Dr. Fazli Amin

Contact Information

Department of Mathematics & Statistics
Hazara University, Mansehra
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Academic Qualifications

- Ph. D. Mathematics, Technische Universität Braunschweig, Germany (August, 2016).
- M. Phil. Mathematics, Quaid-i-Azam University, Islamabad, Pakistan (February,2006).
- M. Sc. Mathematics, Peshawar University, Peshawar, Pakistan (2001)
- B. Sc. (Maj. Sub. Mathematics & Physics) Peshawar University, Peshawar, Pakistan (1998)

Awards and Honors

- University merit Fellowship during M.Phil.
- Higher Education Commission (HEC) merit scholarship during M.Phil.
- Overseas Scholarship award by Higher Education Commission (HEC) of Pakistan for Ph. D studies (Germany).
- Best teacher award for the year 2019, Hazara University Mansehra

Service Record

- Hazara University, Mansehra Pakistan, Associate Professor, from **5th** August 2022 to date
- Hazara University, Mansehra Pakistan, Assistant Professor, from 3rd February 2009 to 4th August 2022.
- Hazara University, Mansehra Pakistan, Lecturer, from19th October 2006 to **2nd** February 2009.
- OPF Boys College Islamabad Pakistan, Lecturer (Contract), from 15th August 2005 to 18th October 2006.

Advisory & Administrative Services

- Chairman department of Mathematics & Statistics Hazara University Mansehra Pakistan, since May 17, 2024, to date.
- Member of Academic council Hazara University Mansehra, since 2016
- Member of Higher Education Department (HED), Khyber Pakhtunkhwa, Pakistan, Curriculum and Syllabi Review Committee for Standardization & Uniformization of Bachelor of Science (BS) Mathematics Courses Across Higher Education Institute (HEIS)/ Degree Awarding Institute (DaIs) of Khyber Pakhtunkhwa, Pakistan, since 27th March 2024
- Member of Graduate Admission Committee, Hazara University Mansehra Pakistan, since 8th November 2023.
- Member of Advanced Studies Research Board (ASRB) Hazara University Mansehra Pakistan, since 26th November 2021.
- Head of Department of Mathematics & Statics, Hazara University Mansehra Pakistan, from May 2016 to May 2021.
- Deputy Chief proctor, Hazara University, Mansehra Pakistan, from July 2018 to July 2019.
- Member board of studies, Department of Mathematics & Statistics, Hazara

University, Mansehra Pakistan, since 2011.

- Member Graduate Research Committee Department of Mathematics & Statistics, Hazara University, Mansehra Pakistan, since August 2016.
- Member of Board of Faculty of Sciences, Hazara University, Mansehra Pakistan, since 2008.
- Internal Controller of Examination, for, Department of Mathematics & Statistics, Hazara University, Mansehra Pakistan, from 2007 to 2013.
- Member of Senate Hazara University Mansehra Pakistan from 2007 to 2010.
- Organizer "First Science Exhibition, 2007, Hazara University Mansehra.
- Thesis evaluator for different Universities national and international.

Software Skills

- GAP (Computer Algebra System)
- TEX (LaTeX, TeX Live, proTeXt, MacTeX, etc.) MS Office

Research Interests

- Computational Algebra (in particular, group theory)
- Subnormal structure of groups and their generalizations
- Biomathematics, and artificial intelligence
- Fuzzy Algebra
- Fuzzy Group Theory
- Fuzzy decision making and their applications in AI and neural networks.
- Fractional Fuzzy set theory and the application in AI and neural networks.

