

Dr. SHIKHA**Assistant Professor, Department of Mathematics**

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Qualification :

- Ph.D (Mathematics) from Jamia Millia Islamia in 2017
- M.Sc (Mathematics) from Kirorimal College, University of Delhi in 2014
- B.Sc (H) (Mathematics) from Kirorimal College, University of Delhi in 2012

Research Interest : Chaos Control, Chaos Synchronization, Nonlinear Dynamical Systems, Fractional Order.**Papers Taught :** Linear Algebra, Differential Equations, Partial Differential Equations, Calculus, Statistics, Latex and HTML, Computer Algebra Systems and Related Softwares, Numerical Methods, Mathematical Finance.**Workshops/ FDP/ Paper Presentations**

1. Participation in “International Conference On Algebra, Geometry, Analysis and their Applications (ICAGAA-14)” held in Jamia Millia Islamia, during November 27-29, 2014.
2. Paper presentation entitled “Generalized Increased and Reduced Order Synchronization between 5D and 6D Hyperchaotic Systems” in International Conference on The Occasion of Silver Jubilee of the Indian Society of Industrial and Applied Mathematics (ISIAM) (2016) held at Sharada University, Noida, India during 29-31 January, 2016.
3. Participation in advanced level workshop on Variational Inequality (VI) and Applications under the auspices of National Program on Differential Equations : Theory, Computation and Applications (NPDE-TCA) sponsored by DST, Govt. of India held at Sharada University, Noida, India during January 24-28, 2016.
4. Participation in the workshop on LATEX and HTML organised by department of mathematics , ANDC (University of Delhi) on 27th august, 2016.
5. Paper presentation entitled “Synchronization between a Noval Integer-Order Hyperchaotic System and a Fractional –Order Hyperchaotic System using Tracking Control” in International Conference on Differential Geometry, Algebra and Analysis held in Jamia Millia Islamia, during November 15-17, 2016.

6. Delivered a talk entitled “*Dynamical Properties of a Hyperchaotic Nonlinear Dynamical System with No Equilibrium Point*” in “Dynamics Day Delhi-2016” during December 14th at Cluster Innovation Centre (CIC).
7. Participation in two days FDP on 'Emerging Research Methodologies in Social Sciences' organized by IQAC and research committee, Jesus and Mary College on 3rd and 4th May, 2018.
8. Paper presentation entitled “Combination-Combination Synchronization of Fractional Order Hyperchaotic Systems" in The Conference on Nonlinear Systems and Dynamics organized at Jawaharlal Nehru University during 11-14 October, 2018.
9. Participation in FDP cum workshop on Climate across the curriculum: Educational resources for teachers held at Jesus and Mary College on 28 January, 2019.
10. Paper presentation entitled “Multi-switching Synchronization of Chaotic Systems via Sliding Mode Control" in The National Conference On Advances In Mathematical Analysis And Its Applications organized at PGDAV college during 8-10 November, 2019.

Software Skills

- MS OFFICE
- MATLAB
- MATHEMATICA
- LATEX
- R
- EXCEL

Publications

2019

1. Khan, Ayub, and Shikha. "Robust adaptive sliding mode control technique for combination synchronisation of non-identical time delay chaotic systems." *International Journal of Modelling, Identification and Control* 31.3 (2019): 268-277.
2. Khan, Ayub, Shikha, and Ahmad Taher Azar. "Combination-Combination Anti-Synchronization of Four Fractional Order Identical Hyperchaotic Systems." *International*

Conference on Advanced Machine Learning Technologies and Applications. Springer, Cham, 2019.

3. Bhat, Muzaffar Ahmad, and Shikha. "Complete synchronisation of non-identical fractional order hyperchaotic systems using active control." *International Journal of Automation and Control* 13.2 (2019): 140-157.

