<u>Detailed Biodata</u>

Name of the Applicant: Dr. Arti Dwivedi

Mailing Address:

231/1, Shastri Nagar , Opposite Bada Centre Park,
Kanpur Tel. No. +91-9454625419
(Whats'app) , 7021279678(Mobile)

Email: arti2dwivedi@gmail.com

Date of Birth & Gender: June-1984; Female

Educational Qualifications:
   (a)High School (55% with science group in the year 2000) from
      G.N.G.Girls Inter College, Kanpur, affiliated to U.P. Board Allahabad
   (b)Intermediate (62% with Physics, Chemistry and Maths in the year 2002)
   from P.D.K. Girls Inter College, Kanpur, affiliated to U.P. Board Allahabad
   (c)Bachelor of Science (58% with Physics and Chemistry in the year2005)
    from K.V.M. Degree College, Kanpur, affiliated to C.S.J.M.
    University,Kanpur
   (d)Master of Science (58% with Physics in the year 2007) from

V.S.S.D. College Kanpur, affiliated to C.S.J.M. University, Kanpur
(e) Doctor of Philosophy D.Phil. (Physics) in Science in the topic entitled "Chaos, Fractals and their Applications in Electronics and other Disciplines: Secure Communication using Chaotic Systems" from Department of Physics, University of Allahabad (Degree Awarded dated 24 August 2015)

Scholarships:

UGC-CRET Fellowship (27March2009-21 Jan 2011)

DST Project JRF (22 Jan 2011-31 March 2013)

CSIR-SRF (1 April 2013 –18 August 2015)

Work Experience:

Worked as Guest faculty at the Department of Physics, University of Allahabad During August 2018-2020.

D.Phil Supervisor:

Prof. Ashok Kumar Mittal, Department of Physics, University of Allahabad

D.Phil External Examiners:

1. **Prof. Sudeshna Sinha** , Indian Institute of Science Education and Research, Mohali, India

2. **Dr. Santo Banerjee,** Research Scientist (Associate Prof. grade), INSPEM, University Putra Malaysia, Malaysia.

Title of thesis:

Chaos, Fractals and their Applications in Electronics and other Disciplines: **Secure Communication using Chaotic Systems**

Research Interest:

Main research interest are on chaos synchronization and parameter adaptation; specifically, on how chaos synchronization incorporated with parameter adaptation can be used for secure communication of binary as well as decimal signals. Secondary research interest lies in security analysis of chaotic communication based on return map attack, power analysis attack, and cryptographic analysis of chaotic communication. Schemes of reducing channel noise in chaotic communication. Application of chaos and fractals in different disciplines.

Research Publications:

1. **A.Dwivedi,** A.K. Mittal, and S. Dwivedi, 2012: Adaptive synchronization of diffusionless Lorenz systems and secure communication of digital signals by parameter modulation, **IET Commun., 6, 13, 2016-2026**

2. **A.Dwivedi,** A.K. Mittal, and S. Dwivedi, 2013: An improved secure communication scheme using adaptive parameter synchronization, **Communications in Computer and Information Science Series (CCIS), ISSN-1865:0929, Springer, 377, 353-365.**

3. A.K. Mittal, **A.Dwivedi,** and S. Dwivedi, 2014: Parameter adaptation technique for rapid synchronization and secure communication, **The European Physics Journal,Special Topics, EDP Sciences, Springer-Verlag, DOI: 10.1140/epjst/e2014-02117-y.**

4. A.K. Mittal, **A. Dwivedi,** and S. Dwivedi, 2015: Secure communication based on chaotic switching and rapid synchronization using parameter adaptation,**International Journal of Innovative Computing, Information and Control, 11, 569-585.**

5. **A.Dwivedi**, A.K. Mittal and S. Dwivedi, 2014: Chaotic Communication using Pecora-Carroll Complete Replacement and Parameter Modulation without Controller, **3'rd Students Conference on Engineering and Systems (SCES 2014), 978-1-4799-4939-7/14/\$31.00 ©2014 IEEE.**

6. **A.Dwivedi,** A.K. Mittal and S. Dwivedi, 2014: Secure communication using four-wing hyperchaotic attractor, **Communications in Computer and Information Science Series (CCIS), ISSN- 1865-0937, Springer-Verlag Berlin Heidelberg, 476, 281-290, 2014.**

7. **A.Dwivedi,** A.K. Mittal, and Suneet Dwivedi, 2014: Role of Parameter Adaptation in Chaotic Communication, **International Journal of Trust Mangement in Computing and Communications, 3, 2, 2015.**

Training Courses Attended:

1. **Particsipated in SERC School on Nonlinear Dynamics**, 2009, Spon. By Department of Science & Technology, Govt. of India, Department of Physics & Astrophysics, University of Delhi, Delhi-110007, India, December 8 -24(17 Days), 2009.

2. **Participated in workshop on Scientific paper writing**, **2011,** October 22 -24 (3 Days) 2011, at The National Academy of Sciences, Allahabad, India.

