

CURRICULUM VITAE

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Date of Birth-04.03.1965. Nationality-Indian



A POSITION HELD IN THE SCIENTIFIC ADMINISTRATION OF INSTITUTE

1. Chairman of the Department of Applied Physics, G.J. University, HISAR. From 6th, November 2004 – 13th January 2006 and from November 1, 2007—November 2009, December 1, 2012-30 November 2015.
2. Reader & Head (In-charge) in the Department of Applied Physics, G.J. University, HISAR. April 1997-October 2001
3. PROGRAM CO-ORDINATOR OF "DST-FIST" 2000-06
4. PROGRAM CO-ORDINATOR OF "UGC -SAP" 2007-2012
5. PROGRAM CO-ORDINATOR OF "UGC -SAP" 2013-2018
6. **Dean, Faculty of Physical Sciences, G.J. University, HISAR, September 2017-Cont...**
7. Member Finance Committee of G.J. University, HISAR
8. Member University Court of G.J. University, HISAR
9. Member Academic Council of G.J. University, HISAR
10. Member Executive Council of G.J. University, HISAR
11. Special Invitee ,Faculty of Physical Sciences, CBLU Bhiwani

B SCIENTIFIC EMPLOYMENT AND ACADEMIC RESPONSIBILITY

<i>Name of Institute</i>	<i>Period of Service</i>	<i>Duties</i>
M.D. University, ROHTAK	1991-1997	Teaching and Research
G. J. University, HISAR	1997-Till Date	Teaching and Research

C ACADAMIC DISTINCTIONS

1. **Awarded DST Young Scientist Project** on '*Study of Relaxation Mechanism and Lasing Action in Non-Linear Optical Media*' (May 1992-April 1994)
Funding Agency: Department of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi-110 016
2. **Associateship of International Centre for Theoretical Physics (ICTP), Trieste, Italy** from January 1995 to December 1998
3. **Co-ordinator, DST-FIST Project (PSI-028)** for Setting up Non-Linear Optics Lab & Simulation Lab (January 2001-December 2005) Funding Agency: Fund for Improvement of S & T Infrastructure in Universities and Higher Educational Institutes (DST-FIST); Department of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi-110 016

4. **Co-ordinator, UGC-SAP –I** Project (F.530/4/DRS/2007/ (SAP-I dtd. February 13,2007) for Setting up Laser and Fiber Optics Lab (January 2007-12) Funding Agency: University Grants Commission, Delhi-110 0 02
5. **Co-ordinator, UGC-SAP DRS–II** Project (F.530/4/DRS/2007/ (SAP-I dtd. February 13,2007) for Setting up Laser and Fiber Optics Lab (April 2013 -18) Funding Agency: University Grants Commission, Delhi-110 0 02

D ASSOCIATESHIP

1. Life member of Indian Laser Association, Raja Ramanna Centre for Advanced Technology, Indore, *India*
2. Life member of Optical Society of India

E OTHER SSIGNIFICANT CONTRIBUTION

- Key role in Designing and implementation of Choice based Credit system for undergraduate courses for affiliating colleges,UTDs and for post graduate courses at UTD.
- Developed e-PG Pathshala Modules for Atomic and Molecular Spectroscopy under UGC initiative
- **Convener for four major conferences:**
 - National Conference on Photonics and Materials Science (NCPMS)-Three in series
 - Optical society of India (OSI) International Conference in advanced optics and Photonics (ICAOP-2017)

F ACADEMIC QUALIFICATIONS AND PUBLICATIONS

<i>Degree</i>	<i>Institution</i>	<i>Year</i>

Bachelor	Maharshi Dayanand University, Rohtak	1984
Master	Maharshi Dayanand University, Rohtak	1986
Doctor	Maharshi Dayanand University, Rohtak (Haryana) INDIA	1991

Title of thesis (for Doctoral Degree): ***Study of Optical Gain and Relaxation Mechanism in Laser Grade Dyes and Color Centres***

