CURRICULUM VITAE

I.	(a)	Name:	Babatunde Oluwaseun Onasanya
	(b)	Date of Birth:	3 November, 1975
	(c)	Department:	Mathematics
	(d)	Faculty:	Science
II.	(a)	First Academic Appointment:	Assistant Lecturer (2 December, 2010)
	(b)	Present Post (with date):	Senior Lecturer (1 October, 2020)
	(c)	Date of Last Promotion:	1 October, 2020
	(d)	Date Last Considered (in cases where promotion was not through):	Not applicable

III. University Education (with dates):

(a)	University of Ibadan, Ibadan	1998-2001
(b)	University of Ibadan, Ibadan	2003-2005
(c)	University of Ibadan, Ibadan	2010-2015

IV. Academic Qualifications (with dates and granting bodies):

(a)	B.Ed. Mathematics/Physics	University of Ibadan, Ibadan	2001
(b)	M.Sc. Mathematics	University of Ibadan, Ibadan	2005
(c)	Ph.D. Mathematics	University of Ibadan, Ibadan	2015

V. Professional Qualifications and Diplomas (with dates):

Teachers' Registration Council Certificate	2007

VI. Scholarships, Fellowships and Prizes (with dates in respect of Undergraduate and Postgraduate work only):

(a)	African Mathematics Millennium Science Initiative Scholarship	2005
(b)	University of Ibadan Award for Publication from Ph.D. Theses	2015

VII. Honours, Distinctions and Membership of Learned Societies:

(a)	Member, Mathematical Association of Nigerian	2015 to date
(b)	Member, Nigerian Mathematical Society (NMS)	2015 to date
(c)	Member, African Mathematics Millennium Science Initiative	2005 to date
(d)	Invited Researcher & AIMS Journal Public Talk Lecturer, Senegal	2016 to date
(e)	Invited Researcher, African Institute of Mathematical Sciences, Ghana	Oct-Nov2018
(f)	Invited Researcher, Chongqing Three Gorges University, China	2019 to 2021

VIII. Details of Teaching/Work Experience:

(a) Work Experience

(i)	Mathematics Teacher, UNAAB International School, Abeokuta	2005 – 2006
(ii)	Physics Teacher, Grace Schools, Lagos	2006 – 2007
(iii)	Mathematics Teacher, Grange Schools, Lagos	2007 – 2010
(iv)	Assistant Lecturer, University of Ibadan, Ibadan	2010 – 2014
(v)	Lecturer II, University of Ibadan, Ibadan	2014 – 2017
(vi)	Lecturer I, University of Ibadan, Ibadan	2017 – 2020
(vii)	Senior Lecturer, University of Ibadan, Ibadan	2020 to date

(b) Teaching Experience

(i) Courses Taught at Undergraduate Level

Course code	Title	Units	Taught	Year
MAT 111	Algebra I	4	1 of 3	2017
MAT 141	Analytic Geometry and Mechanics	4	1 of 3	2017
MAT 211	Abstract Algebra	4	1 of 1	2017
MAT 141	Analytic Geometry and Mechanics	4	1 of 3	2018
MAT 213	Algebra	4	1 of 1	2018
MAT 213	Algebra	4	1 of 1	2019
MAT 213	Algebra	4	1 of 1	2021
MAT 141	Analytic Geometry and Mechanics	4	1 of 3	2021
MAT 213	Algebra	4	1 of 1	2022
ECO 204	Introductory Maths for Economists II	3	1 of 2	2022
ECO 341	Mathematics for Economists	3	1 of 2	2022
MAT 242	Vectorial Mechanics	4	1 of 1	2023
MAT 213	Algebra	4	1 of 1	2023
ECO 341	Mathematics for Economists	3	1 of 2	2023

(ii) Course Taught at Postgraduate level

Course code	Title	Units	Taught	Year
MAT 710	Homological Algebra	4	1 of 2	2017
MAT 710	Homological Algebra	4	1 of 2	2018
MAT 717	Fuzzy Theory	2	1 of 1	2019
MAT 717	Fuzzy Theory	2	1 of 1	2021

(iii) Supervision of Projects

Completed	
BSc	32
MSc	10
Ongoing	
BSc	03
MSc	02
Mphil/PhD	01

(c) Administrative Responsibilities:

(i)	Member, Faculty of Science Finance Committee	2019 – 2021
(ii)	Member, Departmental Quality Assurance Committee	2014 – date
(iii)	Examination Officer	2018 – 2020
(iv)	Faculty of Science Alumni Committee	2018 – date
(v)	Departmental Admission Representative	2021 – date
(vi)	Secretary, Departmental Postgraduate Committee	2022 – date

(d) Community Service:

(i) Member, Congregation Representative on Senate, University of Ibadan 2016 – 2018

(ii) Session Chair, 13th International Conference on Advanced Computational

Intelligence (ICACI 2021), 14th – 16th May, 2021, Wanzhou, Chongqing, China. May 2021

(iii) Member, Programme Committee, 11th International Conference on Intelligent Control and Information Processing (ICICIP2021), 3rd – 7th December, 2021, Dali, Yunnan, China. December 2021

(iv) Member, Technical Committee, The IEEE 8th International Conference on Computer and Communications (ICCC), 9th – 12th December, 2022, Chengdu, China. December 2022

(v) Member, Technical Committee, Faculty of Science 5th Biennial International Conference, 2nd – 5th May, 2023, Ibadan, Nigeria. May 2023

(vi) Member, Program Committee, The IEEE 13th International Conference on Information Science and Technology (ICIST 2023), 8th – 14th December, 2023, Cairo, Egypt. December 2023

(vii) Member, Program Committee, The 30th International Conference on Neural Information Processing (ICONIP2023), 20th – 23rd November, 2023, Changsha, China. November 2023

(viii) Member, Technical Committee, 2023 The 9th International Conference on Computer and Communications (ICCC), 8th – 11th December, 2023, Chengdu, China. December 2023

(ix) Member, Implementation Committee on Transition of Emmanuel Alayande College of Education, Oyo, Emmanuel Alayande University of Education. 2022 - 2023

(x) Member, Faculty of Science Conference, Lectures and Workshop Committee 2023 to date

(xi) Member, Faculty Journal of Science Research Editorial Board 2023 to date

IX. Research:

(a) Completed:

(i) *Fuzzy Control theory:* Introduction of fuzziness into the impulsive intensity of a nonlinear impulsive control system with varying time windows.

(ii) *Algebraic hyperstructures*: Establishment of blood solution, genotype, chlorination of alkanes, chemical reaction in the ozone layer as hyperstructures.

(iii) *Fuzzy properties of algebraic hyperstructures:* The conditions to having and characterising fuzzy hypergroup and fuzzy HX group were established.

(iv) *Fuzzy Linear programming:* Optimisation of production mix involving linear programming with fuzzy resources and fuzzy constraints was studied and concluded that fuzzy linear programming gives more flexible alternative optimal solutions and can give a wider sphere to make realistic decisions.

(b) In progress:

(i) *Fuzzy Control Theory:* Since 2019, I have begun to study fuzzy impulsive control of some non-linear systems of differential equations. Usually, the goal is to find a control matrix $\boldsymbol{J}$ which, when introduced into a chaotic system at some interval of times (not necessarily equal), the energy of the system nearly or becomes zero. Most researchers have considered a constant matrix $\boldsymbol{J}$ which is not so in real life. I have developed, rather, a fuzzy matrix $\boldsymbol{J_\alpha}$ which is more flexible and can easily adapt to the errors and changes in the system without damaging the system. The next thing is to study the delays introduced into most systems as a fuzzy value because real-time may differ from device time and this delay may actually be better seen as within a range. This investigation may last till the end of 2024 if given intensified attention.

(ii) *Fuzzy Algebraic Hyperstructures:* Since about 2016 that this research started, some fuzzy hyperstructures and some associated non fuzzy hyperstructures were constructed. Some of the similar results in classical algebra such as isomorphism results were established. The research is at such a stage of establishing whether the constructed hyperstructure is a join space. This, if rigorously researched, will continue until the end of 2024.

(iii) *Combined Effect Time Dependent (CETD) matrix:* This is an ongoing research, which started in 2022. A CETD matrix is developed from Raw Data, Average Time Dependent (ATD) and Refined Time Dependent (RTD) matrices. It is used in analysing and determining the peak-point of events, trends and the like. Usually, the determination of this peak-point is done with the choice of some alphas without any explanation on the criteria for the selection. An early researcher in this area may be impeded by the ambiguity of the criteria for the choice of appropriate alpha. So, we have established the condition to guarantee that the peak-point obtained in a CETD matrix is invariant with changing set of alphas. The manuscript for this is being developed, yet to be published. Furthermore, in CETD matrices, the matrices being used are really not fuzzy as they are called. I am at a stage to develop an algorithm that will not only shorten the steps in getting a CETD matrix without necessarily using ATD and RTD matrices but will also be able to get a truly fuzzy CETD matrix. This investigation may last till the middle of 2024.