2018

1. Ouannas, Adel, Giuseppe Grassi, Ahmad Taher Azar, and Shikha. "New Control Schemes for Fractional Chaos Synchronization." In *International Conference on Advanced Intelligent Systems and Informatics*, pp. 52-63. Springer, Cham, 2018.
2. Khan, A., Shikha., Azar, A. T., & Zhu, Q. (2018, July). Synchronization Between a Novel Integer-Order Hyperchaotic System and a Fractional-Order Hyperchaotic System Using Tracking Control. In *2018 10th International Conference on Modelling, Identification and Control (ICMIC)* (pp. 1-8). IEEE.
3. Khan, Ayub, and Shikha. "Generalization of combination-combination synchronization of n-dimensional time-delay chaotic system via robust adaptive sliding mode control." *Mathematical Methods in the Applied Sciences* 41.9 (2018): 3356-3369.
4. Shikha, et al. "Active Control for Multi-Switching Combination Synchronization of Non-Identical Chaotic Systems." *Advances in System Dynamics and Control*. IGI Global, 2018. 129-162.
5. Shikha, et al. "Multiswitching Synchronization of Commensurate Fractional Order Hyperchaotic Systems Via Active Control." *Mathematical Techniques of Fractional Order Systems*. 2018. 319-345.
6. Shikha, Ahmad Taher Azar, and Quanmin Zhu. "Multi-switching Master-Slave Synchronization of Non-identical Chaotic Systems." *Innovative Techniques and Applications of Modelling, Identification and Control*. Springer, Singapore, 2018. 321-330.
7. Vaidyanathan, S., Azar, A. T., Sambas, A., Shikha., Alain, K. S. T., & Serrano, F. E. (2018). A novel hyperchaotic system with adaptive control, synchronization, and circuit simulation. In *Advances in System Dynamics and Control* (pp. 382-419). IGI Global.

2017

1. Khan, Ayub and Shikha. "Chaotic analysis and combination-combination synchronization of a novel hyperchaotic system without any equilibria." *Chinese Journal of Physics* 56.1 (2018): 238-251.
2. Azar, Ahmad Taher, Adel Ouannas, and Shikha. "Control of new type of fractional chaos synchronization." *International Conference on Advanced Intelligent Systems and Informatics*. Springer, Cham, 2017.
3. Shikha, et al. "Sliding mode control technique for multi-switching synchronization of chaotic systems." *2017 9th International Conference on Modelling, Identification and Control (ICMIC)*. IEEE, 2017.
4. Khan, Ayub and Shikha. "Combination synchronization of Genesio time delay chaotic system via robust adaptive sliding mode control." *International Journal of Dynamics and Control* (2017): 1-10.
5. Khan, Ayub and Shikha. "Combination synchronization of time-delay chaotic system via robust adaptive sliding mode control." *Pramana* 88.6 (2017): 91.
6. Ayub, Khan and Shikha. "Dynamical behavior and reduced-order combination synchronization of a novel chaotic system." *International Journal of Dynamics and Control* (2017): 1-15.
7. Khan, Ayub and Shikha. "Increased and reduced order synchronisations between 5d and 6d hyperchaotic systems." *Indian Journal of Industrial and Applied Mathematics* 8.1 (2017): 118-131.

2016

1. Khan, A., and Shikha. "Mixed tracking and projective synchronization of 6D hyperchaotic system using active control." *Int J Nonlinear Sci* 22.1 (2016): 44-53.
2. Khan, Ayub and Shikha. "Hybrid function projective synchronization of chaotic systems via adaptive control." *International Journal of Dynamics and Control* 5.4 (2017): 1114-1121.

Teaching Experience

- Guest faculty at *Kirorimal college*, Delhi University, India during period 11/01/2017 to 26/04/2017.

- Worked as an Assistant Professor from 20th July, 2017 to 24th May, 2019 in the Department of Mathematics, *Jesus and Mary College*, University of Delhi, India.

Editorial Board Membership

- International Journal of Nonlinear Dynamics and Control
- International Journal of Mathematical Physics

Reviewer Of The Following Journal

- Journal of Control Science and Engineering
- International Journal of Simulation and Process Modelling
- International Journal of Computer Applications in Technology
- International Journal of Nonlinear Dynamics and Control
- Neural Processing Letters

Membership

- Member of the "*Chaos Control and Synchronization Lab*" in "*International group of control systems (IGCS)*".