References

- Prof. Dr. Mohsan Nawaz
  Dean Faculty of Natural and Computational Sciences
  Hazara University, Mansehra, Pakistan

Email: **mohsannawaz@hu.edu.pk**
Phone # +923335602549

- Prof. Dr. Bettina Eick (PhD Supervisor)
  Institut Analysis und Algebra,
  Fachbereich Mathematik / Fakultät 1
  Technische Universität Braunschweig,
  Braunschweig, Germany

Email: **b.eick@tu-bs.de**
Phone # +49-531-391-7525

- Prof. Dr. Matthias Neumann-Brosig
  Department of Mathematics and Statistics
  Leibniz-Fachhochschule
  Expo Plaza 11, 30539 Hanover, Germany

Email: matthias.neumann-brosig@leibniz-fh.de

Phone # +49-511-95784-48

Research Supervision

I. Ph. D. Supervision

1. Aliya Fahmi, "**Some Contributions to Cubic Sets and Their Applications"** (completed in June 2019)
2. Muhammad Umar "**Novel Stochastic Computing Techniques for Nonlinear Biological Systems**" (completed in April 2023)
3. Muhammad Rahim "**Novel Aggregation operators in Cubic Pythagorean fuzzy Environment**" (Completed in March 2024).
4. Muhammad Naeem Tanoli "**The Structure of Complex Cubic Picture Fuzzy sets and their applications**" (Completed in January 2025)
5. Zia Ullah "**Decision Support System Based on Fuzzy Bipolar Soft Sets**" (research is in progress).

II. M.Phil. Supervision

1. Muhammad Sajjad, "**Triplet Fuzzy Sets in Semigroup**" (Completed 2018).
2. Zahid Khan, "**On the relative Wielandt subgroup**" (completed, 2018).
3. Ziaullah , " **Some Contributions to Binary Soft Topological Space** "(completed, 2018)
4. Hidayatullah " **A Study on the Triangular Neutrosophic Cubic Set and Their Applications** "(completed, 2019)
5. Kefayat Khan**" Triangular Neutrosophic cubic Dombi Fuzzy Set and Their Applications**" (completed, 2020)
6. Mehwish Bibi" **On the structure of Fuzzy Bigroups and n-groups** "(completed, 2020)
7. Nigath Ara " **Characterizations of the Bigroup and n-group** " (completed, 2020)
8. Sidra Niaz "**Dombi Aggregation Operators in Interval-Valued Intuitionistic Neutrosophic Fuzzy Environment**" (completed, 2020)
9. Syed Bilal Hussain Shah "**Interval-Valued Intuitionistic Neutrosophic Fuzzy Numbers and Their Applications**" (completed, 2020)
10. Syed Saif Ali Shah "**Characterizations of Fuzzy Bigroups and N-Groups**" (completed, 2020)
11. Anas Hayat "**On the structure of Bigroups and their Generalizations**" (completed, 2020)
12. Adil Dervesh "**Maclaurin Symmetric Mean on Two-Dimensional Uncertain Linguistic Interval-Valued Neutrosophic Fuzzy Data**" (completed, 2020).
13. Zia ur Rehman "**Interval-Vcalued Neutrosophic Bipolar Fuzzy Aggregation Operators**" (completed, 2020)
14. Khwaja Umair "**CODAS Method Under the Environment of Cubic Pythagorean Fuzzy Sets and its Application** "(Completed, 2022)
15. M. Tamoor Nazar "**Extension of COPRAS Method under the environment of Cubic Pythagorean Fuzzy set**" (Completed, 2022)
16. Shahid Nawaz (Course completed, and research work is in progress)
17. Shafaq Zaib "**Extension of Frank Aggregation operators under Pythagorean cubic Fuzzy environmen**t" (Completed, 2022)
18. Mishal Zara "**N-Cubic Intuitionistic Fuzzy set and their applications in Decision Making Problems**" (Completed, 2022)
19. Awais Ahmad (Course completed, and research work is in progress)
20. Inamullah "**Study of Aggregation Operators on Spherical Fuzzy Sets with Confidence Level**" (Completed, 2022).

