Faculty Details Proforma

Title	Dr.	First Name	Omwati	Last Name	Rana	Photograph
Designation		**Assistant Professor**				
Address		**Daulat Ram College, 4 Patel Marg , Delhi-110007**				
Email– ID		**omwatirana@dr.du.ac.in**				
Web Page		-				

Educational Qualification

Degree	Institution	Year
Ph.D: Physics	National Physical Laboratory, Delhi and Jamia Millia Islamia Central University , Delhi, India	2014
NET-JRF	CSIR-UGC	2007
M.Sc(Physics)	University of Delhi	2007
B.Sc(H) Physics	University of Delhi	2004

Career Profile

- Assistant Professor, Daulat Ram College, University of Delhi from 22 August 2013 to till date.
- Senior Research Fellow, CSIR-National Physical Laboratory Delhi, from 27 June 2011-26 June 2013
- Junior Research Fellow, CSIR-National Physical Laboratory Delhi, from 26 June 2008-26 June 2011

Administrative Assignments

Name of Institute	Designation	Status	Time period	Experience
Daulat Ram college	Teacher In Charge(Physics Department)	Ongoing	2017-18, 2024-25	2 years
Daulat Ram college	Admission Committee member	Completed	2017-18, 2018-19, 2019-20, 2020-21, 2021-22 2022-23, 2023-24, 2024-25	5 years
Daulat Ram college	Teaching Program Committee Member	Completed	2017-19, 2021-2022, 2023-2024	3years
Daulat Ram college	Fine Art Committee member	completed	2017-18	1 year
Daulat Ram college	Physics Association Incharge	completed	2017-18, 2022-2023	2 year
Daulat Ram college	Prize Committee member	Ongoing	2017-18, 2024-2025	1 year
Daulat Ram college	Discipline Committee member	Completed	2017-18	1 year
Department of Physics & Astrophysics, University of Delhi	Mechanics (Hons. Core, Prog.) Subject groups member, LOCF (CBCS) Undergraduate Physics courses revision 2019	Completed	2017-18	1 year
Daulat Ram college	Library committee member	completed	2017-19, 2022-23	3 years

Daulat Ram college	Member of Fresher sport meet	completed	2018-19	1 year
Daulat Ram college	Member of Music and Dance society	completed	2018-19	1 year
Daulat Ram college	Member of NSS	completed	2019-21	2 years
Daulat Ram college	Member of Students Amenities Committee	Completed	2020-2021, 2021-2022, 2022-2023	3 Years
Daulat Ram college	Admission grievance committee member	Completed	2021-2022, 2022-2023	2Year
Daulat Ram college	Hostel committee member	Completed	2021-2023, 2023-2024	3 year
Daulat Ram college	Purchase Committee Member	Ongoing	2017-2018, 2024-2025	2 years
Daulat Ram College	Prospectus Commitee	Completed	2016-17, 2024-2025	2 Years

Areas of Interest/Specialization

Topic of research for Ph.D: Transport and Interface study of hole transporting organic semiconductors.
Interest area of Research: Organic semiconductors, OLEDs, OFETs and OPVs Devices

Subjects Taught

Solid State Physics, Mechanics, Electronics, Digital Systems and Applications ,Microcontroller, Communication System, Electromagnetic Theory, Quantum Mechanics and Programming with Python , Electricity and Magnetism

