics".
- *Refereed papers* for "Applied Mathematical Letters".
- *Refereed papers* for "Global Journal of Pure and Applied Mathematics (GJPAM)".
- *Refereed papers* for "Journal of Dynamical Systems and Geometric Theories".
- *Refereed papers* for "The Global Journal of Applied Mathematics and Mathematical Sciences".

- **Refereed papers** for the “Arabian J. of Sci. and Eng.”.
- **Refereed Papers** for “Abhath Al-Yarmouk”.
- **Refereed papers** for “DIRASAT”, University of Jordan.
- **Refereed papers** for “Arab Gulf Journal of Scientific Research”.
- **Reviewed papers** for the “Computational Reviews”.
- **Refereed papers** for “Ibn Al-Haitham J. for Science and Technology”.
- **Refereed papers** for the “International Journal of Scientific Research”.
- **Refereed papers** for the “International Journal of Mathematics and Mathematical Sciences”.
- **Refereed papers** for “Physica A”.
- **Refereed papers** for “Numerical Algorithms”.
- **Refereed papers** “Numerical Methods for Partial Differential Equations”.
- **Refereed papers** “Journal of Science – Sultan Qaboos University”
- **Refereed papers** “International Journal for Numerical Methods in Engineering”.
- **Refereed papers** “Journal of Applied Mathematics and Computing”.
- **Refereed papers** “Punjab University Journal of Mathematics”.
- **Refereed papers** “Journal of Computational and Applied Mathematics”.
- **Refereed papers** “Advances in Mathematical Sciences Journal”.
- **Refereed papers** “International Journal of Computational Mathematics and Numerical Simulation”.
- **Refereed papers for** “Applied Mathematics and Computations”.
- **Refereed papers for** "Advances in Engineering Software Journal"
- **Refereed papers for** "Computers and Mathematics with Applications" .
- Participated in **Preparing Ph. D. written qualifying exams** in Math. Dept. - KFUPM several times.
- Member of **examining committee (oral and written) for Ph. D.** students in Mechanical, Civil and Electrical engineering departments - KFUPM.
- Participated in **reviewing** the graduate and undergraduate Numerical Analysis courses.
- Served as a local team leader at KFUPM for the college of science evaluation by the Berkeley Team 2000 (equivalent to accreditation).
- Served as a member of the local team at UAEU for the college of science evaluation by the a Team from USA 2007 (equivalent to accreditation).
- **Developed** the “Numerical Analysis I” course at UAEU.
- **Developed an innovation project** in teaching numerical analysis I entitled “The Use of Modern Technology in Teaching Numerical Analysis I” supported by UAEU and jointly with Dr. M. Syam and Prof. M. Naim.
- **Gave several workshops** on “Mathematics as a bridge between abstract and applications” and “Applications of mathematics in our life” for advisors in education district of Abu-Dhabi, Dec. 14 and 21, 2003.
- **Gave a workshop twice for UGRU-UAEU** students through advising office on “How to prepare yourself for exams”, Dec. 15 and 16, 2003.
- **Co-organized** the “First Math Day”- UAEU.
- **Participated in preparing the draft** of the graduate program in mathematics at UAEU.
- **Attended** a one day workshop on Blackboard at UAEU.

- *Attended* a one day workshop on “WACE learning system”, Dec. 7, 2003-UAEU.
- *Served as a member of the organizing committee* of math day II.
- *Served as a member of the organizing committee* of math day III.
- *Served as the coordinator of the organizing committee* of math day IV.
- *Served as a member of the Scientific Committee, Organizing Committee and the coordinator of the Advertising Committee* of ICMS conference, Nov. 2004.
- Responsible for the *winter training of 22 students* in Abu-Dhabi and Al-Ain, 2004.
- *Gave two workshops* in Mathematica for girls through the science club on Sept. 21 and 28, 2003.
- Wrote *several articles* in both Arabic and English for university magazines at KFUPM, UAEU and UoS.
- *Gave two workshops* on “Mathematics as an Enjoyment and Life” for advisors and high school teachers in education district of Abu-Dhabi, March, 2006.
- *Gave a workshop* on “Mathematics as an Enjoyment and Life” for advisors and high school teachers in education districts of Fujairah and Sharjah, April, 2006.
- *Served as a member of the organizing committee* of The UAE 4<sup>th</sup> Math Day.
- *Finished the first phase* of a proposal for the Ministry of Education – Dubai (A study of 4 high schools, two in Al-Ain and two in Ras Al-Khaimah) to develop the teaching skills of high school teachers of the 10<sup>th</sup> grade.
- Member of the organizing committee of 18<sup>th</sup> IMACS World Congress, August 3-7, U. of Georgia.
- Member of organizing and scientific committees of 7<sup>th</sup> UAE MathDay.
- Worked as a team leader of "5 members team on improving high school teaching in Sharjah" for a full year 2008-09
- Gave 8 workshops (on teaching methodology and technology uses in teaching mathematics) for high school teachers in Sharjah 2008-09
- Gave 12 workshops (on teaching methodology and technology uses in teaching mathematics) for high school teachers in Sharjah, Khorfakan 2009-10.
- Gave 6 workshops (on teaching methodology and technology uses in teaching mathematics) for middle school teachers in Sharjah 2009-10
- Served as a leader of "9 members team on improving teaching of mathematics to 6-12 grades teachers". A total of 9 workshops were given for high school math teachers in Sharjah and Khorfakan during the years 2010-2011, 2011-2012, 2012-2013 and 2013-2014.

### **DEPARTMENTAL AND PUBLIC SERVICES:**

- Chair of the Graduate Studies Council (2010-2017).
- University Research Council (2014-2016)
- Member of the Central Committee of Strategic Streams of Research.

### **College Committees (coordination or membership):**

- Continuing Education Committee (1994-95 and 1995-96).
- Several Promotion Committees.

- Students Activities Committee, 2003-2004.
- Annual Report Committee, 2003-2004.
- Information Technology and Teaching Methodology Development Committee, 2003-2004.
- IT College Committee.
- Science Focus Committee.
- Peer Evaluation Committee.
- Vision and Mission Statement Committee.
- International Journal of Scientific Research Committee.
- Scientific Research Committee.
- Faculty Affairs Committee.
- College Council.

**University Committees:**

- Faculty Development Committee.
- Faculty Affairs Committee.
- Faculty Promotion Committee.
- Faculty Grievances Committee.
- Central Committee for Faculty Selection and Contract Renewals.
- Faculty Excellence Research Award Committee.
- Faculty Excellence Teaching Award Committee.

**Dept. Standing Committees (coordination or membership):**

- Planning and Advisory Committee.
- Graduate Committee (Ph. D. and M. Sc.).
- Faculty Search Committee.
- Undergraduate Committee.
- Scheduling Committee.
- Social Committee.
- Information and Annual Report.
- Academic Affairs.
- Graduate and Scientific Research.
- Library and Textbooks.
- Information Technology and Annual Report Committee.
- Scientific Research Committee.
- Promotion Committee.

**Dept. Ad-hoc Committees:**

- Numerical Analysis Courses Revision.
- Ph. D. Qualifying Examinations.
- Best Teacher and Best Advisor Award.
- Research award committee.
- Committees that have relation with the Calculus sequence while serving as a coordinator.



- Choosing a new text for the Calculus series (2002).
- Graduate program in mathematical economy - draft.
- Math Day I organizing committee.
- Math Day II organizing committee.
- Math Day III organizing committee.
- Math Day IV organizing committee.