[BIO DATA]

Prof. Rajiv Manohar

Physics Department

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Name :	Dr. Rajiv Manohar
Designation :	Professor
Date of Birth :	9th Jan, 1970
Residential Address :	392, 5th street, Rajendra Nagar, Lucknow-226004.
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Educational Qualifications:

Sl No.	Degrees / Certificates	Board / University	Subject	Year	Percentage
1.	Ph.D.	University of Lucknow		2000	
2.	M.Sc.	Lucknow University	Physics (Electronics)	1992	73.4% **2nd position In University**
3.	B.Sc.	Meerut University	Physics, Chemistry, Maths	1990	70%
4.	Intermediate	U.P. Board Allahabad	Hindi, Eng., Maths, Physics, Chemistry	1987	66%
5.	High School	U.P. Board Allahabad	Hindi, Eng., Maths, Science, Bio., S.Studies	1985	71.89% **1st position in College**

Ph.D. Title*:* Dielectric, optical and thermo dynamical properties of some liquid crystals and polymers exhibiting flexible behavior.

Additional Qualification:

1. Qualified **GATE-93 Exam** (An Exam. Conducted by IIT for admission in M.Tech. and Ph.D. Programme) with **98.81** Percentile.

2. Qualified **NET-UGC-CSIR-Exam** (conducted by UGC-CSIR for grant of Junior Research Fellowship) Dec' 94.

3. Certificate course in **Innovation Management in R & D** at IIM, Calcutta Nov. 5-11, 2005.

4. Certificate course in **Distributed Laboratory Instrumentation Systems** at ICTP, Italy, Oct. 30 to 24 Nov, 2006.

Orientation & Refresher courses

1. Orientation course at Academic Staff College, University of Lucknow. (Sept.1 to 28, 1998).
2. Refresher course at Academic Staff College, University of Lucknow. (March 4 to 31,1999).
3. Refresher course at Academic Staff College, University of Lucknow. (July 24 to Aug 13, 2001).
4. Refresher course at Academic Staff College, University of Lucknow. (Nov. 11 to 30, 2002).

Positions Held:

1. **Part-time Lecturer** in the Department of Physics, Lucknow University, Lucknow from December 1993 to June 1996.
2. **Lecturer (Temporary)** in the Department of Physics, Lucknow University, Lucknow since 29th June 1996 to 13th October, 1997.
3. **Lecturer** in the Department of Physics, Lucknow University, Lucknow since 13th October, 1997 to 8thAugust 2000.
4. **Senior Lecturer** in the Department of Physics, Lucknow University, Lucknow from 8th August 2000 to 25th Sep 2004.
5. **Reader/ Associate Professor** in the Department of Physics, Lucknow University, Lucknow from 25th Sep 2004 to 25th Sep 2010.
6. **Professor** in the Department of Physics, Lucknow University, Lucknow from 25th Sep 2010 to till date

Awards &Achievements:

1. **Young Scientist Award** by U.P. Council of Science and Technology, U.P. Govt. in the year 2003. (U.P. CST gives this award for overall research performance, to a person under 35 years of age. The award carries an amount of **Rs. 25,000** and a citation.)
2. **Young Scientist Award** at 89th session of Indian Science Congress, Lucknow 2002. (This is a national award given by Indian Science Congress Association for oral presentation of research paper by a person under 32 years of age. The award carries an amount of **Rs. 5,000** and a citation.)
3. **Best Poster presentation award** at 86th Indian Science Congress, Chennai, 1999. (This award is given by Indian Science Congress Association, Calcutta for presentation of research paper in form of poster. Award carries an amount of **Rs. 1,000** and given once a year.)
4. **Honored** by Lucknow University for awards won in the field of research on 4/3/2004.
5. **UGC Research Award – (2014-16)** It is a UGC scheme in which based on best research work full salary for two years and 3.0 lakh Rs. Contingency is given. The total value of fellowship is approximately is **Rs. 35,00,000** only.
6. **UGC "Mid Career Award" - 2017. It is given by University Grants Commission on overall research work of a faculty member and carries a grant of 10 lakhs for research work.**
7. **"Shikshak Shree Samman" By UP Government In 2017. The Award carries a Citation and Rs. 150000/-.**
8. **Best research paper award by University -2017**
9. **"Sarswati Samman" By UP Government In 2018. The Award carries a Citation and Rs. 300000/-.**