Research Guidance

NA

Publications Profile

- Ravinder Singh, **Omwati Rana**, Yogesh Kumar Sharma, Shiv Shankar Gaur "Numerical Approximation Methods and Comparision with RK-4 Method for a Linear Differential Equation with Initial condition using Scilab 6.1.1. ***Current Natural Science & Engineering Journal*** (CNS&E Journal) Volume 1(6), December 2024, pp(471-479). https://doi.org/10.63015/5c-2447.1.6
- Ravindra Singh, Ashok Kumar Shukla, Polly Biswas, **Omwati Rana**, Shiv Shankar Gaur, Amit Pratap Singh, "Effect of magnetic field on radially polarized laser induced electron acceleration in vacuum", ***AIP Conference Proceedings 2754, 100017 (2023)*** *https://doi.org/10.1063/5.0161072* ISBN: 978-0-7354-4634-2 ISSN:0094-243X
- Ravindra Singh, Dr. Ashok Kumar Shukla1 , Rakesh Yadav, Krishan Kant Singh Gautam , Polly Biswas , **Omwati Rana** ,Shiv Shankar Gaur, Priyanka Verma, "Computational Treatment for The Solution of a Set of Coupled Differential Equations for any Physical System Using Scilab and Generating Scilab Codes", ***Journal of Physics.: Conf. Ser.* 2223** (2022) 012002 ICIAST-2021, doi:10.1088/1742-6596/2223/1/012002.

  Available pdf at: https://iopscience.iop.org/article/10.1088/1742-6596/2223/1/012002/pdf
- Ravindra Singh, Ashok Kumar Shukla, Shiv Shankar Gaur, Rakesh Yadav, Krishan Kant Singh Gautam, **Omwati Rana**, Polly Biswas "The Study of A System of Non-Homogeneous Equations Using Matrix Exponential Method and Analysis with Scilab Software 6.1.1", ***Journal of Physics.: Conf. Ser.* 2223** (2022) 012001 ICIAST-2021, doi:10.1088/1742-6596/2223/1/012001.

  Available pdf at: https://iopscience.iop.org/article/10.1088/1742-6596/2223/1/012001/pdf
- R. Singh, A. K. Shukla, S. S. Gaur, P. Verma, P. Biswas and **O. Rana**, "Comparison of the results of differential equation by ordinary method and euler's method using scilab", ***Vidyabharati International Interdisciplinary Research Journal (Special Issue),*** pp.126-128 August, 2021, ISSN 2319-4979.

  Available pdf at: http://www.viirj.org/specialissues/SP12/Part%202.pdf
- Dr. Ravindra Singh, Dr. Ashok Kumar Shukla, Dr. Shiv Shankar Gaur, Dr. Priyanka Verma, Polly Biswas, **Dr. Omwati Rana, "**The

Matrix Formulations and Algebraic Equations Using Scilab", *National Journal of Environmental and Scientific Research*, *Vol-2, Issue-7, pp. 56-71, July 2021, E-ISSN-2582-5836.* **Available pdf at:** https://www.njesr.com/file.axd?file=/Dr.Ravindra.pdf