3. **Analysis for Participated in workshop on Statistical Engineers**, **2013,** IIT Kanpur, Centre for Development of Technical Education, June 17-21 (5 Days), 2013.

4. **Participated in workshop on Statistical Analysis with R, 2013**, Department of Statistics, University of Allahabad, 6 Sept , 2013.

International Conference: Paper Presented:

1. **4thInternational Conference INDIAS 2010**, Institute of InterdisciplinaryStudies, University of Allahabad, India & International Disordered Systems Associates Society, September 19th -21th, 2010.**Oral presentation.**

2. **CONIAPS XI, 11th International Conference of the International Academy of Physical Sciences, 2010,** on Convergence in Science and Technology Organized by Institute of Interdisciplinary Studies, University of Allahabad, Allahabad & International Academy of Physical Sciences, Allahabad, India, February 20-22, 2010. **Presented a paper** titled as **"Chaos based communications".**

3. **19th IEEE Workshop on Nonlinear Dynamics of Electronic Systems, 2011** held on Indian Institute of Chemical Biology, Kolkata, India and Saha Institute of Nuclear Physics, Kolkata, India, 8-11 March, 2011. **Presented a Poster**, entitled as "**Secure communication of discrete signals"** .

4. **2012 Experimental Chaos and Complexity Conference**, on the University of Micigan campus, Ann Arbor, Michigan USA , May 16-19, 2012. **Submitted an abstract** entitled as **"Secure communication of digital messages using synchronization of a response system with a chaotic drive system based on linear and time independent error dynamics"** by A.K. Mittal, A. Dwivedi and S.Dwivedi. (Could not attend).

5. **Recent Developments in Statistics, Applied Econometrics and For 2013** organized by the Department of Statistics, University of Allahabad, 27 April, **Presented a paper** titled as "**Parameter estimation using by synchronization of chaotic systems and its application in secure communication".**

6. **International Symposium on Security in Computing and Communications**

   (SSCC'13) co-located with International Conference on Advances in Computing,Communications and Informatics (ICACCI'13) held at Sri Jayachamarajendra College of Engineering (SJCE), Mysore, India during 22-24, August, 2013**. Presented a paper** titled as **"An Improved Secure Communication Scheme using Adaptive Parameter Synchronization".**

7. **IEEE sponsored student's conference on Engineering systems, (SCES 2014),** organized by IEEE Student Branch & Motilal Nehru National Institute of Technology, Allahabad, May 28 -30, 2014. **Presented a paper** titled as **"Chaotic Communication using Pecora Carroll Complete Replacement and Parameter Modulation without Controller".**

8. **Second   International Symposium on Security in Computing and Communications**
   (SSCC'14) co-located with 3rd International Conference on Advances in Computing,Communications and Informatics (ICACCI'14) hed at Galgotias College of Engineering & Technology, Greater Noida, India during 24-27 September 2014. **Presented a paper** titled as **"Secure Communication using Four-wing Hyper-chaotic Attractor**.

9. **Conference on Nonlinear Systems and Dynamics (CNSD-2015),**13-15 march 2015 at IISER Mohali. **Presented a paper** titled as **"Secure Communication using ArbitraryChaotic Systems".**

10. **Second   International Symposium on Security in Computing and Communications (SSCC'14)** co-located with 3rd International Conference on Advances in Computing,Communications and Informatics (ICACCI'14) hed at Galgotias College of Engineering & Technology, Greater Noida, India during 24-27 September 2014. **Presented a paper** titled as **"Secure Communication using Four-wing Hyper-chaotic Attractor**.

11. **<u>Conference on Nonlinear Systems and Dynamics (CNSD-2015),</u>**13-15 march 2015 at IISER Mohali. **Presented a paper** titled as **"Secure Communication using ArbitraryChaotic Systems".**

International/National Conferences & Workshops Attended:

1. **<u>International Seminar on Climate Dynamics, 2010,</u>** Organized by Department of Atmospheric and Ocean Science, University of Allahabad, Allahabad, January 28-29, 2010.

2. **<u>Meghnad Saha Memorial International Symposium-cum-Workshop, 2010,</u>** on Laser Induced Breakdown Spectroscopy, Department of Physics, University of Allahabad in collaboration with Mississippi State University, USA, Center of Food Technology, Institute of Professional Studies, University of Allahabad, December 21-23 , 2010.

3. **<u>NSALSN-2011,</u>** National Seminar on Advances in Laser, Spectroscopy & Nanomaterials, Department of Physics, Nehru Gram Bharti University, Allahabad, 5- 7 March, 2011

Other Academic Roles:

Acted as Teaching Assistant for undergraduate classes in the University of Allahabad during Lab and Theory classes.

Memberships:

1. Life Member of Physics Society, Department of Physics, University of Allahabad

2. Life Member of Indian Meteorological Society

3. Life Member of Indian Association of Physics Teachers, IAPT Kanpur