Research Experience:

Duration	Institution	Nature of work done
1992-1996	Lucknow University	Worked as a JRF (UGC)
1996-Till Date	Lucknow University	Working as a Lecturer, Reader, Associate Professor and Professor & doing research work (details are given below)

Research Specialization:

Soft Condensed Matter (LIQUID CRYSTALS*)*

1. Dielectric spectroscopy
2. Optical properties
3. Electro- Optical properties
4. Thermodynamical properties
5. Texture study
6. Order parameter
7. Electro optical devices
8. Photovoltaic applications of liquid crystals.
9. Photo alignment of Liquid crystals

(Mainly working with bi-component mixtures and doped (dye, QD's nanoparticle and other non mesogens) liquid crystals in order to develop more useful samples with optimized parameters for display & other devices.)

1. **Twenty five years research experience** of working with sophisticated equipments like Impedance-gain Phase analyzer (HP-4194A & Soletron 1260), Polarizing Microscope (SENCICO-7626), Temperature Controller (Julabo-F25), Hot stage (Instec-HS304), UV Spectro-Photometer, Abbe's Refractrometer, Microwave Bench, DSC setup, FTIR Setup etc.
2. **Twenty Ph.D. theses have been awarded** and six Research Scholars are registered under my supervision for their Ph.D. work. In addition to that I am also supervising one Post Doc. Students (He is working on Fast Track DST Project).
3. **Initiated and successfully developed a fully functional self sustained experimental laboratory for Liquid crystal characterization in last ten years. The lab has all the facilities for electrical, optical, electro- optical and thermodynamical studies of liquid crystals and other materials.**
4. **The work done has been well cited by other authors in prestigious journal. One paper in soft materials (a Taylor & Francis journal with Impact parameter 2.6) has been ranked fifth in the list of ten most cited papers during year 2006-2008.**
5. We have expertise in developing special purpose liquid crystals (doped liquid crystals) for specific applications. Our work on enhanced optical self alignment and switching properties of ferroelectric liquid crystals (FLCs) have received much attention and ISRO has given a project for designing SLM devices, which we have successfully completed and submitted to ISRO for use. Our work on developing photoluminescence in liquid crystal by use of quantum dots and grephene has been widely appreciated and was published in Physical Review E.

6. I have been collaborating with scientists at Military University of Technology, Warsa, Poland, National Physical Laboratory, New Delhi, M S Baroda University, Varodara, Assam University Silcher and Allahabad University, RRI and CLCR Bangalore and have joint publications.

Contribution:

I am working on characterization and application of liquid crystals for last 15 years and initiated this work in the Physics Department of University of Lucknow. During this period, I have been able to develop a **fully functional self sustained experimental laboratory for Liquid crystal characterization and their applications in devices.** Now I have a research group of two Post doctoral Fellows, 2 SRF and 6 JRF. My research group has a well-equipped experimental laboratory with the facilities of dielectric, optical, thermal studies and expertise in dielectric spectroscopy and optical studies of liquid crystals. During last ten years we have explored a number of liquid crystals of different types and their mixtures.

From application point of view a liquid crystal material should retain an appropriate mesophase and suitable value of parameters like viscosity, electrical permittivity, elastic constant and refractive indices, over a wide temperature range. Normally no single liquid crystal fulfills these requirements so multi component liquid crystals mixtures are needed. Studies on liquid crystal mixtures provide information about how different properties changes with mixing of one sample into the other and this could lead to the development of new materials available for practical applications. In view of the importance of investigations on liquid crystal mixtures, studies have been carried out by my group on some bicomponent cholesteric liquid crystals mixtures for their dielectric and optical behavior with variation of temperature. The variation in density has also been studied under these conditions. These properties have been used to determine the order parameter, which is the most important parameter, exhibiting the symmetry of liquid crystal molecular assembly.

In addition to that we have also studied some of the Nematic liquid crystals like E-24, BKS-7, BKS-08 etc. for their optical and electrical characterization. We have successfully designed switching speed measurement set up and started sophisticated studies on mixtures of Anthraquenon dye in Nematic and Cholesteric liquid crystals. We are also working with ferroelectric liquid crystals in their pure as well as dye doped form for their dielectric, optical and electro-optical properties.