(SUPERVISOR: Professor R.D. Singh, Department of Physics, Maharshi Dayanand University, Rohtak)

Research/Teaching Experience: 25 Years

Number of Publications to date: 93 (Ninty Three)

Conferences/Symposia/Workshops

Attended/Organised: 55 (Fifty Five)

G OTHER PROJECTS FUNDED FROM VARIOUS SOURCE

Title of the project and duration	Funding agency
Development and Optimization of transparent conducting oxide thin films for photovoltaic applications (June 22,2017. contd....)	DST-PURSE
Realisation Of Optical Limiting And Switching In Photonic Materials (May 1,2016 – April 2018)	DRDO-IRDE-CARS

Optical Limiting And Degenerate Four Mixing In Nonlinear Optical Materials Using Lasers(Oct. 2011 –March 2015)	BRNS-DAE
Ion Beam Modifications Of Dye Sensitized Solar Cells(Nov. 2011-Oct.2014)	UGC- IUAC, Delhi
Study Of Optical Power Limiting And Bistability In Materials Based On Sol Gel Technique(Feb. 2009-June 2012)	University Grants Commission, Delhi
Study of Laser Induced Photo-physical Parameters in Sol –Gel Derived Laser Grade Dyes (Sept.2004- Aug.2007)	DST, New Delhi
Development and Study of Optical materials based on sol Gel Technique (July 2003- June 2006)	University Grants Commission, Delhi
Laser Induced Fluorescence on Green Plants (<i>Dec.2001-November 2002</i>)	University Grants Commission, Delhi
Study of Fluorescence Quenching in Optical Materials Using He-Ne Laser (April 1998-March 1999)	University Grants Commission, Delhi

H NUMBER OF STUDENTS SUPERVISED/REGISTERED DOCTROAL DEGREE: *Ninteen/Five*

Sr. No.	<i>Name of Candidate</i>	<i>Title of Thesis</i>
1.	Sunny	Study of Non Linear Optical Properties of Rare-Earth Doped Thin Films
2.	Monika	Study of Nonlinear Optical Parameter in Transition Metal Polymer Nanomaterials
3.	Sandeep Yadav	Study of Non-Linear Optical Parameters in Vanadium Oxide Thin Films
4.	Sonia	Study of Nonlinear Optical Prosperities of TeO ₂ and Bi ₂ O ₃ based Glasses
5.	Amitava Ghosh	Fabrication and Characterization of Aspheric and Freeform Optics
6.	Poonam	Realization of Optical Limiting and Optical Switching in Photonic Materials
7.	Kirti Kapoor	Study of Nonlinear Optical Properties of Transition Metal Doped Oxide Films
8.	Bulkesh	Fabrication of dye Sensitized Solar Cell and its Characterisation for better performance
9.	Anil Kumar	Study of Nonlinear Optical Switching Properties of Dye Doped Organic/Inorganic Materials
10.	Amrik	Solar cells
11.	Divya Jyoti	Dye Sensitized Solar Cells Based On Mesoporous Oxide Electrodes
12.	Dheeraj Sharma	Optical Wave Mixing in Photorefractive Crystals
13.	Sunita Rani	Study of Optical second and Third Harmonic Generation from Non Cento symmetric Chalcogenide Materials
14.	Purnima	Study of Optical Limiting Properties in Nonlinear Absorbing Chromophores
15.	Raj Kumar	Investigating Studies of Phaser Objects in Laser Schlieren Diffraction Interferometry and Development of Machine-Readable Features in Security Holograms
16.	Sunita Sharma	Study of Non-Linear Properties in Material of Optical Waveguide

17.	Meenakshi Sharma	Development and study of laser induced photo physical properties
18.	Karan Singh Gill	Study Of Optical & Mechanical Properties Of Laser Dyes-Doped Polymers, BCC Metals And Layered Semiconductors
19.	Madan Singh	Investigation Of Data Security System: Some Architecture Algorithms
20.	Umesh Gupta	Monte Carlo Study Of Alloys & High Temperature Superconductors And Laser Induced Transitions In Sol Gel Based Materials
21.	Vijay Kumar Sharma	Study of Excitation Transfer in Some Lasing Materials
22.	Dharamvir	Study of Photoconductivity, Optical Gain, and Photo acoustics in Optical Materials

