Curriculum Vitae

Dr. Anjana Kothari

Research Scientist
Dr. K C Patel Research and Development Centre (KRADLE)
Charotar University of Science and Technology (CHARUSAT)
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Education

2000 – 2005	Sardar Patel University, Vallabh Vidyanagar, Gujarat, India Ph. D. (Physics) [Awarded] [Thesis: *Growth and assessment of some important parameters of cadmium tartrate single crystals*]
1998 – 2000	Sardar Patel University, Vallabh Vidyanagar, Gujarat M.Sc. ((Physics) (Specialization: Solid State Physics)
1995 – 1998	Gujarat University, Ahmedabad, Gujarat, India B.Sc. (Physics)

Employment History

2007 - Continued	Research Scientist Dr. K C Patel Research and Development Centre (KRADLE) Charotar University of Science and Technology (CHARUSAT), Gujarat
2006 – 2007	Research Scientist Sardar Patel Renewable Energy Research Institute (SPRERI), Gujarat
2004 – 2006	Ad-hoc Lecturer N V Patel College of Pure and Applied Sciences Sardar Patel University, Gujarat

Awards / Certificates / Fellowship

- *Certificate of Reviewing,* Board of Research in Nuclear Sciences, Department of Atomic Energy (DAE), Government of India, for volunteering time and effort in the manuscript review process in 62nd DAE Solid State Physics Symposium held at Bhabha Atomic Research Centre (BARC), Mumbai, India: 26 - 30 December 2017.
- *Certificate of Appreciation,* Board of Research in Nuclear Sciences, Department of Atomic Energy (DAE), Government of India, for volunteering time and effort in the manuscript review process in 61st DAE Solid State Physics Symposium held at KIIT, Bhubneswar, India: 26 - 30 December 2016
- Minor Research Project Grant Award, *Gujarat Council on Science and Technology (GUJCOST)*, Department of Science and Technology (DST), Government of Gujarat for the duration of two years (2016-2018) (Ref.: GUJCOST/MRP/2014-2015/2586 dt. 30.03.2015).

- International Travel Support (ITS) Award for Young Scientist, Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India to present a research paper in an *International Conference of Young Researchers on Advanced Materials (ICYRAM-2012)*, Singapore, July 1-6, 2012. (Ref.: SR/ITS/1220/2012-2013 dt. 29.05.2012).

- Best technical paper Award, *International Conference on Advanced Materials and Composites (ICAMC),* National Institute for Interdisciplinary Science and Technology (CSIR - NIIST), Trivandrum, India: October 24 – 27, 2007. Received certificate and cash prize.

- Best research paper Award, *2nd Gujarat State Research Students Meet (GSRSM-2003),* Sardar Patel University, Vallabh Vidyanagar, India: February 26, 2003. Received certificates and cash prize from Materials Research Society of India and Gujarat Science Academy.

- Project Fellow, University Grants Commission - Special Assistance Programme / Departmental Research Scheme (UGC-SAP-DRS): September 2001 – March 2004 (Ref.: F.530/3/DRS/1999 (SAP-I)/1999-2004).

Research Experience

Research Scientist*,* KRADLE, CHARUSAT, Gujarat [24.04.2007(from the inception) - continuing] [12 years]

Research Area: Materials Science / Nanoscience / Solar PV

Broad: Thin Films and Nanostructures, Functional inks, Nanocomposites

Responsibilities:

- To develop new solar cell materials using earth-abundant, low-cost, low-grade, non-toxic elements.
- Established research laboratories (2007-2011): Materials Synthesis Laboratory, Materials Characterization Laboratory, Measurement and Instrumentation Laboratory, Materials Ink-jet Printing Laboratory. Fabrication of measurement set-ups/sample holders for electrical (conductivity, photoconductivity), and thermo-electric power of thin films and pelletized samples and I-V characteristics of the solar cells.
- Synthesis of semiconducting nanoparticles and deposition of nanostructures/ nanorod-array thin films by aqueous/ non-aqueous, non-vacuum, solution-based techniques.
- Formulation of solution-based inks of sulphides and oxides for solar PV.
- Synthesis of organometal trihalide perovskite materials and formulation of their inks for solar PV.
- Synthesis of inorganic-organic nanocomposite films of high refractive index materials.
- Developed a method to deposit nanostructured zinc oxide thin films (thickness ~ 300 nm) using microwave-assisted chemical bath deposition within a minute. (ML 2011)
- Developed a method to deposit various nanostructures of ZnO from a single aqueous chemical bath prepared from RO water (drinking water). (ML 2014)
- Developed a method to deposit nanostructures of SnS from a mechanochemically prepared aqueous chemical bath (ML 2019)
- Synthesis of nonlinear organo-metallic single crystals (cadmium tartrate) by silica gel technique at RT.

