




Shivaji College Faculty Details Proforma

| Title | First Name | Last Name | Photograph |
|--|---|-------------|---|
| Dr. | MAMTA | |  |
| Designation | Assistant Professor | | |
| Address | Shivaji College, Raja Garden, New Delhi – 110027 | | |
| Office Phone No. | | | |
| Residence | | | |
| Mobile | | | |
| Email | mamtaphysics21@gmail.com | | |
| Web-Page | | | |
| Educational Qualifications | Ph.D. | | |
| Degree | University/Institute | Year | |
| Ph.D. | Department of Physics & Astrophysics, University of Delhi | 2017 | |
| M.Phil./M.Tech. | | | |
| PG | Kurukshetra University, Haryana | 2006 | |
| UG | Kurukshetra University, Haryana | 2004 | |
| Any Other Qualification | NET | 2006 | |
| Career Profile | | | |
| <p>♣ Assistant Professor in Shivaji College, University Of Delhi, New Delhi since 2006 ♣ Assistant Professor in Department of Electronics, Kurukshetra University, Haryana for six months (year 2008)</p> | | | |

Administrative Assignments

- Working as Teacher In-charge from September 2018
- Nodal officer J&K Students under Prime Minister's Special Scholarship scheme
- Member of SC/ST/ OBC student counselling committee
- Member of library committee
- Worked as teacher in-charge from April 2016 to September 2016, Physics department , Shivaji College

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), DOI: 10.1088/1612-202X/aa930f/meta**
- **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: 1070-664X**
- **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, 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
- **6th RC Basic Science (Interdisciplinary)**, 26th September 2018 to 17th October 2018, HRDC Jamia Millia Islamia, New Delhi
- **One Week Course on Research Methodology**, 4th February 2019 to 9th February 2019, HRDC Jamia Millia Islamia, New Delhi
- **One Week Course on Disaster Management**, 26th February 2019 to 5th March 2019, HRDC Jamia Millia Islamia, New Delhi
- **Laser Pulse Propagation in a Plasma under Collisional Absorption effects in Weakly-Relativistic Regime** The 33rd National Symposium on Plasma Science & Technology (PLASMA- 2018) December 4- 7, 2018, *Department of Physics and Astrophysics, University of Delhi, Delhi In Association with Plasma Science Society of India*
- **Participated and chaired one session** in 1st National Conference on Current and Future Perspectives in Nanotechnology “NANOWORLD 2018”, 12-13th 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 13th Asia Pacific physics conference and 22nd 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** 4th 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** 4th 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** 5th International Particle Accelerator Conference, June 15-20, 2014, *Dresden, Germany*
- **Simulations on laser wakefield generation in a Parabolic Magnetic-Plasma Channel** 5th 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*
- **7th 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** 28th 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

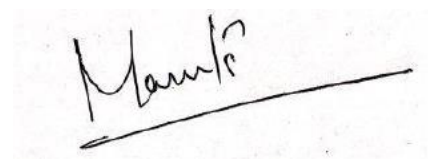
Other Academic Activities

- Participated in the Lecture series on the topic “Elementary physics” on November 1, 2018.
- 4th 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

- Organizing Resource person in National Conference titled “Current and future perspectives in Nanotechnology: Nanoworld 2018” organized on 12-13 April 2018.

Cultural/Extracurricular Activities

- Participated in the Lecture series on the topic “Elementary physics” on November 1, 2018
- Organizing resource person in Workshop SPECTRUM-2018, Feb 12, 2018, Shivaji college, University of Delhi, India
- Organizing Resource person in National Conference titled “Current and future perspectives in Nanotechnology: Nanoworld 2018” organized on 12-13 April 2018.



Signature of Faculty Member