




## University Faculty Details Page on DU

<b>Title</b>	<b>Dr.</b>	<b>First Name</b>	<b>Awadhesh</b>	<b>Last Name</b>	<b>Prasad</b>	<b>Photograph</b>
<b>Designation</b>	<b>Associate Professor</b>					
<b>Department</b>	<b>Department of Physics &amp; Astrophysics</b>					
<b>Address</b>	<b>North Campus University of Delhi, Delhi-</b>					
<b>(Residence)</b>	<b>D-9/8, Cavalary Lane, University of Delhi</b>					
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<b>Phone No</b>	<b>91 - 11 - 2766 2752,</b>					
<b>(Residence) optional</b>	<b>91 - 11 - 2766 2632</b>					
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<b>Education</b>						
<b>Subject</b>	<b>Institution</b>		<b>Year</b>		<b>Details</b>	
<b>Ph.D</b>	<b>JNU, New Delhi</b>				Thesis topic: <i>Strange Nonchaotic Attractors: Global stability, local instability</i> <b>1999</b>	
<b>M.Sc</b>	<b>JNU, New Delhi</b>				<b>1995</b> Subjects: <b>Physics</b>	
<b>B.Sc</b>	<b>BU, Muzzafarpur, Bihar</b>				<b>1992</b> Subjects: <b>Physics</b>	
<b>Career Profile</b>						
<b>Organisation / Institution</b>		<b>Designation</b>		<b>Duration</b>		<b>Role</b>
<b>Arizona Sate University, Tempe, USA</b>		<b>Post Doctoral Fellow</b>		<b>2000-2003</b>		<b>Research</b>
<b>University of Delhi</b>		<b>Lecturer</b>		<b>2003- 2015</b>		<b>Research &amp; Teaching</b>
<b>University of Delhi</b>		<b>Associate Prof.</b>		<b>2015-present</b>		<b>Research &amp; Teaching</b>
<b>MPI-PKS, Dresden, Germany</b>		<b>Guest Scientist</b>		<b>July 2011-June 2012</b>		<b>Research</b>
<b>Research Interests / Specialization</b>						
<ul style="list-style-type: none"> <li>* Instantaneous or delayed interacting nonlinear oscillators. (phenomena of hysteresis, synchronization, amplitude death etc.).</li> <li>* Strange chaotic &amp; nonchaotic attractors.</li> <li>* Bifurcation theory.</li> <li>* Nonlinear time-series analysis -- application to Physical/Astrophysical/Biological/Ecological data.</li> </ul>						
<b>Teaching Experience ( Subjects/Courses Taught)</b>						
<ul style="list-style-type: none"> <li>* Advanced Mathematical Physics I</li> <li>* Advanced Mathematical Physics II</li> <li>* Classical Mechanics</li> <li>* Nuclear and Particle physics</li> <li>* Wave &amp; Optics lab.</li> <li>* Computational lab.</li> </ul>						

- \* Nonlinear Dynamics
- \* Statistics and Computer Applications
- \* Mathematical Physics

#### Honors & Awards

Editor: Chaos, Solitons and Fractals (Elsevier Science)

Editorial Board Member: Pramana -J. Physics. (Indian Academy of Science)

#### Publications (LAST FIVE YEARS)

### Conferences/book chapters

- \* *Memristor emulator causes dissimilarity on a coupled memristive systems*

S. Sabarathinam and AWADHESH PRASAD

AIP Conference Proceedings 1942, 060025 (2018)

- \* *Understanding the some aspects of Alternate Bearing Phenomenon: cycle of three years*

AWADHESH PRASAD, K. Sakai and Y. Hoshino

2016 International Symposium on Nonlinear Theory and Its Applications, NOLTA2016, Yugawara, Japan, November 27th-30th, 2016; Page 511.

- \* *Theoretical Study of the Effect of Quantum Noise on the Nonlinear Dynamics of a Semiconductor Laser Subject to Two Filter Optical Feedbacks*

J. Suelzer, R. Ghosh, AWADHESH PRASAD, and G.Vemuri

Laser Science 2015, San Jose, California, USA, 18-22 October 2015.

(in Frontiers in Optics 2015, OSA Technical Digest (Optical Society of America, 2015), paper JW2A.15).