21. Muhammad Yasis, (Course completed, and research work is in progress).
22. Muhammad Naeem, "**The Sine Trigonometric Operational Laws Based on Interval-Valued Pythagorean Fuzzy Set**" (Completed, 2022).
23. Muhammad Shafqat "**Numerical study of Thermally radiated ternary hybrid nanofluid flow over a stretching sheet with cattaneo-christov effects**" (Completed, 2023).
24. Raja Muhammad Ali "**The Sine Trigonometric Operational Laws Based on Cubic Pythagorean Fuzzy Set**" (Completed, 2023).
25. Momina Akhtar "**p q r-Spherical Dombi Aggregation Operators and its Application in Decision Making Problems**" (Completed 2024)
26. Jawad Mehmood, "**Characterisation of Fuzzy Wielandt Subgroup**" (Completed 2024)
27. Humaira Bibi "**Characterisation of Bigroup and Smarandache Bigroup**"(Completed 2025).
28. Naima "**Characterization of fractional Fuzzy Subgroup**" (Completed 2025)

Development of Discipline through Curricula

CONFORMABILITY WITH INTERNATIONAL STANDARDS
Developed and incorporated following courses for M. Sc. and M. Phil/Ph.D CURRICULA in Department of Mathematics, Hazara University, Mansehra-Pakistan of international standard:

1. Nilpotent and soluble groups (M. Phil/Ph.D)
2. Fuzzy Group Theory (M. Phil/Ph.D)
3. Algebra with GAP(Computer Algebra System) (M. Phil/Ph.D)
4. Geometric function theory (M. Phil/Ph.D)
5. Algebra-I (Basic Group Theory) (M. Sc./BS)
6. Algebra-II(Basic Linear Algebra) (M.Sc/BS.)
7. Calculus I,II.III (M.Sc/BS.)

Courses Taught

GRADUATE LEVEL (MPhil/PhD)

- Fuzzy Group Theory
- Algebra With GAP (Computer Algebra System)
- Advanced Group Theory-I
- Advanced Group Theory-II
- Nilpotent and soluble groups
- Fuzzy Algrebra
- Fuzzy Set Theory
- LA-Semigroups
- Geometric function theory
- Binary Soft Topology

UNDERGRADUATE LEVEL

- Algebra-I (Basic Group Theory)
- Algebra-II (Linear Algebra)
- Algebra-III (Advanced Group Theory)
- Algebra-IV (Advanced Linear Algebra)
- Topology

- Real Analysis I & II
- Set Theory
- Measure Theory & Integrations
- Calculus I, II &III

Member Societies

1. Pakistan Mathematical Society, Islamabad, Pakistan

International Assignments

Reviewer of the following international journals

1. International Journal of Fuzzy Systems (Taiwan)
2. Soft Computing (United States)
3. Journal of intelligent and fuzzy systems (Netherlands)
4. European Journal of Pure and Applied Mathematics (Turkey)
5. International Journal of Biomathematics (Singapore)
6. Symmetry (Switzerland)
7. Artificial Intelligence Review (Switzerland)

Conferences attended and presented papers.

- 5th International Pure Mathematics Conference, 2004, Islamabad, Pakistan
- 6th International Pure Mathematics Conference, 2005, Islamabad, Pakistan
- 7th International Pure Mathematics Conference, 2006, Islamabad, Pakistan
- 8th International Pure Mathematics Conference, 2007, Islamabad, Pakistan,
- 10th International Pure Mathematics Conference, 2009, Islamabad, Pakistan,
- 11th International Pure Mathematics Conference, 2010, Islamabad, Pakistan,
- Workshop "Experimental Methods in Computational Algebra" (Uni Hannover, Germany) March 26, 2014
- Norddeutsches Gruppentheorie-Kolloquium, 11th - 12th, July 2014 (Uni Bielefeld, Germany)
- Minisymposium Computeralgebra, Joint Annual Meeting of GAMM and DMV, TU Braunschweig, Germany, March 2016.
-

List of Publications

1. **F. Amin**, A. Ali, and M. Arif. On Generalized Wielandt Subgroup. World Applied Sciences Journal, 30(12):1939-1946, 2014.