My main contribution in last 15 years is on doped liquid crystals. I have expertise in developing special purpose liquid crystals (doped liquid crystals) for specific applications. **Our systematic and focused work on dye doped and nanoparticle doped liquid crystals has revealed novel changes in properties of the liquid crystals. Especially the concentration**

dependence (of doped materials) of changes taking place in the liquid crystal has been established both experimentally and theoretically by our group. The enhanced optical self alignment and optical switching of our dye doped ferroelectric and nematic liquid crystal systems have received much attention of researchers and we have been entrusted with developing SLM devices based on these systems by ISRO, which we have designed and submitted successfully. I have also worked on effect of nuclear radiation on the properties of liquid crystals and successfully manipulated properties of liquid crystals by different doses of gamma radiation. The outcome of this work has lead to new dimensions in the detection of nuclear radiation detection and also in development of better display devices, which can have longer life even in the environment highly affected by nuclear radiation. Another area of my interest is photovoltaic effect of liquid crystal materials, which will lead to development of energy efficient solar cells. In addition to that we are also taking a step forward in the direction of photo alignment of liquid crystals for application in grating (switchable devices) and running a joint project with Military University of Technology, Warsa, Poland.

A good number of research papers have been published during last ten years in good impact factor international journals like Physical Review E, J. of Applied Physics, Applied Physics Letters, J. of Physics & Chemistry of Solids, (USA), Japanese Journal of Applied Physics, Physics Letters A, Acta Physica Polanika and Molecular Crystals Liquid Crystals, Soft Materials etc. **The work done has been well cited by other authors in prestigious journal. One paper in soft materials (a Taylor & Francis journal with Impact parameter 2.6) has been ranked fifth in the list of ten most cited papers during year 2006-2008.**

I have been collaborating with scientists at **Military University of Technology, Warsa, Poland,** National Physical Laboratory, New Delhi, M S Baroda University, Varodara, Assam University Silcher and Allahabad University and have joint publications. Looking at the applied nature and importance of contribution made by my group and proposals submitted by me I have been sanctioned research projects by leading scientific agencies of our country. Right now four projects are functional in the lab sponsored by Department of Science & Technology, Indian Space Research Organization, Board of Research for Nuclear Sciences and University grant Commission.

I have won **Young Scientist Award** and a **Best Poster Presentation Award** from Indian Science Congress Association in the year 2002 and 1999 respectively. The Council of Science and Technology, U.P. (Govt. of U.P.) has also conferred its **Young Scientist Award** on him, in the year 2003 for his research work done in field of liquid crystals. **The UGC Research award – 2014-16 was also conferred to me recently. I have also been a recipient of prestigious UGC**

MID CAREER AWARD in 2017 and state government has recognized my contribution by awarding SHIKSHAK SHREE SAMMAN in 2017 and Swarswati samman in the year 2018.

I have also taken more than 200 lectures and talks on topics of general interest like **"changing world with basic research, everyday Science"** etc. for popularizing science and development of scientific temper amongst young students.

Research Collaborations:

1. Military University of Technology, Warsa, Poland
2. Unit´e de Dynamique et Structure des Mat´eriaux Mol´eculaires, EA 4476, Universit´e du Littoral Cˆote d'Opale, F-59140 Dunkerque, France
3. National Physical Laboratory, New Delhi
4. RRI, Banglore
5. CLCR, Banglore
6. M S Baroda University, Varodara
7. Allahabad University, Allahabad
8. BHU, Varanasi
9. Karnataka University, Dharwad
10. Aassam University Silcher, Aassam

Research Publications	:	(List attached as annexure 2 of Main form)
Journals	:	187 Papers in refereed journals
Proceedings	:	11
Revised Submitted	:	2
Communicated	:	4
Conference	:	152
Chapters	:	2 (under publication)
Ph. D. Awarded	:	20
Citation index	:	1655
i10- Index	:	63
h- Index	:	22

Research Grant:

PROJECT No. 1

Funding Agency	:	**Department of Science & Technology, New Delhi**
Title of the project	:	"Optimisation of dielectric, optical & electro-optical properties of FLCs by doping them with dyes for better application in displays*".*
Total amount of Grant	:	Rs.18.15 lakhs
Total period of support with date	:	3 Years (March 2005- August 2008)