(c) Project, Dissertation and Thesis:

(i) **Onasanya, B.O.** (2015): Certain algebraic properties of fuzzy and anti-fuzzy subgroups of a group, Ph.D. Thesis, University of Ibadan, Ibadan 75pp.

(ii) **Onasanya, B.O.** (2005): Homotopy Groups of spheres and real projective spaces, M.Sc. Project, University of Ibadan, Ibadan 50pp.

X. Publications:

(a) Books already published: Nil

(b) Chapters in Books already published:

*1. Fagbola B. O. and **Onasanya B. O.** (2020). The perception of teachers on the quality of primary school mathematics textbooks in Oyo State, Nigeria. In Sánchez-Serrano J. L., Maturo F. and Hošková-Mayerová S. (Eds). Studies in Systems, Decision and Control Vol 208. Switzerland: Springer Nature. 183-192pp. ISBN 978-3-030-18593-0. (Switzerland) (Contribution: 50%).

(c) Articles that have already appeared in Refereed Conference Proceedings:

2. Tu Z., Wang L., Peng T., Li L. and **Onasanya B. O.** (2020) Lagrange stability analysis for quaternion-valued memristive neural networks. In Li C., He X., Li H. and Wu Z. (Eds). Information,

Cybernetics, and Computational Social Systems: Proceeding of the 6th International Conference on Information, Cybernetics, and Computational Social Systems (ICICSS). 27 – 30 September 2019. Chongqing, China: IEEE 225-230. (Contribution: 20%).

(d) Patents and Copyrights: Nil

(e) Articles that have already appeared in learned journals:

3. **Onasanya, B.O.** and Ilori, S.A. (2013). On Fuzzy Subgroup and Fuzzy Cosets. *International Journal of Computer Applications* Vol. 81. No.14: 20-22. (United States of America) (Contribution: 80%).

4. **Onasanya, B.O.** and Ilori, S.A. (2014). Some Results In Fuzzy and Anti Fuzzy Group Theory. *International Journal of Mathematical Combinatorics* Vol. 1: 1-5. (United States of America) (Contribution: 80%).

5. **Onasanya, B.O.** and Ilori, S.A. (2014). On Cosets and Normal Subgroups. *International Journal of Mathematical Combinatorics* Vol. 3: 35-40. (United States of America) (Contribution: 80%).

6. **Onasanya, B.O.** and Ilori, S.A. (2015). Some Properties of fuzzy Symmetric Subgroup and Anti fuzzy Subgroup. *The Journal of Fuzzy Mathematics* Vol. 23. No. 2: 413-417. (United States of America) (Contribution: 80%).

7. **Onasanya, B.O.** and Ilori, S.A. (2015). Relations, Isomorphism of Level and Lower Level Subgroups. *The Journal of Fuzzy Mathematics* Vol. 23. No. 2: 407-412. (United States of America) (Contribution: 80%).

8. **Onasanya, B.O.** and Ilori, S.A. (2015). The Action of a Group on a Fuzzy Set Via Fuzzy Membership Function. *IMHOTEP: African Journal of Pure and Applied Mathematics* Vol. 2. No. 1: 65-70. (Cameroon) (Contribution: 80%).

9. **Onasanya, B.O.** (2015). Some Topological Concepts Via Level Subset of a Fuzzy Subset. *Advances in Fuzzy Sets and Systems* Vol. 20. No. 2: 177-188. (India) (Contribution: 100%).

10. **Onasanya, B.O.** (2016). Some Reviews in Fuzzy Subgroups and Anti Fuzzy Subgroups. *Annals of Fuzzy Mathematics and Informatics* Vol. 11. No. 3: 377-385. (South Korea) (Contribution: 100%).

11. **Onasanya, B.O.** (2016). Reviews of Some Anti Fuzzy Properties of Some Fuzzy Subgroups. *Annals of Fuzzy Mathematics and Informatics* Vol. 11. No. 6: 899-904. (South Korea) (Contribution: 100%).

12. **Onasanya, B. O**. (2017). A Note on Hyperstructures and Some Applications. *International Journal of Mathematical Combinatorics* Vol. 4: 60-67. (United States of America) (Contribution: 100%).