2. Aliya Fahmi, Saleem Abdullah, **Fazli Amin** and Asad Ali, Precursor Selection for sol-gel synthesis of titanium carbide nanopowders by a new cubic fuzzy multi-attribute group decision-making model, Journal of intelligent systems, vol. 28, no. 5, 2019, pp. 699-720. DOI: https://doi.org/10.1515/jisys-2017-0083,

3. Aliya Fahmi, Saleem Abdullah, **Fazli Amin**, Nasir Saddique and Asad Ali, Aggregation operators on triangular cubic fuzzy number and its application to multi-criteria decision-making problems, Journal of Intelligent & Fuzzy Systems 33 (2017) 3323–3337 DOI: 10.3233/JIFS-162007

4. Aliya Fahmi, Saleem Abdullah and **Fazli Amin**, Trapezoidal Linguistic Cubic Hesitant Fuzzy Topsis Method and Application to Group Decision Making Program, journal of new theory, *Year*: 2017, *Number*: 19, *Pages*: 27-47.

5. Aliya Fahmi, Saleem Abdullah, **Fazli Amin** and Asad Ali, Trapezoidal Cubic Fuzzy Weighted Geometric Operator and Their Application to Multiple Attribute Group Decision Making: Italian journal of pure and applied mathematics, – N. 46–2021 (8–17)

6. K. Rahman, S. Abdullah, A. Ali and **F. Amin**, Some Induced Averaging Aggregation Operators Based on Pythagorean Fuzzy Numbers, Mathematics Letters, 3(4): 40-45 (2017)

7. M. Sajjad Ali Khan, S. Abdullah, Asad Ali, **Fazli Amin** and Nasir Siddique, Pythagorean hesitant fuzzy sets and their application to group decision making with incomplete weight information, Journal of Intelligent & Fuzzy Systems 33 (2017) 3971–3985. DOI:10.3233/JIFS-17811

8. K. Rahman, A. Ali, S. Abdullah and **F. Amin**, Approaches to Multi-Attribute Group Decision Making Based on Induced Interval-Valued Pythagorean Fuzzy Einstein Aggregation Operator. New Mathematics and Natural Computation, Vol. 14, No. 03, pp. 343-361 (2018) https://doi.org/10.1142/S1793005718500217

9. Aliya Fahmi, Saleem Abdullah, **Fazli Amin** and Asad Ali, Weighted Average Rating (war) Method for Solving Group Decision Making Problem using Cubic Triangular Fuzzy Hybrid Aggregation (ctfha) Operator, Punjab university journal, Vol. 50(1) (2018), 23-34.

10. **Fazli Amin**, Aliya Fahmi, Saleem Abdullah, Asad Ali, Rehan Ahmad and fazli Ghani, Triangular Cubic Linguistic Hesitant Fuzzy Aggregation Operators and Their Application in Group Decision-Making, Journal of Intelligent & Fuzzy Systems 34 (2018) 2401–2416, DOI: 10.3233/JIFS-171567

11. Aliya Fahmi, Saleem Abdullah**, Fazli Amin**, Asad Ali and Waqar Ahmad khan, Some Geometric Operators with Triangular Cubic Linguistic Hesitant Fuzzy Number and Their Application in Group Decision-Making, journal of intelligent & fuzzy systems, vol. 35, no. 2, 2485-2499, 2018. DOI: 10.3233/JIFS-18125,

12. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, Approaches to Multi-Attribute Group Decision Making Based on Induced Interval-Valued Pythagorean Fuzzy Einstein Hybrid Aggregation Operators, Bulletin of the Brazilian Mathematical Society, New Series, 50, pages845–869 (2019) https://doi.org/10.1007/s00574-018-0091-y

13. Aliya Fahmi, Saleem Abdullah and **Fazli Amin**, Expected Values of Aggregation Operators on Cubic Trapezoidal Fuzzy Number and its Application to Multi-Criteria Decision-Making Problems, journal of new theory, (22),51-65,2018.