PROJECT No. 2

Funding Agency	:	**Department of Science & Technology, New Delhi**
Title of the project	:	*"Dielectric and electro – optical properties of nanoparticle doped FLCs"*.
Total amount of grant	:	Rs. 39.92 Lakh
Total period of support with date	:	3 Years (April 2009-May 20012)

PROJECT No. 3

Funding Agency	:	**University Grants Commission, New Delhi**
Title of the project	:	*"Dielectric and electro – optical properties of dye doped nematic liquid crystals"*under major project scheme.
Total amount of Grant	:	Rs. 6.63 lakhs
Total period of support with date	:	3 Years (April 2007- July 2010)

PROJECT No. 4

Funding Agency	:	**Indian Space Research Organisation**
Title of the project	:	*"Designing of SLM's based on nematic liquid crystals doped with non mesogenic molecules"*.
Total amount of grant	:	Rs. 21.57 lakhs

Total period of support with date : 3 Years (May 2010 – 2013)

PROJECT No. 5

Funding Agency : **Board of Research for Nuclear Sciences**

Title of the project : *"Gamma irradiation induced transformations in the properties of nematic liquid crystals"*.

Total amount of Grant : Rs. 32.26 lakhs

Total period of support with date : 3 Years (June 2010 – 2013)

PROJECT No. 6

Funding Agency : **University Grants Commission, New Delhi**

Title of the project : *"*Polymer -Nematic liquid crystal composites – A dielectric, electro-optic and switching Study*."*.

Total amount of Grant : Rs. 11.76 lakhs

Total period of support with date : 3 Years (July 2011 – 2014)

PROJECT No. 7

Funding Agency : **Department of Science & Technology, New Delhi**

Title of the project : *"Photoluminescence, Dielectric and electro – optical properties of Quantum dots doped FLCs"*.

Total amount of Grant : Rs. 51.56 Lakh

Total period of support with date : 3 Years ((July 2011 – 2014))

PROJECT No. 8

Funding Agency : **UP council for science & Technology**

Title of the project : *"Effect of doping dichroic dyes on dielectric, electro-optic and switching properties of nematic and cholesteric liquid crystals.*

Total amount of Grant	:	Rs. 10.50 lakhs
Total period of support with date	:	3 Years (2016 – 2019)

PROJECT No. 9

Funding Agency	:	**Indo-Polish Joint Project, Department of Science & Technology**
Title of the project	:	*"**Development of photonic devices based on doped new ferroelectric and antiferroelectric liquid crystals using photo orientation"***
Total amount of Grant	:	Rs. 10.00 lakhs
Total period of support with date	:	2 Years (2015-2017)

PROJECT No.10

Funding Agency	:	**University Grants commission under Research Award Scheme**
Title of the project	:	*"**Optimization of dielectric, electro-optical & optical properties of quantum dots doped liquid crystals for photonic applications"***
Total amount of Grant	:	Rs. 41 lakhs (38 lakhs as salary + 3 lakhs)
Total period of support with date	:	2 Years (2015- 2017)

PROJECT No.11

Funding Agency	:	**University Grants commission under Mid Career Award Scheme**
Title of the project	:	*"***Development of switchable grating based on doped liquid crystals"**
Total amount of Grant	:	Rs. 10 lakhs
Total period of support with date	:	2 Years (Ongoing)

PROJECT No. 12

Funding Agency	:	**U P Government**
Title of the project	:	*"**APJ Kalam Innovation Center**"*
Total amount of Grant	:	Rs. 200 lakhs
Total period of support with date	:	2 Years (2016-2018)

PROJECT No.13

Funding Agency	:	**U P Government**
Title of the project	:	*" **Centre for Excellance**"*
Total amount of Grant	:	Rs. 10 lakhs
Total period of support with date	:	1 Years (2020-2021)

Refereeing:

Referring research papers for journals of international repute like –

1. ***Journal of applied Physics, (AIP)***
2. ***J. Phys. and Chem. of Solids USA, (Elsevier)***
3. ***Journal of non crystalline Solids, (Elsevier)***
4. ***Journal of Physics (Condensed matter) (IOP)***
5. ***Phase transitions (Taylor & Francis)***
6. ***Solid State Sciences, (Elsevier)***
7. ***Applied Physics letters (AIP)***

Foreign Visits:

1. Presented Research paper in TOPCON-2006 (SPE Conference) at University of Akron, Ohio, USA. (23- 34 Oct, 2006).
2. Attended 4th Workshop on Distributed Lab Systems at ICTP, Italy. (30Oct- 24, Nov, 2006).
3. Presented Research paper in conference on soft materials at ICTP, Italy. (4th to 9th June, 2007).
4. Presented paper in International Liquid Crystal Conference at Trinity College, Dublin, Ireland. (29 June – 4July, 2014)
5. Visited Military University of Technology, Warsawa, Poland from 5th to 23ed Sept.,2015.
6. Visited Military University of Technology, Warsawa, Poland from 11th to 25th Sept.,2016

Invited Lectures in National & international conferences:

1. Optimized parameter of dye doped liquid crystals.
   2nd Indo- Polish workshop at Allahabad University, Allahabad 12 December 2007.
2. Ferroelectric Liquid Crystals versus Guest-Host Ferroelectric Liquid Crystals.
   International Conference on mesogenic & Ferroic material-09, BHU Varanasi, 9-11 Jan2009.
3. Dye Doped Liquid crystals and their applications.
   National Conference on Recent Advancement on Materials, DAV Kanpur,12 Dec. 2009.
4. Doped Ferroelectric Liquid Crystals.
   16th National Conference on Liquid Crystals, University of Lucknow, Lucknow, 26-28 October 2009.
5. Guest-Host Interaction in Ferroelectric Liquid Crystals.
   18th National Conference on Liquid Crystals. Ita Nagar, 15-17 Nov 2011.
6. *Guest-Host Effect In Ferroelectric Liquid Crystals.*
   3ed Indo- Polish seminar at Allahabad University, Allahabad, 5 Nov.2011.
7. Ferroelectric Liquid Crystals versus Nano Particle Doped Ferroelectric Liquid Crystals.
   International Soft Matter Chemistry Workshop, RRI Bangalore, 9-11 November 2011.
8. Liquid Crystals and its Applications.
   Dr. K. S. Shukla Memorial Lecture at BND College, Kanpur, 25 Jan, 2012.
9. Impact of nanoparticles and carbon nanotubes on current and future generations of liquid crystal applications.
   International Conference on Supramolecules & Nanocomposites,Gujrat University Ahamdabad, 5-8 Feb,2012.
10. Nanoparticles and carbon nanotubes-Impact on current and future generation liquid crystal applications.
    Natioal Conference on Nanocomposites, Kanpur, 9-10 Feb, 2012.
11. Funding schemes for colleges.
    Principal's Orientation Workshop, ASC, Lucknow, 31 May 2012.
12. How to Prepare Project Proposals.
    Orientation Workshop, ASC, Lucknow, 11 June 2012
13. UGC Regulations 2010.
    Orientation Workshop, ASC, Lucknow, 21 June 2012.
14. Nanoparticle doped Ferroelectric Liquid Crystals.
    19th National Conference on Liquid Crystals. Patiala, 21-23 Nov 2012.
15. Application of Liquid Crystals for future generation devices.
    International Conference on Chemistry & Materials: Prospects and Perspectives, Ambedkar University, Lucknow (14 – 16 December, 2012)
16. Impact of nanomaterials on liquid crystal applications.
    Condensed Matter and Biological Systems, BHU, Varanasi,(11-14 January, 2013)
17. Quantum dots doped liquid crystals.
    20th National Conference on Liquid Crystals. Manipal, Dec. 2013.

