

CURRICULUM VITAE

Dr. Anil Kumar

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Personal Details:

Date of Birth : 4th April 1978
Nationality : Indian
Gender : Male
Marital Status : Married
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Educational Qualifications:

- **D.Phil. in the Faculty of Science (2009)**, Department of Physics, University of Allahabad, Allahabad, **India**
Thesis Title: Studies on Antiferroelectric Liquid Crystals.
Supervisor: Prof. V. K. Agrawal
 - **M. Sc. in Physics (1999) with specialization in Electronics**, with first division from University of Allahabad, Allahabad, India.
 - **B. Sc. (1997) with Physics, Chemistry and Mathematics** with second division from University of Allahabad, Allahabad, India.
 - **Intermediate (1994)** (Mathematics stream) with first division from Govt. Inter College, Faizabad (U. P. Board).
 - **High School (1992)** (Science stream) with first division from Govt. Inter College, Faizabad (U. P. Board).
 - **B.Ed. (2002)** (Science & Math's Teaching) with first division from V. B. S. Purvanchal University, Jaunpur, U.P., India
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Other Qualifications:

- Qualified **National Eligibility Test (NET) 2002**, in Physical Sciences jointly conducted by C.S.I.R- U.G.C. New Delhi.
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Teaching Experience:

1. Lecturer at **Iswar Saran Degree College, Allahabad** affiliated to Allahabad University since 28th Oct.2002 to 22nd Feb. 2005. **(3 Years & 4 Months)**
2. Assistant Teacher (TGT-Science) at **C.A.V. Inter College, Allahabad**, since 23rd Feb. 2005 to 2nd Dec. 2009. **(4 Years & 9 Months)**
3. Assistant Professor at **Dr. R. M. L. Avadh University, Faizabad**, since 3rd Dec. 2009 to till now. **(11 Years & 03 Months)**

Total Teaching Experience: 18 Years & 04 Months)

Field of Interest: Materials Science-Condensed Matter (Soft material- liquid crystals) and Thin films fabrication and Characterizations.

- Dielectric/electrical properties.
- Switching properties and electro-optical properties.
- Ferroelectric and Antiferroelectric liquid crystals.
- Thin Films: Semiconductors

Techniques and Instruments:

During the course of my D. Phil. work, I have designed and constructed various Liquid crystal dielectric cells of variable thickness by using own techniques and handled the following sophisticated scientific instruments:

- Differential scanning calorimeter(DSC- Perkin-Elmer 7.0)
 - Optical polarizing microscope
 - SI 1260 Solartron Impedance Gain-Phase Analyzer with 1296 dielectric interface
 - HP 4194A impedance gain-phase analyzer
 - Switching experiment system (digital CRO of Hameg and Agilent 54624A Oscilloscope).
 - Temperature controller (Instec HS-1).
 - High Temperature Furnaces capable of going up to 1400°C.
 - Hydraulic Press.
 - Electron Beam Evaporation Techniques (Hind Hivac)
 - Hall Effect Measurement Techniques.
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Computer & other Skills:

Operating Systems: Windows, MS-DOS

Scientific Packages: Origin and Matlab

Membership of accredited body:

- Life time membership, Indian Liquid Crystal Society, Bangalore (A chapter of International Liquid Crystal Society, U.S.A.) Membership No. L-285.
 - Life time membership, International Liquid Crystal Society, U.S.A. Membership No.-1811.
 - Life time membership, Material Research Society of India, Membership No. LMB-1259.
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Research Papers published in international/ national journals:

1. Dielectric and thermodynamic studies on antiferroelectric liquid crystal (S)-4-(1-methylheptyloxycarbonyl) phenyl 4'-(6-heptanoyloxyhex-1-oxy) biphenylate (6H6Bi): **Anil Kumar**, R. Dhar, V. K. Agrawal and R. Dabrowski; **Phase Transitions**, Vol. 80, No .3, p 231, **2007**.
2. Switching and characteristic dielectric parameters of a room temperature antiferroelectric liquid crystal mixture: **Anil Kumar**, R. Dhar, V. K. Agrawal, R. Dabrowski, and M. Tykarska; **J. Appl. Physics**, Vol. 104, 054104, **2008**.
3. Fabrication and characterization of *n*-InSb thin film of different thicknesses: S. R. Vishwakarma, **Anil Kumar**, R S N Tripathi, Rahul & Sasmita Das; **Indian Journal of Pure & Applied Physics**, Vol. 51, p 260, **2013**.
4. Thickness dependent properties of *n*-CdSe thin films fabricated by electron beam evaporation technique, S. R. Vishwakarma, **Anil Kumar**, Sasmita Das, A. K. Verma and R. S. N. Tripathi, **Chalcogenide Letters**, **10**, 221, **2013**.
5. Synthesis and Characterization of *n*-CdSe thin films deposited at different substrate temperatures S. R. Vishwakarma, **Anil Kumar**, Sant Prasad and R. S. N. Tripathi, **Chalcogenide Letters**, **10**, 393, **2013**.
6. Dielectric Study of Multiwall Carbon Nanotube Dispersed Nematic Liquid Crystal Mixture, Pankaj Kumar Tripathi, **Anil Kumar*** and Kamal Kumar Pandey, **Materials Today: Proceedings**, 5/3P1, 9182, **2018**.

7. Molecular Structure, Electronic and Thermodynamical properties of 2,2,2-Trifluoroacetophenone (C₈H₅F₃O) – A DFT Study, **Anil Kumar**, *International Journal of Basic and Applied Research*, 8(8), 1149, **2018**.
8. Structural, Electronic and Thermodynamical properties of 6-ethoxybenzo[d][1,3]oxathiol-2-one: A Theoretical Approach, **Anil Kumar**, *Research & Reviews: Journal of Physics*, 7, 1-3, **2018**.
9. Study of Structural and Surface Morphological Properties of Tb doped ZnO Nanoparticles using XRD, XPS and Fractal Analysis, **Anil Kumar**, Archana Sharma, Savita Bhaskar, Ram P. Yadav, H. Bhasker, Pradip Priya, Satish Mandal, Raj K. Anand, Mater. Res. Express **6**, 115039, **2019** (Accepted on 10 Sep 2019).
10. Switching Characteristics of ferro and antiferroelectric phases of (S) -4-(1-methylheptyloxycarbonyl) phenyl 4'-(6-heptanoyloxyhex-1-oxy) biphenylate (6H6Bi): Anil Kumar, R. Dhar, V. K. Agrawal and R. Dabrowski; (communicated) **2020**.

Research Papers in Conferences/Seminars Proceedings:

1. Thermodynamic and Dielectric Properties of a High Tilt Antiferroelectric Liquid Crystal 6H6Bi, Anil Kumar, R. Dhar, V. K. Agrawal and R. Dabrowski Proceeding of National Conference on Recent Trends In Materials And Devices (RTMD-2011), p 21, **2011**.

Book/Book Chapters:

1. Study of Swift Heavy Ion Irradiated BaF₂ Thin Films Surfaces using Fractal Analysis, **Advances in Chemical and Applied Sciences**, Vol.-2, 2019.

Invited Talks:

1. An Introduction to Liquid Crystals, Five Days Faculty Development Programme on Photonic Devices and Applications (Sponsored By: ATAL - AICTE Training & Learning Academy), Department of Applied Sciences, I.E.T., Dr R. M. L. Avadh University, Faizabad, 21-25 September, **2020**.
2. Soft Materials, One Week National Workshop on “Modern Materials and Manufacturing for Product Development”, Department of Mechanical Engineering, I.E.T., Dr R. M. L. Avadh University, Faizabad, 24-28 February, **2021**.

Research Methodology/ Summer School/ Orientation/ Refresher Courses:

1. **Summer School on Theoretical Condensed States and Biological Systems** (Under UGC Networking Programme), Department of Physics, Banaras Hindu University, **Varansi**, India, 19th July-10th August 2010.