14. Aliya Fahmi, Saleem Abdullah, **Fazli Amin** and Muhammad Sajjad Ali Khan, Trapezoidal Cubic Fuzzy Einstein Hybrid Weighted Averaging Operator, and its Application to Decision Making, soft computing. Volume 23, Issue 14, pp 5753–5783, (2018). https://doi.org/10.1007/s00500-018-3242-6

15. Aliya Fahmi, Saleem Abdullah**,** **Fazli Amin**, Asad Ali and Khaista Rahman, Expected Values of Aggregation Operators on Cubic Triangular Fuzzy Number and its Application to Multi-Criteria Decision-Making Problems, Engineering Mathematics, 2018,2(1),1-11.

16. Aliya Fahmi, Fazli Amin, Saleem Abdullah and Asad Ali, Cubic fuzzy Einstein aggregation operators and its application to decision-making. International journal of system sciences, 2018, vol. 49, no. 11, 2385–2397.
DOI:10.1080/00207721.2018.1503356

17. Aliya Fahmi and **Fazli Amin**, Precursor Selection for Sol-Gel Synthesis of Titanium Carbide Nanopowders by a New Hesitant Cubic Fuzzy Multi-Attribute Group Decision-Making Model, New Mathematics and Natural Computation, Vol. 15, No. 01, pp. 145-167 (2019).
https://doi.org/10.1142/S1793005719500091

18. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, Interval-valued Pythagorean fuzzy Einstein hybrid weighted averaging aggregation operator and their application to group decision making, Complex & Intelligent Systems, 5, pages41–52 (2019)
https://doi.org/10.1007/s40747-018-0076-x

19. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, Pythagorean Fuzzy Einstein Hybrid Averaging Aggregation Operator and its Application to Multiple-Attribute Group Decision Making, J. Intell. Syst. 2020; 29(1): 736–752
https://doi.org/10.1515/jisys-2018-0071

20. K. Rahman and S. Abdullah, A. Ali and **F. Amin,** Approaches to some induced Einstein geometric aggregation operators based on interval-valued Pythagorean fuzzy numbers and their application, New Mathematics and Natural Computation (**Accept 2018**)

21. **Fazli Amin**, Aliya Fahmi and Saleem Abdullah, Dealer Using a New trapezoidal cubic hesitant fuzzy TOPSIS method and application to group decision making program, Soft Computing, 23, pages5353–5366 (2019)
https://doi.org/10.1007/s00500-018-3476-3

22. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, Approaches to Multi-Attribute Group Decision-Making Based on Induced Generalized Einstein Aggregation Operators using Interval-Valued Pythagorean Fuzzy Numbers, Proceedings of the National Academy of Sciences, India Section A: Physical Sciences **(Accept 2018**)

23. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, The Induced Generalized Pythagorean Fuzzy Einstein Weighted Geometric Aggregation Operators and Their Application to Multi-Attribute Group Decision-Making, Proceedings of the National Academy of Sciences, India Section A: Physical Sciences, **(Accept 2018**)

24. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, Pythagorean Fuzzy Einstein Hybrid Aggregation Operator and Their Application to Multi-Attribute Group Decision-Making Problem, Bulletin of the Brazilian Mathematical Society, New Series,
(Accept 2018)

25. M. Sajjad Ali Khan, S. Abdullah, A. Ali, **F. Amin,** and Fawad Hussain, New extension of TOPSIS method based on Pythagorean hesitant fuzzy sets with incomplete weight information.

Journal of Intelligent & Fuzzy Systems, vol. 35, no. 5, pp. 5435-5448, 2018
DOI:10.3233/JIFS-171190

26. Aliya Fahmi, **Fazli Amin**, Saleem Abdullah, Power average operators of trapezoidal cubic fuzzy numbers and application to multi-attribute group decision making, Journal of intelligent systems, **(Accept 2018**)

27. Aliya Fahmi and **Fazli Amin**, Triangular Cubic Fuzzy Weighted Geometric Operator and Their Application to Multiple Attribute Group Decision Making, journal of new theory, **(Accept 2018**).