18. Activities of IQAC.
    BSNV College, Lucknow, 21 Dec. 2013
19. Application of nano doped liquid crystals.
    International seminar on advances in bio- & nano- materials (isabnm-2013) Nov. 17, 2013, Lucknow.
20. IQAC and Accreditation.
    Mahila PG College, Lucknow, 15 March 2014.
21. Nanomaterial doped Liquid crystals and their applications.
    International Conference on Advanced Materials and Applications (ICAMA-2014) Allahabad University, Allahabad, March 24-26, 2014
22. Application of Quantum dots doped liquid crystals.
    21st National Conference on Liquid Crystals. Kanpur, Nov. 2014.
23. Quality Enhancement Under Career Advancement Scheme
    BSNV College, Lucknow,7-07-2015
24. Choice base credit system (c.b.c.s.) and preparation of ideal question papers.
    MG Kashi Vidhyapeeth, Varanasi, 30th MARCH 2015.
25. Liquid Crystal Displays
    Firoz Gandhi College, Raibarelie, 15.10.15
26. Energy efficient technologies
    Govt. Vivekanand (P.G.) College Manendragarh, Chattiusgarh, 9.10.15
27. Quantum dots doped liquid crystals & their applications.
    22nd National Conference on Liquid Crystals. DIT, Dehradoon, Dec. 2015.
28. NAAC Accreditation & IQAC
    Amity University Haryana, Gurgram (18 May, 2016)
29. Applications of Liquid crystals.
    Amity university Haryana, Gurgram (18 May, 2016)
30. Quantum dots doped liquid crystals & their applications.
    International Conference on New Scintillations on material horizon. Bareilly Unversity,21-23 Oct, 2016.
31. Role of Quantum dots doped in liquid crystals applications.
    23ed National Conference on Liquid Crystals. IIT, Dhanbad, 7-9 Dec. 2016
32. Quantum dots doped liquid crystals & their applications.
    XXI Conference on Liquid Crystals Chemistry, Physics and Applications (18-23 Sep, 2016) Kreniza Zdrose.
33. Application of Liquid crystals.
    Recent Advances and Innovations in Chemical and Materials Science, 23-24 Feb. 2017, **Lucknow.**
34. Graphene and its oxide for liquid crystals applications.
    24th National Conference on Liquid Crystals. IISER, Mohali, 11-13 Dec. 2017.
35. Nanoparticle and liquid crystals applications.
    25th National Conference on Liquid Crystals. Allahabad University, 19-21 Dec. 2018.
36. Quantum dots doped in liquid crystals.
    National Seminar on Recent advances in Material Sciences & Electronics, Awaadh University, 27Febuary 2019.

37. Quantum dots doped in liquid crystals.
    International Symposium on dvnces inFunctionl & Biologicl Maaterials, Lucknow University, 28 Feburaary 2019.
38. Project proposal preparation,
    FDP on NAAC Accreditation on 31 May-01 June 2019 at G D Goynka University, Sohna.
39. **Research Methodology.**
    National Workshop on Research Methodology during 20-26 May, 2019. at Dr. RML Awadh University, Faizabad
40. Liquid Crystal applications.
    CONIAPS XXIV on "Innovations in Physical Sciences, 9-11 August2019 Meerut University
41. **Liqud Crystal Applications**
    26th National Conference on Liquid Crystals (26th NCLC-2019) during October 21-23, 2019 Chitkara University, Panjab
42. Project proposal preparation,
    International Conference on Industry 4.0 (ICI4) during September 28-29, 2019 Dr. RML Awadh University, Faizabad
43. **Quantum Dot Liquid Crystal**
    25th International Conference of Physical Sciences going to be held during December 29-31, 2019 at Department of Chemistry, Guru Jambheshwar University of Science and Technology, Hisar, Haryana
44. Instrumentation,
    Refresher course being organized by HRDC, G.G. Vishwavidyalaya, 15.12.2019, Bilaspur.
45. NAAC Preperation
    workshop on 'NAAC' awareness ,27 Jan 2020, Allahabad state University
46. Liquid Crystals
    Workshop and Seminar on Experimental Techniques for Materials Characterization during Feb 06-07, 2020 , Allahabad University
47. Innovation in Physics Teaching
    Innovative Methods of Teaching Physics" on March 5-6, 2020, Shia PG College Lucknow
48. **Liqud Crystal Applications**
    Challenges & Opportunities for Technological Innovation in India" (COTII – 2020) on **28th & 29th February, 2020, Ambalika Institute of Management & Technology, Lucknow**

(In addition to that I have delivered more than 250 lectures time to time in Refresher and Orientation courses organized by Academic Staff College, University of Lucknow & other Universities)

