




## University Faculty Details Page on DU

Title	Dr.	First Name	Awadhesh	Last Name	Prasad	Photograph
Designation	<b>Assistant Professor</b>					
Department	<b>Department of Physics &amp; Astrophysics</b>					
Address	<b>North Campus University of Delhi, Delhi-</b>					
(Residence)	<b>C-3, Teacher Transit Hostel, Mukherjee Nagar Delhi - 110009</b>					
Phone No	<b>91 - 11 - 2766 2752,</b>					
(Residence)optional	<b>91 - 11 - 2766 2632</b>					
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Email	<b>Awadhesh@physics.du.ac.in</b>					
Web-Page	<b><a href="http://people.du.ac.in/~awadhesh/">http://people.du.ac.in/~awadhesh/</a></b>					
<b>Education</b>						
Subject	Institution	Year	Details			
<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: Physics			
<b>B.Sc</b>	<b>BU, Muzzafarpur, Bihar</b>		<b>1992</b> Subjects: Physics			
<b>Career Profile</b>						
Organisation / Institution	Designation	Duration	Role			
<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- present</b>	<b>Research &amp; Teaching</b>			
<b>MPI-PKS, Dresden, Germany</b>	<b>Guest Scientist</b>	<b>July 2011-June 2012</b>	<b>Reserach</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 <i>etc.</i>).</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> <li>* Nonlinear Dynamics</li> </ul>						

- \* 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

*\*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.pdf>)

%182\_Rahul\_KUMAR.pdf)

*\* 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).

*\* Development of EMD based signal improvement technique and its application to pulse shape analysis*

D. Siwal, V. Suyal, AWADHESH PRASAD, S. Mandal, and R. Singh

AIP Conf. Proc. **1524**, 271 (2013) (doi:<http://dx.doi.org/10.1063/1.4801731>)

*\*Pulse Shape Analysis of a two fold clover detector with EMD based algorithm*

D. Siwal, S. Mandal, R. Palit, J. Sethi, R. Garg, S. Saha, AWADHESH PRASAD, P.B. Chavan, B.S. Naidu, S. Jadhav, R. Donthi, H. Schafer, J. Adamczweski, N. Kurz, H.J. Wollersheim, and R. Singh

DAE-BRNS Symp. on Nucl. Phys. **57**, 890 (2012).

\* *Semiconductor laser dynamics with two filtered optical feedbacks*  
V. Pal, J. Suelzer, AWADHESH PRASAD, G. Vemuri, and R. Ghosh  
International Conference on Fiber Optics and Photonics \$@\$ OSA 2012  
(<http://www.opticsinfobase.org/abstract.cfm?URI=Photonics-2012-W3C.3>)

## In Indexed/ Peer Reviewed Journals

- \* *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} (2016)--In Press.
- \* *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. Thamilaran, 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).

\* *Controlling Bistability by Linear Augmentation*

P. R. Sharma, M. D. Shrimali, AWADHESH PRASAD, U. Feudel  
Phys. Lett. A 377, 2329 (2013).

\* *A new approach of denoising the regular and chaotic signals using EMD : Comparison and application*

D. Siwal, V. Suyal, AWADHESH PRASAD, S. Mandal, and R. Singh  
Review of Scientific Instruments 84}, 075117 (2013).

\* *Time-varying interaction leads to amplitude death in coupled nonlinear oscillators*

AWADHESH PRASAD  
Pramana- J. Phys., 81, 407 (2013).

- \* *Amplitude death phenomena in delay-coupled Hamiltonian systems*  
G. Saxena, AWADHESH PRASAD, and R. Ramaswamy  
Phys. Rev. E **87**, 052912 (2013).
- \* *Driving-induced bistability in coupled chaotic attractors*  
M. Agrawal, AWADHESH PRASAD, and R. Ramaswamy  
Phys. Rev. E **87**, 042909 (2013).
- \* *Enhancement of photon intensity in forced coupled quantum wells inside a semiconductor microcavity*  
H. Eleuch, AWADHESH PRASAD, and I. Rotter  
Phys. Rev. E **87**, 022916 (2013).
- \* *Semiconductor Laser Dynamics with Two Filtered Optical Feedbacks*  
V. Pal, J. S. Suelzer, AWADHESH PRASAD, G. Vemuri and R. Ghosh  
IEEE Journal of Quantum Electronics, **49**, 340 (2013).
- \* *Birth of strange nonchaotic attractors through formation and merging of bubbles in a quasiperiodically forced Chua's oscillator*  
K. Suresh, AWADHESH PRASAD, and K. Thamilmaran  
Physics Letters A **377**, 612 (2013).
- \* *Amplitude death: The emergence of stationarity in coupled nonlinear systems*  
G. Saxena, AWADHESH PRASAD, and R. Ramaswamy  
Physics Reports **521**, 205 (2012).
- \* *Chaotic motion of ions in polymer gel electrolytes: First observations*  
A. Chandra, S. Rawat, B. Saha, and AWADHESH PRASAD  
Solid State Ionics **225**, 751 (2012).
- \* *Chaos and Regularity in Semiconductor Microcavities*  
H. Eleuch and AWADHESH PRASAD  
Phys. Letts. A **376**, 1970 (2012).
- \* *Chaotic behavior of ion exchange phenomena in polymer gel electrolytes through irradiated polymeric membrane*  
A. Rawat, B. Saha, AWADHESH PRASAD, and A. Chandra  
Phys. Letts. A **376**, 1915 (2012).
- \* *Frequency discontinuity and amplitude death with time-delay asymmetry*  
N. Punetha, R. Karnatak, AWADHESH PRASAD, R. Ramawasmy and J. Kurths  
Phys. Rev. E. **85**, 046204 (2012).

- \* *Distinguishing dynamics using recurrence-time statistics*  
E. J. Ngamga, D. V. Senthilkumar, AWADHESH PRASAD, P. Parmananda,  
N. Marwan, and J. Kurths  
Phys. Rev. E. **85**, 026217 (2012).
- \* *Hysteresis in a Solar Activity Cycle*  
V. Suyal, AWADHESH PRASAD and H. P. Singh  
Solar Physics **276**, 407 (2012).
- \* *Symbolic analysis of slow solar wind data using rank order statistics*  
V. Suyal, AWADHESH PRASAD and H. P. Singh  
Planetary and Space Science, **62**, 55 (2012).

Articles: **Nil**

Conference Presentations (last five years)

*Nonlinear Dynamics and Complex Systems*  
Dec. 3-5, 2012,  
National Institute for Mathematical Sciences, Daejeon, Korea.

*WCU-conference on Nonlinear Dynamics*  
Dec. 6-7, 2012,  
Kyungpook National University, Daegu, Korea.

*Perspectives in Nonlinear Dynamics*  
July 15-18, 2013,  
University of Hyderabad, Hyderabad

*Chaos, Solitons & Fractals conference*  
Nov. 29, 2013, Elsevier, Amsterdam, Netherlands

*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.

#### Total Publication Profile *optional*

Books: 0

In Indexed/ Peer Reviewed Journals: 98

Conference : 20

Articles: 0

Conference Presentations: 29

#### 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) 2008-20012**

**(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**

#### Other Details