- \* *Characterization of order-to-chaos-to- order transition in co-axial DC discharge plasma of different inter-electrode distances*

R. Kumar, R. Narayanan, R. D. Tarey and AWADHESH PRASAD

32nd ICPIG, July 26-31, 2015, Iasi, Romania

(<http://www.icpig2015.net/Content/Posters/id182-Rahul-KUMAR.pd>)

- \* *Effect of Counter Rotation of Oscillations on Surface Acoustic Wave (SAW) Coupled*

*Synchronized Oscillators Sensor*

S. S. Jha, AWADHESH PRASAD, and R. D. S. Yadava

Proceedings of the 2015 2nd International Symposium on Physics and Technology of Sensors,

8-10th March, 2015, Pune, India

<http://ieeexplore.ieee.org/stamp/stamp.jsp?tp=\&arnumber=7220076>

- \* *Amplitude Death: The cessation of oscillations in coupled nonlinear dynamical systems*

G. Saxena, N. Punetha, AWADHESH PRASAD, and R. Ramaswamy

AIP Conference Proceeding-1582, 158 (2014).

## In Indexed/ Peer Reviewed Journals

- \* *Control of coexisting attractors via temporal feedback*  
K. Yadava, AWADHESH PRASAD, and M. D. Shrimali  
Phys. Lett. A 382, 2127 (2018).
- \* *Investigation on unconventional synthesis of astroinformatic data classifier powered by irregular dynamics*  
L. Kojecky, I. Zelinka, AWADHESH PRASAD, T. Vantuch, and L. Tomaszek  
IEEE Intelligent Systems (2018)--In Press.
- \* *Infinite number of hidden attractors in Memristor based autonomous Duffing oscillator*  
V. Varshney, S. Sabarathinam, AWADHESH PRASAD, and K. Thamilmaran  
International Journal of Bifurcation and Chaos 28, 1850013 (2018).
- \* *Finite-time Lyapunov dimension and hidden attractor of the Rabinovich system*  
N. V. Kuznetsov, G. A. Leonov, T. N. Mokaev, AWADHESH PRASAD, and M. D. Shrimali  
Nonlinear Dynamics 92, 267 (2018).
- \* *Shadowing in Hidden Attractors*  
N. K. Kamal, V. Varshney, M. D. Shrimali, AWADHESH PRASAD, N. V. Kuznetsov, G. A. Leonov  
Nonlinear Dynamics 91, 2429 (2018).
- \* *Describing chaotic attractors: Regular and perpetual points*  
D. Dudkowski, AWADHESH PRASAD, and T. Kapitaniak  
CHAOS, 28, 033604 (2018).
- \* *Bright optical spatial solitons in photorefractive waveguides having both the linear and quadratic electro-optic effect*  
A. Katti, R. A. Yadav, and AWADHESH PRASAD  
Wave Motion 77, 64 (2017).
- \* *Targeting periodic solutions of chaotic systems*  
V. Varshney, P. R. sharma, M. D. Shrimali, B. Biswal, and AWADHESH PRASAD  
International Journal of Nonlinear Science (2017).

- \* *Oscillation Death and revival by coupling with Damped Harmonic Oscillator*  
V. Varshney, G. Saxena, B. Biswal, and AWADHESH PRASAD  
CHAOS (2017).
- \* *Direct coupling: a possible strategy to control fruit production in alternate bearing*  
AWADHESH PRASAD, K. Sakai and Y. Hoshino  
Scientific Reports 7, 39890 (2017).
- \* *Perpetual points: New tool for localization of co-existing attractors in dynamical systems*  
D. Dudkowski, AWADHESH PRASAD, and T. Kapitaniak  
International Journal of Bifurcation and Chaos 27, 1750063 (2017).
- \* *Emergence of chimeras through induced multistability*  
S. R. Ujjwal, N. Punetha, AWADHESH PRASAD, and R. Ramaswamy  
Phys. Rev. E 95, 032203 (2017).
- \* *Perpetual points and periodic perpetual loci in maps*  
D. Dudkowski, AWADHESH PRASAD, and T. Kapitaniak  
CHAOS 26, 103103 (2016).
- \* *Effects of quasiperiodic forcing in epidemic models*  
S. Bilal, B. K. Singh, AWADHESH PRASAD, and E. Michael  
CHAOS 26, 093115 (2016).
- \* *Driving-induced multistability in coupled chaotic oscillators: Symmetries and riddled basins*  
S. R. Ujjwal, N. Punetha, R. Ramaswamy, M. Agrawal, and AWADHESH PRASAD  
CHAOS 26, 063111 (2016)
- \* *Hidden Attractors in Dynamical Systems*  
D. Dudkowski, S. Jafar, T. Kapitaniak, N. V. Kuznetsov, G. A. Leonov, and AWADHESH PRASAD  
Physics Reports 637, 1 (2016).
- \* *Effects of quantum noise on the nonlinear dynamics of a semiconductor laser subject to two spectrally filtered, time-delayed optical feedbacks*  
J. S. Suelzer, AWADHESH PRASAD, R. Ghosh, and G. Vemuri  
Optics Communications 370, 209 (2016)
- \* *Exact Solutions of Certain Nonlinear Chemotaxis-Diffusion-Reaction Equations*  
A. Mishra, R. S. Kaushal and AWADHESH PRASAD  
Pramana- J. Phys. 86, 1043 (2016)