28. K. Rahman and S. Abdullah, A. Ali and **F. Amin**, Approaches to Multiple Attribute Group Decision Making Based on Pythagorean Fuzzy Numbers, Journal of Control and Decision. **(Accept 2018**)

29. M. Sajjad Ali Khan, S. Abdullah, A. Ali, **F. Amin** and K. Rahman, On generalized $(\in, \in \vee q_k)$-fuzzy quasi ideals in ordered semigroups**.** Turkish Journal of Fuzzy Systems, Vol.8, No.1, pp. 033-051, (2018)**.**

30. M. Sajjad Ali Khan, S. Abdullah, Asad Ali and **Fazli Amin**, An Extension of VIKOR method for multi-attribute decision making under Pythagorean hesitant fuzzy sets Environment, Granular Computing**.**
https://doi.org/10.1007/s41066-018-0102-9

31. M. Sajjad Ali Khan, S. Abdullah, A. Ali, K. Rahman, **F. Amin**, F. Hussain, On Hyper BCH-algebras**,** Italian Journal of Pure and Applied Mathematics, **(Accept 2018**)

32. M. Sajjad Ali Khan, Saleem Abdullah, Asad Ali, **Fazli Amin** and Khaista Rahman, Hybrid aggregation Operators Based on Pythagorean Hesitant Fuzzy sets and their Application to Group Decision Making, Granular Computing, **4**, pages469–482 (2019)
https://doi.org/10.1007/s41066-018-0107-4

33. Arif Mehmood Khattak, Zia Ullah, **Fazli Amin**, Nisar Ahmad Khattak, Shamona Jbeen, Binary Soft Pre-Separation Axioms in Binary Soft Topological Spaces, Matrix Science Mathematic (MSMK) 2(2) (2018) 18-24,

34. Arif Mehmood Khattak, Zia Ullah, **Fazli Amin**, Saleem Abdullah, Shamoona Jabeen, Nasir Ahmad Khattak, Zaheer Anjum Khattak, Soft Sub Spaces and Soft b-Separation Axioms in Binary Soft Topological Spaces, journal of new theory, *Year*: 2018, *Number*: 23, *Pages*: 48-62.

35. Muhammad Sajjad Ali Khan, Saleem Abdullah, Asad Ali, Fazli **Amin** and Fawad Hussain, Pythagorean hesitant fuzzy Choquet integral aggregation operators and their application to multi-attribute decision-making, Soft Computing, vol. 23, no. 1, (2019) 251-267.
https://doi.org/10.1007/s00500-018-3592-0

36. Aliya Fahmi, **Fazli Amin**, Florentin Smarandache, Madad Khan and Nasruddin Hassan, Triangular Cubic Hesitant Fuzzy Einstein Hybrid Weighted Averaging Operator and Its Application to Decision Making, *Symmetry* 2018, *10*, 658
https://doi.org/10.3390/sym10110658

37. M. Shakeel, Saleem.Abdullah, , M. Shahzad, **F. Amin**, T. Mahmood and N. Amin, Pythagorean Trapezoidal Fuzzy Geometric Aggregation Operators Based on Einstein Operations and their Application in Group Decision Making, Journal of Intelligent & Fuzzy Systems, vol. 36, no. 1,(2019) 309–324
DOI:10.3233/JIFS-181329

38. A. Fahmi, S. Abdullah, **F. Amin**, A. Ali, R. Ahmad and M. Shakeel, Trapezoidal cubic hesitant fuzzy aggregation operators and their application in group decision-making, Journal of Intelligent & Fuzzy Systems, vol. 36, no. 4, (2019) 3619–3635
DOI:10.3233/JIFS-181329