2. **96th Orientation Programme**, UGC-Academic Staff College University of Allahabad, **Allahabad**, India, 8th November- 5th December 2011.
3. **1st Refresher Course in Information Technology**, UGC-Academic Staff College D.D.U. Gorakhpur University, **Gorakhpur**, India, 17th November-7th December 2012.
4. **Advances in Materials Science and Engineering (AMSE-2013)**, jointly organized by Department of Physics and Department of Mechanical Engineering, Motilal Nehru National Institute of Technology, **Allahabad**, India, 15th July-21st July 2013.
5. **Two weeks Workshop on “Signals and Systems” organized by I.I.T. Kharagpur**, at remote centre Motilal Nehru National Institute of Technology, **Allahabad**, India, 2nd -12th January 2014.
6. **Refresher Course in Research Methodology**, U.G.C.-Human Resource Development Centre, University of Lucknow, **Lucknow**, India, 1st-23rd February, 2016.
7. **One Week Faculty Development Programme** on Role of Matrix Laboratory (MATLAB) in Advance Communication, Institute of Technology, Dr. R.M.L. Avadh University, **Ayodhya**, India, 15th -19th March 2019.
8. **One Week National Workshop on Research Methodology**, IQAC, Dr. R.M.L. Avadh University, **Ayodhya**, India, 20th -26th May 2019.
9. **Refresher Course in Physics and Astronomy**, U.G.C.-Human Resource Development Centre, University of Lucknow, **Lucknow**, India, 17th -29th February, 2020.

Research Papers in Conferences/Seminars:

1. Dielectric properties of an antiferroelectric liquid crystal (S) -4-(1-methylheptyloxy carbonyl) phenyl 4-(6-heptanoyloxyhex-1-oxy)biphenyl-4-carboxylate: **Anil Kumar**, R. Dhar, V. K. Agrawal and R. Dabrowski, **International Conference on Liquid Crystals (ICLC 06)**, Mumbai University, **Mumbai, India, 5-8th December 2006, p91.**
2. Dielectric and electro-optic study of a room temperature antiferroelectric liquid crystal mixture: **Anil Kumar**, R. Dhar, V. K. Agrawal and R. Dabrowski, **14th National Conference on Liquid Crystal (NCLC-14)**, North Bengal University, Siliguri, West Bengal, **India, 17-19th December 2007, p53.**
3. Characteristics of the dielectric relaxations of a room temperature antiferroelectric liquid crystal mixture: **Anil Kumar**, R. Dhar, V.K. Agrawal and R. Dabrowski, **11th International Conference on Ferroelectric Liquid Crystal (FLC07)**, Sapporo, Hokkaido, **Japan, 3-8 September 2007, p138.**

4. Switching Properties of an Antiferroelectric Liquid Crystal (S)-4-(1-methylheptyloxy carbonyl)phenyl-4'-(6-heptanoyloxyhex-1-oxy)biphenylate: **Anil Kumar**, R. Dhar, I. M. L. Das, and R. Dabrowski; **Conference on Mesogenic and Ferroic Materials (CMFM 09)** Banaras Hindu University, **Varansi**, India, 9-11th January **2009**, p86.
5. Dielectric and Switching Properties of an Antiferroelectric Liquid Crystal Material (S)-4-(1-methylheptyloxy carbonyl)phenyl-4'-(6-heptanoyloxyhex-1-oxy)biphenylate: **Anil Kumar**, R. Dhar, V. K. Agrawal, I. M. L. Das and R. Dabrowski; **16th National Conference on Liquid Crystal (NCLC-16)** University of Lucknow, **Lucknow**, India, 26-28th October **2009**, p113.
6. Dielectric and Switching Properties of an Antiferroelectric Liquid Crystal Material: **Anil Kumar**, R. Dhar, V. K. Agrawal, I. M. L. Das and R. Dabrowski; **2nd National Seminar on Novel Materials (NSNM-2)**, School of Material Science, Institute of Technology, Banaras Hindu University, **Varansi**, India, 14-15th March **2011**, p—(CD).
7. Dielectric Studies of Antiferroelectric Materials: **Anil Kumar**, **Indo-Polish Seminar On Advanced Materials**: Centre of Material Sciences, Institute of Interdisciplinary Studies, University of Allahabad, **Allahabad**, U.P., India, 5th November **2011**.
8. Fabrication and characterization of the n-CdSe thin films deposited at different substrate temperatures: S. R. Vishwakarma, **Anil Kumar** **International Conference on Recent Trends in Materials and Devices (ICRTMD-13)**, Amity University, **NOIDA**, U.P., India, 30th-31st October **2013**.
9. Switching properties of Antiferroelectric Liquid Crystal, **Anil Kumar**, R. Dhar, V.K. Agrawal and R. Dabrowski, **International conference on Advanced Materials and Applications (ICAMA-2014)**, Centre of Material Sciences, Institute of Interdisciplinary Studies, University of Allahabad, **Allahabad**, U.P., India, 24th – 26th March **2014**.
10. Electrodynamics of colloidal carbon nanotubes and fullerenes in liquid crystal, Anoop Kumar Srivastava, Avinash C. Pandey, Ram Kripal, **Anil Kumar**, Seung Hee Lee, **21st National Conference on Liquid Crystal (NCLC-21)**, V.S.S.D. P.G. College, **Kanpur**, U.P., India, 09-12th November **2014**.
11. Comparative Study of Pure and Bi-components Mixture of Antiferroelectric Liquid Crystals, **Anil Kumar**, R. Dhar, V. K. Agrawal, M. Tykarska and R. Dabrowski, **21st National Conference on Liquid Crystal (NCLC-21)**, V.S.S.D. P.G. College, **Kanpur**, U.P., India, 09-12th November **2014**.
12. Investigation of Dielectric Dispersions in chiral liquid crystalline dendrimer, Anoop Kumar Srivastava, Avinash C. Pandey, Ram Kripal, **Anil Kumar**, Seung Hee Lee, **Indo-Polish Seminar on Advanced Materials (IPSAM)**, Centre of Material Sciences, University of **Allahabad**, **Allahabad**, U.P., India, 5-6th February **2016**.