- **Omwati Rana,** Ritu Srivastava, M.N.Kamalasanan, M.Husain, M.Zulfequar "Interface modification for enhancing the conduction mechanisms in 2,2',7,7'-tetrakis(N,N-diphenylamine)-9,9'-spir obifluorene (Spiro-TAD) Nano layers for optoelectronic applications"***International Journal of Recent Technology and Engineering (IJRTE)*** ISSN: 2277-3878, Volume-7, Issue-6S, March 2019 **Available pdf at: https://www.ijrte.org/wp-content/uploads/papers/v7i6s/F03730376S19.pdf**
- Kalpana Agrawal, **Omwati Rana**, Nidhi Singh, Ritu Srivastava and S. S. Rajput, " Low voltage organic permeable base N-type transistor" ***Applied Physics Letters*** 109,pp 163301(1-4) (2016) (AIP) ISSN: 0003-6951.
- **Omwati Rana**, Kalpana Agrawal, S.S.Rajput, M. Zulfequar, M. Husain, M. N. Kamalasanan and Ritu Srivastava "Impedance Spectroscopy Study of 2, 2, 7, 7' –Tetra Kis-(N,N-Di-4-Methoxy phenyl amino)-9,9'-Spirobifluorene Thin Films" ***International Conference on Condensed Matter &Applied Physics*** *(ICC-2015) AIP Conf. Proc. 1728, 020247 (2016);* doi: 10.1063/1.4946298 (AIP) ISSN: 2301-3516.
- R. Srivastava, **Omwati Rana**, Razi Ahmed, C.K. Suman, M. Zulfequar, M. Husain and M. N. Kamalasanan "Improved Performance of Organic LEDs with Modified Metal-Organic Interface" ***International Conference on Materials Science and Technology (ICMST 2012)*** **IOP Conf. Series: Materials Science and Engineering** 73 (2015) 012046 doi:10.1088/1757-899X/73/1/012046 (IOP)
- **Omwati Rana**, R. Srivastava, M.N. Kamalasanan, M.Zulfequar and M.Husain "Improvement in electroluminescence efficiency of Organic Light emitting diode using Metal-organic Interface Modification" ***Annual International Conference on Optoelectronics, Photonics & Applied Physics*** *(OPAP 2013)*, ISSN 2301-3516, p 49-51, doi:10.5176/2301-3516_OPAP13.40.
- **Omwati Rana**, R. Srivastava, G. Chauhan, M.Zulfequar, M.Husain, P.C.Srivastava and M.N.Kamalasanan "Modification of metal–organic interface using F4-TCNQ for enhanced hole injection properties in optoelectronic devices" ***Physica Status Solidi A***,Vol. 12, 2012, p 2539–2545. (**Wiley**)
- G. Chauhan, R. Srivastava, A. Kumar, **Omwati Rana**, P.C.Srivastava and M.N.Kamalasanan "Dependence of charge carrier mobility of 4,4',4"-tris(N-3-methylphenyl-N-phenylamino) triphenylamine on doping concentration of tetrafluoro-tetracyano-Quinodimethane" ***Organic Electronics,*** Vol.13, 2012, p 394-398.(**Elsevier**)
- R. Grover, R. Srivastava, **Omwati Rana**, A. K. Srivastava, K. K. Maurya , K. N. Sood, D.S.Mehta and M.N.Kamalasanan "Electroluminescence from hybrid organic–inorganic LEDs based on thermally evaporated CdS thin films" ***Journal of Luminescence*** Vol. 132, 2012, p 330-336. (**Elsevier**)
- R.Grover, R.Srivastava, **Omwati Rana**, D.S.Mehta and M.N.Kamalasanan "New Organic Thin-Film Encapsulation for Organic Ligh Emitting Diodes" **J of Encapsulation and Adsorption Sciences**, Vol. 1, 2011, p 23-28. ISSN: Print: 2161-4865, Online: 2161-4873
- **Omwati Rana**, R. Srivastava, R. Grover, G. Chauhan, S. S. Bawa, M. Zulfequar, M. Husain and M. N. Kamalasanan "Charge Transport Study of 2,2',7,7'-Tetrakis(N,N-di-4-methoxyphenyl amino)- 9,9'-spirobifluorene Using Impedance Spectroscopy **Jpn. J. Appl. Phys.** Vol. 50, 2011, p 061601(1-5). (**IOP science**) **ISSN:** Online: 1347-4065 / Print: 0021-4922
- **Omwati Rana**, Ritu Srivastava, Rakhi Grover, M. Zulfequar, M. Husain and M.N.Kamalasanan "Charge transport studies in thermally evaporated 2,2',7,7'-tetrakis-(N,N-di-4-methoxyphenylamino)-9,9_-spirobifluorene (spiro-MeOTAD) thin film" **Synthetic Metals** Vol. 161, 2011, p 828-832. (Elsevier)