- \* *Understanding the Alternate Bearing Phenomenon: Resource Budget Model*  
AWADHESH PRASAD and K. Sakai  
CHAOS, 25, 123102 (2015).
- \* *A Note On Topological Conjugacy For Perpetual Points*  
AWADHESH PRASAD  
International Journal of Nonlinear Science 21, 60 (2016).
- \* *Perpetual points and hidden attractors in dynamical systems*  
D. Dudkowski, AWADHESH PRASAD, and T. Kapitaniak  
Phys. Letter A. 379, 2591 (2015)
- \* *Control of multistability in hidden attractors*  
P. R. Sharma, M. D. Shrimali, AWADHESH PRASAD, N. V. Kuznetsov and  
G. A. Leonov  
Eur. Phys. J. Special Topics 224, 1485 (2015).
- \* *Analytical study and experimental confirmation of SNA through poincare maps in a quasiperiodically forced electronic circuit*  
A. Arulgnanam, AWADHESH PRASAD, K. Thamilmaran and M. Daniel  
International Journal of Bifurcation and Chaos 25, 1530020 (2015).
- \* *Multilayered bubbling route to SNA in a quasiperiodically forced electronic circuit with experimental and analytical confirmation*  
A. Arulgnanam, AWADHESH PRASAD, K. Thamilmaran and M. Daniel  
Chaos, Solitons & Fractals 75, 96 (2015).
- \* *Multilayered bubbling route to SNA in a quasiperiodically forced electronic circuit with a simple nonlinear element*  
A. Arulgnanam, AWADHESH PRASAD, K. Thamilmaran, and M. Daniel  
Intern. J. Dynamics and Control (10.1007/s40435-015-0154-5) (2015)
- \* *Controlling the Dynamics of Hidden Attractors*  
P. R. Sharma, M. D. Shrimali, AWADHESH PRASAD, N. V. Kuznetsov and  
G. A. Leonov  
International Journal of Bifurcation and Chaos 4, 1550061 (2015).
- \* *Existence of perpetual points in nonlinear dynamical systems and its applications*  
AWADHESH PRASAD  
International Journal of Bifurcation and Chaos 2, 1530005 (2015).
- \* *Phase-locked regimes in delay-coupled oscillator networks*  
N. Punetha, AWADHESH PRASAD and R. Ramaswamy  
CHAOS 24, 043111 (2014).

- \* *Hysteresis in amplitudes of self-excited oscillations for co-axial electrode-geometry DC glow discharge plasma*  
R. Kumar, R. Narayanan, and AWADHESH PRASAD  
Physics of Plasmas 21, 123501 (2014).
- \* *Experimental evidence for amplitude death induced by a time-varying interaction*  
K. Suresh, M. D. Shrimali, AWADHESH PRASAD, and K. Thamilmaran  
Physics Letters A 378, 2845 (2014).
- \* *The dynamics of co- and counter rotating coupled spherical pendulums*  
B. Witkowski, P. Perlikowski, AWADHESH PRASAD, and T. Kapitaniak  
Eur. Phys. J. Special Topics 223, 707 (2014).
- \* *Controlling dynamical behavior of drive-response system through linear augmentation*  
P. R. Sharma , A. Singh, AWADHESH PRASAD, and M. D. Shrimali  
Eur. Phys. J. Special Topics 223, 1531 (2014).
- \* *Complicated basins and the phenomenon of amplitude death in coupled hidden attractors*  
U. Chaudhuri and AWADHESH PRASAD  
Physics Letters A 378, 713 (2014).
- \* *Theoretical and Numerical modelling of chaotic electrostatic ion cyclotron (EIC) oscillations by Jerk equation*  
A. M. Wharton, P. K. Shaw, M. S. Janaki, AWADHESH PRASAD and A. N. S. Iyengar  
Physics of Plasmas 21, 022311 (2014).
- \* *Effect of parameter mismatch and time delay interaction on density induced amplitude-death in coupled nonlinear oscillators*  
A. Sharma, K. Suresh, K. Thamilmaran, AWADHESH PRASAD, M. D. Shrimali  
Nonlinear Dynamics 76, 1797 (2014).
- \* *Pulse Shape Analysis of a two fold clover detector with an EMD based new algorithm : A Comparison*  
Davinder Siwal, S.Mandal, R. Palit, J. Sethi, R. Garg, S. Saha, AWADHESH PRASAD, P.B Chavan, B.S. Naidu, S. Jadhav , R.Donthi, H.Schaffner, J. Adamczweski, N. Kurz, H. J. Wollersheim, R. Singh  
Nuclear Instruments and Methods in Physics Research A 741, 108 (2014).
- \* *Visibility graph analysis of solar wind velocity*