13. Polarization Switching and Dielectric Mechanism of an Antiferroelectric Liquid Crystal (S)-4-(1-methylheptyloxycarbonyl) phenyl-4- (6-heptanoyloxyhex-1-oxy)biphenylate, **Anil Kumar**, R. Dhar, V. K. Agrawal, M. Tykarska and R. Dabrowski, Indo-Polish Seminar on Advanced Materials (**IPSAM**), Centre of Material Sciences, University of **Allahabad, Allahabad**, U.P., India, 5-6th February **2016**.
14. Importance of software for the correlation of facts in physical sciences, **Anil Kumar**, N. K. Chaudhary, **National Seminar on Applications of Scientific and Statistical Software in Research**, School of Sciences, U.P. Rajarshi Tandon Open University, Allahabad, 30-31th March, **2017**.
15. Syllabus Design for M.Sc. Physics, **National Seminar on “Growth of Science & Technology in the Campus of Purvanchal University”**, V.B.S. Purvanchal University, Jaunpur, 9-10 September, **2017**.
16. Composition Dependent Electrical Properties of n-type Indium-Antimonide (InSb) Thin Film, **National Conference on Soft Matter (NCSM)**, Department of Physics, D. D. U. Gorakhpur University, **Gorakhpur**, 27-28 March, **2018**.
17. Studies of Structural, Optical and Electrical Properties of CdTe Thin Films, **22nd International Conferences of International Academy of Physical Sciences (CONIAPS XXII) on Emerging Trends in Physical Sciences**, Department of Physics and Electronics, Dr R. M. L. Avadh University, Faizabad, 13-15 April, **2018**.
18. Composition Dependent Electrical Properties of p-type Indium-Antimonide (InSb) Thin Film, **National Symposium on Advanced Materials Science (NSAMS-2018)**, Department of Physics, D. D. U. Gorakhpur University, **Gorakhpur**, 7-8 December, **2018**.
19. Dielectric Investigation of a Large Kink Angled Bent-Core Liquid crystal, **National Conference on Liquid Crystals (NCLC-25)**, Centre of Material Sciences, University of Allahabad, Allahabad, 19-21 December, **2018**.

Conference/Seminar Attended:

1. **National Conference on “Liquid Crystals: Synthesis, Characterization and Molecular Engineering”** Ewing Christian College, Allahabad, Allahabad U.P., India, 01-03rd November 2004.
2. **15th National Symposium on Ultrasonics (NSU-XV)**: University of Allahabad, Allahabad, India and Ultrasonic Society of India, 01-03rd November 2006.
3. **International Conference on Liquid crystal (ICLC 06)**, Mumbai University, Mumbai, India, 5-8th December 2006.
4. **One Day International Seminar on Liquid Crystal: Synthesis and Characterization**, Department of Physics, University Of Allahabad, Allahabad, U.P., India, 13th December 2006.