39. Aliya Fahmi, **Fazli Amin**, Madad Khan and Florentin Smarandache, Group Decision Making Based on Triangular Neutrosophic Cubic Fuzzy Einstein Hybrid Weighted Averaging Operators, *Symmetry* 2019, *11*, 180
DOI:10.3233/JIFS-181703

40. M. Sajjad Ali Khan, S. Abdullah, Asad Ali and **Fazli Amin**, Pythagorean fuzzy prioritized aggregation operators and their application to multi-attribute group decision making**.** Granular Computing (2019) 4:249–263.
https://doi.org/10.1007/s41066-018-0093-6

41. M. Sajjad Ali Khan, A. Ali, S. Abdullah, F. Hussain, **F. Amin** and K. Rahman, On the generalization of (∈, ∈∨q)-intuitionistic fuzzy bi-ideals of semigroups, Italian Journal of Pure and Applied Mathematics, 41(2019), 116-142.

42. Aliya Fahmi, **Fazli Amin,** Saleem Abdullah, M. Aslam and Noor ul Ameen, Cubic Fuzzy multi-attribute group decision-making with an application to plant location selected based on a new extended Vikor method, Journal of Intelligent & Fuzzy Systems, Vol. 37, no. 1, pp. 583-596, 2019.
DOI 10.3233/IFS-171049

43. **Fazli Amin** and Aliya Fahmi, human immunodeficiency virus (HIV) infection model based on triangular neutrosophic cubic hesitant fuzzy number, International Journal of Biomathematics, Vol. 12, No. 5 (2019) 1950055 (33 pages).
https://doi.org/10.1142/S1793524519500554

44. Aliya Fahmi, Saleem Abdullah and **Fazli Amin**, Cubic uncertain linguistic powered Einstein aggregation operators and their application to multi-attribute group decision making, Mathematical Sciences, 13, pages129–152 (2019)

https://doi.org/10.1007/s40096-019-0285-5

45. Aliya Fahmi, Saleem Abdullah**, Fazli Amin**, Muhammad Aslam and Shah Hussain, Trapezoidal Linguistic Cubic Fuzzy TOPSIS Method and Application in a Group Decision Making Program, Journal of intelligent systems, vol. 29, no. 1, 2020, pp. 1283-1300
https://doi.org/10.1515/jisys-2017-0560

46. Aliya Fahmi, **Fazli Amin**, Saleem Abdullah and Asad Ali, Approaches to Multi-Attribute Group Decision-Making Based on Trapezoidal Linguistic Uncertain Cubic Fuzzy TOPSIS Method, New Mathematics and Natural Computation Vol. 15, No. 02, pp. 261-282 (2019)**.**
https://doi.org/10.1142/S1793005719500145

47. Aliya Fahmi and **Fazli Amin,** Triangular cubic linguistic uncertain fuzzy topsis method and application to group decision making, Soft Computing **23**,12221–12231(2019). https://doi.org/10.1007/s00500-019-04213-x

48. Aliya Fahmi, Saleem Abdullah and **Fazli Amin,** Aggregation operators on cubic linguistic hesitant fuzzy numbers and their application in group decision-making, Granular Computing, 6, pages303–320 (2021) https://doi.org/10.1007/s41066-019-00188-0

49. M. Umar, **F. Amin**, H.A. Wahab and D. Baleanu, Unsupervised constrained neural network modeling of boundary value corneal model for eye surgery, Applied Soft Computing, **Vol.:** 85 Pag.: 105826. https://doi.org/10.1016/j.asoc.2019.105826

50. Aliya Fahmi, Muhammad Aslam, Fuad Ali Ahmed Almahdi and **Fazli Amin,** New Type of Cancer Patients Based on Triangular Cubic Hesitant Fuzzy TOPSIS method, International Journal of Biomathematics, Vol. 13, No. 01, 2050002 (2020) https://doi.org/10.1142/S1793524520500023