V. Suyal, AWADHESH PRASAD, H. P. Singh  
Solar Physics, 289, 379 (2014).

Articles: Nil

Conference Presentations (last five years)

*International Symposium on Complex Dynamical System and Application*  
March 10-13, 2014  
Indian Statistical Institute, Kolkata

*Contemporary Aspects of Chaotic Dynamics*  
Saint-Petersburg State University, Russia  
May 26-28, 2014

*Dynamics Day Asia-Pacific 08*  
IIT & IMSc, Chennai  
July 21-24, 2014

*Dynamics Day Rajasthan 2014*  
Department of Physics, Central University of Rajasthan, Kishangarh  
Nov. 29, 2014

*Interdisciplinary Conference on the Science and Applications on Networks*  
Shiv Nadar University, Dadri, U.P.  
March 20-22, 2015

*An introduction to alternate bearing phenomenon*  
Dynamics Day Aligarh  
Nov. 28, 2015

*Existence of perpetual points in nonlinear dynamical systems and its applications*  
International Conference on Complex Dynamical Systems and Applications, 2016 (CDSA 2016)  
NIT Durgapur, Feb. 15-17 February, 2016.

An introduction to perpetual points in nonlinear dynamical systems and its applications  
Statphys-Taiwan, Taipei, Sept. 6-8, 2016.

Understanding the some aspects of Alternate Bearing Phenomenon: cycle of three years  
International Symposium on Nonlinear Theory and Its Applications (NOLTA-2016)  
Yugwara, Japan, Nov. 27-30, 2016.

An introduction to alternate bearing phenomenon  
National conference on Current advancement in Physics  
Feb. 3-4, 2017, St.John's College. The Department of Physics, Palayamkottai, Tamil Nadu

Use of nonlinear dynamics in plant science  
Physics and Applied Mathematics Researchers' Meet 2017  
Indian Statistical Institute, Kolkata, March 14-16, 2017

Understanding some aspects of alternate bearing phenomenon  
15th Experimental Chaos & Complexity Conference  
URJC, Madrid, June 4-7, 2018

Total Publication Profile *optional*

Books: 0

In Indexed/ Peer Reviewed Journals: **112**

Conference : **23**

Articles: 0

Conference Presentations: **34**

Public Service / University Service / Consulting Activity

Professional Societies Memberships

**Editor : *Chaos, Solitons & Fractals***

(Published by Elsevier Science)

**Editorial Board Member: *Pramana -J. Physics.***

(Published by Indian Academy of Science)

Projects (Major Grants / Collaborations)

**(1) Fast Track Scheme for young scientist, DST, Gov. of India (Rs. 6.16L), 2005-2008.**

**(2) Regular Project, DST, Gov. of India (Rs. 20L) 2008-2012**

**(3) DU-DST-PURSE Grant (Co-PI) (2 Crores) 2009-2012**

**(4) Regular Project, DST, Govt. of India (Rs.31L) 2013-2016**

**(5) Network Project, DST, Govt. of India (co-coordinator)(Rs.41L) 2013-2016**

**(6) Regular Project, DST Gov. of Inida (23 Lakhs) 2017-ongoing**

**(7) DST-SERB-RFBR-Russia Project (Co-PI) 24 Lkahs, 2016-ongoing**