




## Shivaji College Faculty Details Proforma

Title	First Name	Last Name	Photograph
Dr.	Mamta		
<b>Designation</b>	<b>Assistant Professor</b>		
<b>Address</b>	Flat no 7, Shivaji College staff flats, Raja Garden, New Delhi – 110027		
<b>Office Phone No.</b>			
<b>Residence</b>			
<b>Mobile</b>	+91-9999773910		
<b>Email</b>	<a href="mailto:mamtaphysics21@gmail.com">mamtaphysics21@gmail.com</a>		
<b>Web-Page</b>			
<b>Educational Qualifications</b>	<b>PhD</b>		
<b>Degree</b>	<b>University/Institute</b>	<b>Year</b>	
<b>Ph.D.</b>	Department of Physics & Astrophysics, University of Delhi	2017	
<b>M.Phil./M.Tech.</b>			
<b>PG</b>	Kurukshetra University, Haryana	2006	
<b>UG</b>	Kurukshetra University, Haryana	2004	
<b>Any Other Qualification</b>			
<b>Career Profile</b>			
<ul style="list-style-type: none"> <li>▪ Assistant Professor in Shivaji College, University Of Delhi, New Delhi since 2006</li> <li>▪ Assistant Professor in Department of Electronics, Kurukshetra University, Haryana for six months (year 2008)</li> </ul>			
<b>Administrative Assignments</b>			
Member of SC/ST/ OBC student counselling committee Member of library committee			

### Areas of Interest/Specialisation

Laser-Plasma Interactions (Theory and Simulation):

- Laser-Plasma based Accelerators
- High-intensity Laser-driven Particle Acceleration
- Harmonic Generation
- Laser self-focusing
- Laser pulse-compression

### Subjects Taught

Thermal Physics, Microprocessor 8086, Digital Electronics, Analog systems and applications, Electricity and Magnetism and Mechanics

### Innovation Project/Research Projects (Major Grants/Research Collaboration)

### Publications Profile (*Research Papers/Books*)

- **Laser-absorption effect on pulse-compression under Ohmic and weak-relativistic ponderomotive nonlinearity in plasmas, Mamta Singh and D N Gupta, *Laser Phys. Letters* **15**, 016001(2017)**
- **Laser-pulse compression in a collisional plasma under weak-relativistic ponderomotive nonlinearity, Mamta Singh and D. N. Gupta, *Physics of Plasmas*, **23**, 053119 (2016), DOI: 10.1063/1.4951722, ISSN: 1070-664X**
- **Temporally asymmetric laser pulse for magnetic-field generation in plasmas, Mamta Singh, Krishna Gopal, and Devki Nandan Gupta, *Physics Letter A*, **380**, 1437 (2016), DOI: 10.1016/j.physleta.2016.02.015, ISSN: 0375-9601**
- **Efficient second- and third-harmonic radiation generation from relativistic laser plasma interactions, M. Singh, D. N. Gupta, and H. Suk, *Physics of Plasmas*, **22**, 063303 (2015), DOI: 10.1063/1.4922435, ISSN: 1070-664**
- **Relativistic third-harmonic generation of a laser in a self-sustained magnetized plasma channel, M. Singh and D. N. Gupta, *IEEE J. Quantum Electronics*, **50**, 491 (2014), DOI: [10.1109/JQE.2014.2320763](https://doi.org/10.1109/JQE.2014.2320763), ISSN : 0018-9197**
- **Amplitude saturation effects of a laser-driven plasma beat-wave on electron accelerations D. N. Gupta, Mamta Singh, and H. Suk, *Journal of Plasma Physics*, **81**, 905810324 (2015) DOI: 10.1017/S0022377815000288, ISSN: 0022-3778**
- **Plasma based optical guiding of an amplitude-modulated electromagnetic beam, M. Singh and D. N. Gupta, *Proceedings of SPIE*, **9654**, 96541R-1 (2015), DOI: 10.1117/12.2182397, ISSN: 0277-786X**
- **Effect of laser-plasma channeling on third-harmonic radiation generation, M. Singh and D. N. Gupta, *Proceedings of IPAC*, **THPRO064**, 3023 (2014), ISBN 978-3-95450-132-8**
- **Simulations on laser wakefield generation in a parabolic magnetic-plasma channel, D. N. Gupta and M. Singh, *Proceedings of IPAC*, **TUPME075**, 1528 (2014), ISBN 978-3-95450-132-8**