51. Aliya Fahmi, **Fazli Amin** and Hidayat Ullah, Multiple attribute group decision making based on weighted aggregation operators of triangular neutrosophic cubic fuzzy numbers, Granular Computing, (2021) 6:421–433 https://doi.org/10.1007/s41066-019-00205-2

52. **Fazli Amin**, Aliya Fahmi, Syed Bilal Hussain Shah and Muhammad Aslam, A new approach of interval-valued intuitionistic neutrosophic fuzzy weighted averaging operator based on decision making problem, Journal of Intelligent & Fuzzy Systems, vol. 38, no. 3, pp. 3027-3039, 2020

53. **Fazli Amin**, Aliya Fahmi and Muhammad Aslam, Approaches to multiple attribute group decision making based on triangular cubic linguistic uncertain fuzzy aggregation operators, Soft Computing, **24**, pages11511–11533 (2020) https://doi.org/10.1007/s00500-019-04614-y

54. Sabir Zulqurnain, **Amin Fazli**, Pohl Daniel and Guirao Jean L. G. Intelligence computing approach for solving second order system of Emden–Fowler model, Journal of Intelligent & Fuzzy Systems, vol. 38, no. 6, pp 7391-7406, 2020. **DOI:** 10.3233/JIFS-179813

55. Muhammad Umar, Zulqurnain Sabir, **Fazli Amin** Juan L. G. Guirao & Muhammad Asif Zahoor Raja, Stochastic numerical technique for solving HIV infection model of CD4+ T cells, Eur. Phys. J. Plus 135, 403 (2020). https://doi.org/10.1140/epjp/s13360-020-00417-5

56. A Fahmi, **F Amin**, S Niaz, Decision making based on linguistic interval-valued intuitionistic neutrosophic Dombi fuzzy hybrid weighted geometric operator, Soft Computing. **24,** 15907–15925 (2020).

https://doi.org/10.1007/s00500-020-05282-z

57. Fahmi, A., **Amin, F.**, Aslam, M. *et al.* T-norms and T-conorms hesitant fuzzy Einstein aggregation operator and its application to decision making. Soft Computing, 25, 47–71 (2021) https://doi.org/10.1007/s00500-020-05426-1

58. M Umar, Z Sabir, MAZ Raja, **F Amin**, T Saeed, YG Sanchez, Integrated neuro-swarm heuristic with interior-point for nonlinear SITR model for dynamics of novel COVID-19, Alexandria Engineering Journal, 60, 2811-2824 (2021) https://doi.org/10.1016/j.aej.2021.01.043

59. Muhammad Umar, Zulqurnain Sabir, Muhammad Asif Zahoor Raja, JF Gómez Aguilar, **Fazli Amin**, Muhammad Shoaib, Neuro-swarm intelligent computing paradigm for nonlinear HIV infection model with CD4+ T-cells, Mathematics and Computers in Simulation, 188**,** 241–253 (2021). https://doi.org/10.1016/j.matcom.2021.04.008

60. K Rahman, S Abdullah, A Ali, **F Amin** , Pythagorean fuzzy ordered weighted averaging aggregation operator and their application to multiple attribute group decision-making, EURO Journal on Decision Processes, Vol. 8, No. 01, pp. 61-77 (2020). https://doi.org/10.1007/s40070-020-00110-z

61. Khan, A., Jan, A.U., **Amin, F**. *et al.* Multiple attribute decision-making based on cubical fuzzy aggregation operators. *Granul. Comput.* **7**, 393–410 (2022) https://doi.org/10.1007/s41066-021-00273-3

62. Aliya Fahmi, **Fazli Amin**, Syed Bilal Hussain Shah, geometric operators based on linguistic interval-valued intuitionistic neutrosophic fuzzy number and their application in decision making, Annals of Optimization Theory and Practice, Volume 3, No. 1, 47-71 (2020) 10.22121/AOTP.2020.240887.1034

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