MASTER OF PHILOSOPHY DEGREE:

FIVE

H NUMBER OF BOOKS/ ARTICLE IN BOOKS: ONE/ONE

Title of Book/Publisher/Authors/ Year of Publication

1. Digital Electronics/ Galgotia booksource P.Ltd., N.Delhi, India, Sib Krishna Ghoshal, **Devendra Mohan Nassa**, & Dharminder Kumar / 2002
2. One Chapter in Microwaves and Optoelectronics /Edited Book/ Anamaya Publishers,New Delhi/ Sunita Sharma, S.K.Ghoshal & **Devendra Mohan**/2004
3. Monograph "Optical Limiting: A Review", **Devendra Mohan**, Purnima/2011

I CONTRIBUTION TO CORPORATE LIFE/FIELD ACTIVITIES

- Scientific radio talks broadcast from All India Radio Rohtak (around 15)
- TV Programs
- Syllabus and Curricula designed and developed for Masters and Integrated Courses of BSc –MSc in Physics, Chemistry and Mathematics
- Developed Non linear Optics and Laser Laboratory for Research

J AREA OF SPECIALISATION

- Laser Physics and Non linear Optics

K A BRIEF OUTLINE OF RESEARCH WORK DONE

- Studies of Optical gain properties in Laser grade dyes and Colour Centre Materials using amplified spontaneous emission (ASE) technique. For the purpose, a system consisting of N₂ laser, sample holder assembly along with moveable shutters, single monochromator, fast photomultiplier tube, linear amplifier and counter/oscilloscope has been designed and developed
- The non linearity originating from unique intensity dependence of some of the laser grade dyes (Coumarin, Xanthene and Disodium salt in single solutions) manifested in photo- quenching effects has proved to be a very important tool providing a convenient method for determining excited state cross sections without requiring more sophisticated time resolved excited state absorption techniques. The ratio of radiative to non-radiative energy transfer rate constants studied in binary and ternary mixture solutions has also become meaningful for energy transfer dye laser (ETDL) systems
- The dynamics of internal degrees of freedom in dye molecules (particularly in Coumarin class of dyes) has also been investigated using, the concentration dependent optical gain characteristics
- The time resolved spectroscopy in case of dyes as well as in colour centre material like CsI:In (TI) ionic crystal has been studied with the help of laser fluorimetric system developed in the laboratory

- The study of Laser induced photoconductivity in ZnS, ZnSe, PbI₂ and CdI₂ crystals using pulsed N₂ laser, Nd: YAG fundamentals and frequency double laser pulses
- The photo acoustic spectrophotometer has been designed and developed during the DST funded project tenure (young scientist award), for the studies on solid samples viz. Tb₄ O₇, Nd₂ O₃ (rare earth oxides) and Rh 610, Nile blue (Laser dyes in powder form). Study of photo-bleaching effect in Laser grade dyes including Methylene Blue using He-Ne laser has been understood through Photo acoustic studies. Also, chlorophyll in Sol Gel samples are being tried for achieving laser action
- For the last two years, an intensive effort is being made to produce embedded organic dyes, with the aim to achieve Solid State Dye laser devices, which may replace the liquid dye lasers. With the increasing popularity of Sol-gels, the Photoconductivity and Photoacoustic studies on PbI₂ embedded in PMMA have been carried out.
- An experimental set up for the study of Stimulated Brillouin Scattering in Rare Earth Doped fiber materials is underway.
- Working on Optical Limiters in Visible and IR region.
- Study of optical properties of Rare Earth doped Zn O Thin Films
- Non-linear optical Properties in Chalcogenide glasses
- Deliverables developed for optical limiting/switching under IRDE CARS project.

DEVENDRA MOHAN