13. **Onasanya, B. O.** and Feng, Y. (2018). Some Properties of Fuzzy HX Group. *Journal of Information and Optimization Sciences* Vol. 39. No. 8: 1681-1692. (United Kingdom) (Contribution: 80%).

14. **Onasanya, B. O.** and Hoskova-Mayerova, S. (2018). Some Topological and Algebraic Properties of α-level Subsets' Topology of a Fuzzy Subset. *Analele Stiintifice ale Universitatii Ovidius Constanta* Vol. 26. No. 3: 213-227. (Romania) (Contribution: 80%).

15. Eze, M. K. and **Onasanya, B. O.** (2018). Case Studies on the Application of Fuzzy Linear Programming in Decision-Making. *Ratio Mathematica* Vol. 35: 29-45. (Italy) (Contribution: 50%).

16. **Onasanya, B. O.** and Hoskova-Mayerova, S. (2019). Multi-Fuzzy Group Induced by Multisets. *Italian Journal of Pure and Applied Mathematics* Vol. 41: 597-604. (Italy) (Contribution: 80%).

17. Feng, Y. and **Onasanya, B. O.** (2019). Multigroups and Multicosets. *Italian Journal of Pure and Applied Mathematics* Vol. 41: 251-261. (Italy) (Contribution: 50%).

18. Ejegwa, P. A. and **Onasanya, B. O.** (2019). Improved Intuitionistic Fuzzy Composite Relation and its Application to Medical Diagnostic Process. *Notes on Intuitionistic Fuzzy Sets.* Vol. 25. No. 1: 43-58. (Bulgaria) (Contribution: 30%).

19. **Onasanya, B. O.** and Sholabomi, A. S. (2019). Fuzzy Multiset Operations in Application. *Annals of Fuzzy Mathematics and Informatics* Vol. 17. No. 3: 279-288. (South Korea) (Contribution: 80%).

20. Hoskova-Mayerova, S. and **Onasanya, B. O.** (2019). Results on Functions on Dedekind Multisets. *Symmetry* Vol. 11. No. 9: 1-9. (Switzerland) (Contribution: 50%).

21. **Onasanya, B. O.** and Feng, Y. (2020): Some Algebraic Properties of Fuzzy Cosets and Fuzzy Middle Cosets. *Journal of Fuzzy Mathematics*, Vol. 28. No. 2: 327-338. (United States of America) (Contribution: 80%).

22. **Onasanya, B. O.**, Feng, Y., Wang, Z., Samakin, O. V., Wu, S. and Liu, X. (2020): Optimizing Production Mix Involving Linear Programming with Fuzzy Resources and Fuzzy Constraints. *International Journal of Computational Intelligence Systems*, Vol. 13. No. 1: 727-733. (France) (Contribution: 40%).

23. Yanheng, C., Guiyun, C., Feng, Y., **Onasanya, B. O.** (2020): Characterization of Some Linear Groups by Their Conjugacy Class Sizes. *Italian Journal of Pure and Applied Mathematics*, Vol. 43: 14-24. (Italy) (Contribution: 20%).

24. **Onasanya, B. O.**, Atamewoue, T. S. and Hoskova-Mayerova, S. (2020): Certain Fuzzy Hyperstructures from a Fuzzy Set. *Journal of Intelligent and Fuzzy Systems*, Vol. 39. No. 3: 2775-2782. (The Netherlands) (Contribution: 60%).

25. **Onasanya, B. O.**, Feng, Y., Wen, S., Zhang, W., Ademola, A. T. and Tang, N. (2021): Varying Control Intensity of Synchronized Chaotic System with Time Delay. *Journal of Physics Conference Series* Vol. 1828: 1-9. (Bristol, UK) (40%).

26. Cristea, I. N., Novak, M. and **Onasanya, B. O.** (2021): Links between HX-Groups and Hypergroups. *Algebra Colloquium*, Vol. 28. No. 3: 441-452. (Singapore) (Contribution: 30%).

27. **Onasanya, B. O.**, Tu, D., Feng, Y., Ogunbiyi, O. D. and Ogunmola, O. A. (2021): Some More Algebraic Hyperstructures in Chemistry and Biochemistry. *Italian Journal of Pure and Applied Mathematics*, Vol. 46: 134-146. (Italy) (Contribution: 50%).

28. **Onasanya, B. O.**, Feng, Y., Zhang, W. and Xiong, J. (2021): Fuzzy Coefficient of Impulsive Intensity in a Nonlinear Impulsive Control System. *Neural Processing Letters*, Vol. 53. No. 6: 4639-4657. (Switzerland) (Contribution: 60%).