Conference / Seminars Organized

1. Member, National Organising Committee, 19th National conference on Liquid Crystals, Patiala, (21 - 23,November, 2012)
2. Member, National Organising Committee, 18th National conference on Liquid Crystals, Ita Nagar, (15-17,November, 2011)
3. Member, National Organising Committee, 17th National conference on Liquid Crystals, Surat, (16-18,November, 2010)
4. Convener- 16th National conference on Liquid Crystals, Lucknow (26 – 28 October, 2009).
5. Member, National Advisory Committee, Recent Advancement in Physics, Kanpur,(12th December 2009).
6. Member, Technical Committee, XXIV Annual Convention, IAPT,Kanpur (10 -12 October, 2009)
7. Treasurer –Organizing Secretary, Seminar on Frontiors of Spectroscopy, Lucknow (November 11-13, 2008)
8. Treasurer –National Symposium on Advances in Chemical & Materials Sciences, Lucknow (May 10-11, 2007)
9. Treasurer – 17th Material Research Society of India AGM, Lucknow (13-15 February, 2006).
10. Convener - Awareness workshop on IQAC & NAAC for affiliated Colleges, Lucknow (24th April, 2013)
11. Convener - Workshop on E- Learning and Preparation of E- Learning Material, Lucknow (17th August, 2013)
12. Initiated & Organized more than 15 Seminars/Lecture under the banner of Lucknow University Physics Alumni association on Materials Science/ Nanotechnology and other topics by renowned scientists at University of Lucknow.
13. Organized 40 awareness workshops and 70 lectures for students as IQAC Director.

Curriculum Development

I. Designed and fabricated digital electronics lab for M.Sc. Electronics course started by DOE and UGC.

II. Development of syllabus at Graduate and Post-graduate level from time to time.

Membership of academic bodies

1. Life Member, International Liquid crystal Society.
2. Life Member, Indian Science Congress Association, Kolkata.
3. Life Member, Indian Association of Physics Teachers, India.
   (Also a member of U.P. Regional Council of association)
4. Life Member, Alumnai Association, Physics Department, Lucknow University, Lucknow. (At Present Secretary)
5. Life member Indian Liquid Crystal Socity.
6. Life Member, Materials research society of India.(Treasurer, Lucknow Chapter).
7. Invited Member, American Nano Society.

Administrative Assignments

I have been involved in various administrative assignments during my services in University of Lucknow. As Director IQAC I have been instrumental in scrutiny of application forms and almost 70 selection committee has been organized successfully in last 3 years in the university. I have also been part of various committees of university as well as State government. The details of few important assignments are as follows -

1. **Director, Internal Quality Assurance Cell (IQAC),** University of Lucknow, (09.01.2013 till now)
2. **Director, NAAC Accreditation Cell**, University of Lucknow, Lucknow (20.12. 2012 till now)
3. **Nodal Officer- RUSA, University of lucknow.**
4. **Additional Proctor**, Lucknow University, Lucknow since 24/8/2011 to 12/02/12.
5. **Deputy Director Planning and Development board** Lucknow University, Lucknow since 12/6/2005 till 26.12.2011.
6. **OSD** to Vice Chancellor 12/06/05 to Jan.08.
7. **Assistant Proctor**, Lucknow University, Lucknow since 18/4/2000 to 20/02/06.
8. **President, Motinagar Delegacy center**, Lucknow University, Lucknow since 16/5/2001 till date.
9. **President, Cricket club**, LUAA, Lucknow University, Lucknow.
10. **President, Basket Ball Club**, LUAA, Lucknow University, Lucknow.
11. **President, Lawn Tennis Club**, LUAA, Lucknow University, Lucknow.
12. **President, Table Tennis Club**, LUAA, Lucknow University, Lucknow.
13. **Member catering committee** in Indian Science Congress Session held at Lucknow University, Lucknow in year 2002.
14. **Member coordination committee** for preparation of NAAC report of University.
15. **Member coordination committee** for preparation of UGC 6th Pay commission report (North Zone)
16. **Member coordination committee** for preparation of FIST project of department.
17. **Member coordination committee** for preparation of Annual report of University.
18. **Member coordination committee** for Physically Handdicaped persons of University.
19. **Member, Centre for Excellence Rules & Regulation committee, U.P. Council for Higher Education, U.P. Government.**
20. **Member, Infrastructure grant to State Universities Rules & Regulation Committee, U.P. Council for Higher Education, U.P. Government.**
21. **Member, Academic Audit Software Committee, U.P. Council for Higher Education, U.P. Government.**
22. **Member IQAC Urdu Arbui Farsi University Lucknow (from 2017)**
23. **Member IQAC Shakuntala Misra University Lucknow (from 2017)**
24. **Member IQAC Law University Lucknow (from 2017)**
25. **Member IQAC Dr. RML Awadh University Faizabad (from 2016)**
26. **Member IQAC Ara University Bihar (from 2017)**
27. State Mentor NAAC awareness programme-2020