**Conference/Seminar/Faculty Development Programme/Workshop**

- **Orientation Programme (OR-88)**, 31st May 2017 to 28th June 2017, CPDHE, University of Delhi, New Delhi
- **Participated and chaired one session** in 1<sup>st</sup> National Conference on Current and Future Perspectives in Nanotechnology “NANOWORLD 2018”, 12-13<sup>th</sup> April, 2018, Department of Physics, Shivaji College, University of Delhi, India
- **Laser Pulse Compression in a Non-isothermal and Collisional Plasma**  
Butifest, International Symposium on Nonlinear Waves in Fluids and Plasmas, 1-2 March 2017, *IIT Delhi*
- **Amplification of laser pulses through nonlinear self-compression in weakly-relativistic plasmas**  
APPC-AIP, Joint 13<sup>th</sup> Asia pacific physics conference and 22<sup>nd</sup> Australian institute of physics congress, 4-8 December 2016, Brisbane Convention and Exhibition Center, *Brisbane, Australia*
- **Plasma based optical guiding of an amplitude-modulated electromagnetic beam**  
International Conference on Optics and Photonics (ICOP 2015), February 20-22, 2015, *Kolkata, India*
- **High-intensity laser pulse guiding in a weakly-relativistic plasma**  
4<sup>th</sup> International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics, March 11-14, 2015, *Delhi, India*
- **Simulations on laser pulse shape dynamics in a weakly relativistic plasma** 4<sup>th</sup> International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics, March 11-14, 2015, *Delhi, India*
- **SERB School on “High intensity laser plasma interaction: theory & simulation”**, May 5-23, 2014, *IIT Delhi, New Delhi, India*
- **Effect of laser-plasma channeling on generation of third-harmonic radiation**  
5<sup>th</sup> International Particle Accelerator Conference, June 15-20, 2014, *Dresden, Germany*
- **Simulations on laser wakefield generation in a Parabolic Magnetic-Plasma Channel**  
5<sup>th</sup> International Particle Accelerator Conference, June 15-20, 2014, *Dresden, Germany*
- **Frequency doubling and tripling of an amplitude-modulated laser in plasmas**  
International Symposium on Ultrafast Intense Laser Science, October 5-10, 2014, *Jodhpur, India*
- **7<sup>th</sup> International Conference on Dusty Plasma**, March 3-7, 2014, *New Delhi, India*
- **Relativistic second- and third-harmonic generation of a laser in a self-sustained magnetized plasma channel**  
28<sup>th</sup> National Symposium on Plasma Science & Technology (PLASMA 2013), Dec 2013, *Bhubaneswar, India*

- MATLAB and Simulink Academic Tour 2013 of Mathworks, Cluster Innovation Center, University of Delhi, India
- Workshop on Information Literacy and Competency 2014, Delhi University Library System, University of Delhi, India

**Research Guidance (Supervision of Doctoral Thesis/Dissertations)**

**Awards and Distinctions**

**Plasma based optical guiding of an amplitude-modulated electromagnetic beam, M. Singh and D. N. Gupta, *Proceedings of SPIE*, 9654, 96541R-1 (2015), DOI: 10.1117/12.2182397, ISSN: 0277-786X (Got selected for publication among top 100 in International conference on optics and photonics ICOP 2015)**

**Memberships**

Plasma Science Society of India (PSSI) – Life time Membership

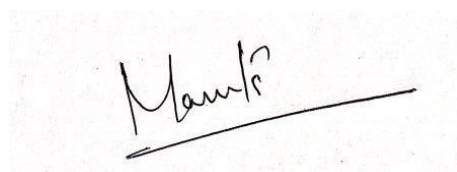
**Other Academic Activities**

**MEMBER OF ORGANIZING COMMITTEE**

- 4<sup>th</sup> International Conference on Current Developments in Atomic, Molecular, Optical and Nano Physics, March 11-14, 2015, Delhi, India
- Workshop SPECTRUM-2018, Feb 12, 2018, Shivaji college, University of Delhi, India
- 1<sup>st</sup> National Conference on Current and Future Perspectives in Nanotechnology “NANOWORLD 2018”, 12-13<sup>th</sup> April, 2018, Department of Physics, Shivaji College, University of Delhi, India

**Cultural/Extracurricular Activities**

**Member of Physics Society- Invenio**



**Signature of Faculty Member**