BOOK CHAPTERS

- **[1.] Dr. Ravindra Singh**, Dr. Omwati Rana, Polly Biswas and Dr. Shiv Shankar Gaur, **"Fourier Coefficients and Analysis of Generation of Square Wave Function, Triangle Wave Function & Sawtooth Wave Function Using Scilab"**, ***Wisdom of the Scientific Research International Book of Multidisciplinary Studies*** *Published By: Rubicon Publications 4/4A Bloomsbury Square, Bloomsbury Square,* ***London****, WC1A 2RP,* ***England,*** *Chapter 5, pp.31-39 Edition: 1st Publication Year: 2021 E-Book ISBN: 978-1-913482-30-5 Paperback ISBN: 978-1-913482-29-9 Book DOI:https://doi.org/10.33545/rp.book.31*
- **[2.] Dr. Ravindra Singh,** Dr. Omwati Rana, Polly Biswas & Dr. Shiv Shankar Gaur, **"Generating Multiple Waves and Addition of Multiple Waves Using Scilab X-COS",** ***Research Trends In Multidisciplinary Subjects, Volume*****-4, RED'SHINE Publication Pvt. Ltd** 88-90 REDMAC, Navamuvada, Lunawada, Gujarat-389230 *Website: www.redshine.co.in , Chapter 8, pp.78-97,* November, **2021** (First Edition)**,** ISBN: 978-93-91479-24-4**,** ISBN-10: 9-39-147924-3, DIP: 18.10.9391479243, DOI: 10.25215/9391479243. Available on kindle amazon

Total Publications: 17 and Book Chapters: 2

Conference Organization/Presentation

- ***Omwati Rana****, Ritu Srivastava, M.N.Kamalasanan, M.Husain, M.Zulfequar paper entitle "* Interface modification for enhancing conduction mechanism in 2,2',7,7'-tetrakis(N,N-diphyenylamine)-9,9'-spirobifluorene(Spiro-TAD) Nano layers for optoelectro applications" presented in**" 4th International conference on Nano Technology (Nano summit 2018)** held from 21-22 Sept, 2018 **Dubai**.(**Oral presentation**).

- *Himanshi Kwatara, Aashi Garg,* ***Omwati Rana****, Anju Jain, Anna Senrung, Sumeet Goyal, Malini Sharma, Ritu Khanna, Pooja Khan Narender Kumar, Sarita Nanda "*Zero Discharge Campus: A step towards Swacch Bharat**" International conference on "Gre* **Chemistry In Environmenet Sustainability &Chemical Education (ICGE-2016)** held from 17-18 Nov, 2016 organised Department of Chemistry, Daulat Ram College (University of Delhi**).(Poster Presentation)**

- ***Omwati Rana,*** *Kalpana Agrawal, S.S.Rajput, M. Zulfequar, M. Husain, M. N. Kamalasanan and Ritu Srivastava paper enti* "Impedance Spectroscopy Study of 2, 2, 7, 7' –Tetra Kis-(N,N-Di-4-Methoxy phenyl amino)-9,9'-Spirobifluorene Thin Film conference **"International Conference on Condensed Matter &Applied Physics (ICC-2015)"** held from 30-31 oct, 2015 organis by Department of Physics, Govt of Engineering College, Bikaner**, India (Poster presentation)**

- ***Omwati Rana*** , *M. Zulfequar* , *M. Husain* and *M.N.Kamalasanan and Ritu Srivastava paper entitle "* Comparative study of OLE fabricated by using spiro compounds as HTLs" conference " ***17 th International workshop on the physics of semiconductors devic (IWPSD-2013)"*** conference held from 10-13 Dec, 2013 in Amity University, **India**. (**Poster presentation**)

- ***Omwati Rana***, Ritu Srivastava, M. Zulfequar , M. Husain and M. N. Kamalasanan paper entitle "Improvement in electroluminescen efficiency of organic light-emitting diodes using Metal-Organic Interface modification" conference "***Annual International Conferen on Optoelectronics, Photonics & Applied Physics (OPAP 2013)"*** held on 4th
  - ❖ – 5th February 2013 in **Singapore**.(**Oral presentation**)

Research Projects (Major Grants/Research Collaboration)

Project Proposal under DRC Navdhara Project:
Green the Red – A Sustainable Menstruation initiative to fight Period Poverty (9 Sept 2023-Aug. 2024)

Awards and Distinctions

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Association with Professional Bodies

Life Member of Indian Association of Physics Teachers (IAPT).

Other Activities

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