5. **Indo-Polish Workshop On Liquid Crystals: *Synthesis, Characterization And Molecular Engineering***, Department of Physics, University Of Allahabad, Allahabad, U.P., India, 12th December 2007.
6. **14th National Conference on Liquid Crystal (NCLC-14)**, Department of Physics, **North Bengal University, Siliguri, West Bengal, India**, 17-19th December 2007.
7. **International Conference on Transport and Optical Properties of Nanomaterials** Department of Physics, University Of Allahabad, Allahabad, U.P., India, 5-8th January 2009.
8. **Meghnath Saha symposium on Latest trends in Laser and Spectroscopy**, Department of Physics, University Of Allahabad, Allahabad, U.P., India, 23-25th March 2009.
9. **16th National Conference on Liquid Crystal (NCLC-16)**, Department of Physics, **University of Lucknow, Lucknow, India**, 26-28th October 2009.
10. **One Day Acquaintance Program on**, Department of Physics, **University of Lucknow, Lucknow in collaboration with IUAC New Delhi, India**, 12th December 2010.
11. **National Workshop on Characterization and Properties of Exotic Materials** Organized by Materials Research Society of India Chapter *in collaboration with Physics Department (UGC Centre for Advanced Studies), University of Allahabad, Allahabad, U.P., India*, 10-12th January, 2011
12. **2nd National Seminar on Smart Materials (NSSM-2)**, School of Material Science, **Institute of Technology, Banaras Hindu University, Varansi, India**, 14-15th March 2011,
13. **Short-term Training Programme on MATLAB Fundamentals & Applications**, School of Engineering, Gautam Buddha University, Greater Noida, U.P., India, 13-15th July 2011.
14. **Indo-Polish Seminar On Advanced Materials**, Centre of Material Sciences, Institute of Interdisciplinary Studies, **University of Allahabad, Allahabad, U.P., India**, 5th November 2012.
15. **International Workshop on “Brihaspati-3, E-Learning System”** Bora Institute of Management Sciences, **Lucknow, U.P., India**, 20-21st November 2012.
16. **International Conference on Recent Trends in Materials and Devices (ICRTMD-13)**, Amity University, **NOIDA, U.P., India**, 30th-31st October 2013.
17. **21st National Conference on Liquid Crystal (NCLC-21)**, V.S.S.D. P.G. College, **Kanpur, U.P., India**, 09-12th November 2014.
18. **International conference on Advanced Materials and Applications (ICAMA-2014)**, Centre of Material Sciences, Institute of Interdisciplinary Studies, University of Allahabad, **Allahabad, U.P., India**, 24th – 26th March 2014.

19. **Indo-Polish Seminar on Advanced Materials (IPSAM)**, Centre of Material Sciences, University of Allahabad, **Allahabad**, U.P., India, 5-6th February 2016.
 20. **National Seminar on Applications of Scientific and Statistical Software in Research**, School of Sciences, U.P. Rajarshi Tandon Open University, Allahabad, 30-31th March, 2017.
 21. **National Seminar on “Growth of Science & Technology in the Campus of Purvanchal University”**, V.B.S. Purvanchal University, Jaunpur, 9-10 September, 2017.
 22. **National Conference on Soft Matter (NCSM)**, Department of Physics, D. D. U. Gorakhpur University, **Gorakhpur**, 27-28 March, **2018**.
 23. **22nd International Conferences of International Academy of Physical Sciences (CONIAPS XXII) on Emerging Trends in Physical Sciences**, Department of Physics and Electronics, Dr R. M. L. Avadh University, Faizabad, 13-15 April, **2018**.
 24. **Orientation Programme on Active Learning in Higher Education**, K.S. Saket P.G. College, Ayodhya, **Faizabad**, 06 September, 2018.
 25. **National Symposium on Advanced Materials Science (NSAMS-2018)**, Department of Physics, D. D. U. Gorakhpur University, **Gorakhpur**, 7-8 December, **2018**.
 26. **National Conference on Liquid Crystal (NCLC-25)**, Centre of Material Sciences, University of Allahabad, 19-21 December, **2018**.
 27. **National Conference on Recent Advances in Material Science and Electronics (RAMSE-2019)**, Department of Physics and Electronics, Dr. R.M.L. Avadh University, **Ayodhya**, India, 27th -28th February, **2019**.
 28. **Organizing Secretary: One Week National Workshop on Microstrip Antenna, Simulation, Materials and Circuits (MASMACAM-2020)**, Department of Physics and Electronics, Dr. R.M.L. Avadh University, **Ayodhya**, India, 27th January -02nd February, **2020**.
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References:

1. **Prof. V. K. Agrawal** (Research Supervisor)
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4. Prof. K.K. Verma

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5. Dr. Akhilesh Kumar Singh

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