29. Atamewoue, T. S., Ogadoa, A., **Onasanya, B. O.** and Feng Y. (2021): Existence Theorem on Finite Krasner Hyperfields. *Journal of hyperstructures*, Vol. 10. No. 1: 38-46. (Iran) (Contribution: 30%)

30. Sangodapo, T. O., **Onasanya, B. O.** and Hoskova-Mayerova, S. (2021): Decision-Making with Fuzzy soft Matrix Using a Revised Method: A Case of Medical Diagnosis of Diseases. *Mathematics*, Vol. 9. No. 18: 1-12. (Switzerland) (Contribution: 40%).

31. **Onasanya, B. O.**, Xin, M., Feng, Y. and Zhang, W. (2022): Harmonization of some fuzzy subgroups. *Italian Journal of Pure and Applied Mathematics,* Vol. 48: 863-876. (Italy) (Contribution: 60%).

32. Chen, J., Hu, J., **Onasanya, B. O.** and Feng, Y. (2022): Stability analysis of the impulsive projection neural network. *Neural Processing Letters*, Vol. 55. No. 1: 645-656. (Switzerland) (Contribution: 40%)

33. Sangodapo, T. O. and **Onasanya, B. O.** (2022): Some characteristics of picture fuzzy subgroups via cut set of picture fuzzy set. *Ratio Mathematica*, Vol. 42: 341-351. (Italy) (Contribution: 50%).

34. Wu, K., **Onasanya, B. O.**, Cao, L. and Feng Y. (2023): Impulsive control of some types of nonlinear systems using a set of uncertain control matrices. *Mathematics*, Vol. 11. No. 2: 1-12. (Switzerland) (Contribution: 50%) (Published in January, 2023).

(f) Books, Chapters in Books and Articles already accepted for publication:

(g) Technical Reports and Monographs: Nil

XI. Major Conferences Attended with Papers Read (In The Last 5 Years):

1. 38th Annual Conference of the Nigerian Mathematical Society, 18th – 21st June, 2019, University of Nigeria, Nzuka, Nigeria.
   Paper read: **Onasanya, B. O.** and Atamewoue, T. S.: Some Properties of Certain Fuzzy Hyperstructures.

2. Algebra Colloquium, 30th June – 4th July, 2019, National Mathematical Centre, Abuja, Nigeria.
   Paper read: **Onasanya, B. O.**: An Introductory Talk on Fuzzy Mathematics.

3. 12th International Conference on Advanced Computational Intelligence (ICACI), 14th – 16th August, 2020, Dali, China.
   Paper read: **Onasanya, B. O.**, Feng, Y., Wang, Z., Samakin, O. V., Wu, S. and Liu, X.: Optimizing Production Mix Involving Linear Programming with Fuzzy Resources and Fuzzy Constraints.

4. 10th International Conference on Information Science and Technology (ICIST), 9th – 16th September, 2020, University of Bath, United Kingdom.
   Paper read: **Onasanya, B. O.**, Feng, Y., Zhang, W. and Xiong, J.: Fuzzy Coefficient of Impulsive Intensity in a Nonlinear Impulsive Control System.

5. International Symposium on Automation, Information and Computing (ISAIC 2020), 2nd – 4th December, 2020, Beijing Jiaotong University, P. R. China.
   Paper read: **Onasanya, B. O.**, Feng, Y., Wen, S., Zhang, W., Ademola, A. T. and Tang, N.: Varying Control intensity of synchronized chaotic system with time delay.

6. 13th International Conference on Advanced Computational Intelligence (ICACI 2021), 14th – 16th May, 2021, Wanzhou, Chongqing, P. R. China.

Paper read: **Onasanya, B. O.**, Wen, S., Feng, Y., Zhang, W. and Tang, N.: On fuzzy alternate control systems.

7. African Mathematical School (AMS) on "Algebra, Arithmetic and Combinatorial Geometry, Algebraic Number Theory and with Applications to Cryptology", Department of Mathematics and Computer Science, University of Dschang, Cameroun, 19^{th} – 30^{th} July 2021.
   Paper Read: **Onasanya, B. O.**: Fuzziness and generalization of some mathematical results.

8. Guest Speaker at Workshop on Algebra, Topology and Applications, Department of Mathematics, University of Ibadan, 3^{rd} – 7^{th} July 2023.
   Paper Read: **Onasanya, B. O.**: An introductory lecture on fuzzy algebra.