I am using following solution-based/vacuum deposition techniques to deposit the films:

- Inkjet printing (DMP 2800, Dimatix, Fujifilm, USA)
- Doctor Blade - Thin Film Coater (Royal Enterprises, Chennai, India)
- Film Applicator (Model: 'Marshal' AP-E Basic, Darteno Industries, Anand, India)
- Chemical Bath Deposition (D K Scientific Ltd, India)
- Microwave-assisted Chemical Bath Deposition (Whirlpool, India)
- Dip-/ Spin-coating (Apex Instruments, India)
- Flash Evaporation System (Mansha Vacuum Pvt Ltd., India)

- DC sputtering Unit (Hind Hivac Ltd., India)

As an In-charge scientist of the following instrument, I carry out operation, sample preparation, maintenance and administrative work (AMC, quotation, purchase, etc.). *Revenue has been generated for KRADLE. [2009 – 2019]:

- *Scanning Electron Microscope (SEM) (Jeol)
- *Atomic Force Microscope (AFM) (Nanosurf)
- X-ray Diffractometer (XRD) (Bruker, D2 Phaser)
- *Fourier Transform Infrared Spectrophotometer (FTIR) (Thermo, Nicolet-6700)
- *UV-VIS-NIR spectrophotometer (Shimadzu 3600)
- *Thermogravimetric Analyzer (TGA) (Mettler-Toledo, TGA/DSC1)
- *Differential Scanning Calorimeter (Mettler-Toledo, DSC 3)
- Microviscometer (Anton Paar, LOVIS 2000M)
- Source/meter (Keithley 2600A)
- High temperature furnaces: Split tubular (MTI Corp., USA; Ants Ceramics, India), Muffle (Ants Ceramics), Sputtering unit (Hind High Vac.), Vacuum oven (MTI Corp., USA; Ants Ceramics, India), Vacuum units (rotary and diffusion).

- Analytical skill to interpret research data/results of XRD, EDAX (EDS), TGA, DTA, DSC, UV-VIS-NIR (A/T/R), FTIR, SEM, TEM, AFM, transport properties (ac & dc conductivity, thermal conductivity and thermopower), Particle size and Vickers hardness, study of I-V characteristics and measurement of solar cell parameters.

❖ Visiting Faculty at Dr. G U Kulkarni's lab, Centre for Nano and Soft Matter Sciences (CeNS) - An autonomous Institute under Department of Science and Technology, Bangalore for one month duration (November 2015). I have worked on tin sulphide (SnS) thin films.

Research Scientist, Sardar Patel Renewable Energy Research Institute (SPRERI)*, Vallabh Vidyanagar, Gujarat [12.09.2006 -21.04.2007] [~7 months]

Research Area: Solar Thermal

Responsibilities:

- Testing of Solar Thermal devices: Flat Plate Collector (FPC), Solar Water Heater, Solar Parabolic Cooker, as per Bureau of Indian Standards (BIS). Preparation and submission of the test reports to Ministry of New and Renewable Energy (MNRE), Government of India.
- Prepared two research project proposals: (i) Exploratory studies on solar icemaker using silica gel-water adsorption cycle, (ii) External heat barriers for residential buildings
- Hands-on experience of maintenance of Weather Station and Data Logger.

*SPRERI, the Regional Test Centre (RTC) of Western Zone of India, provides testing facility of renewable energy devices (Solar Photovoltaics and Solar Thermal) as per Bureau of Indian Standards.

M.Sc. Dissertation / Project Supervision

Summer Interns trained: 03 (May – June 2019)

Imparted training to MSc students on Solution-based thin film deposition techniques, XRD, SEM and UV-VIS-NIR Spectroscopy.

Ms. Fasiha Kari: *Chemical Bath Deposition of Copper Sulphide (CuS) thin films and characterization*
Ms. Honey Kedariya: *Microwave-assisted Chemical Bath Deposition of ZnO thin films*
Ms. Disha Patel: *Chemical Bath Deposition of CdS thin films and characterization*

January - May 2018

Ms. Kreshali Dave: *Deposition of nanostructured Cadmium Sulphide thin films and its characterization*
Ms. Hemali Panchal: *Synthesis of various nanostructures of SnS and its characterization*
Ms. Divya Patel: *Synthesis and characterization of Copper Sulphide (CuS) films*
Ms. Meghavee Upadhyay: *Chemical Bath Deposition (CBD) of Zinc Sulphide (ZnS) thin films and its characterization*

2009 – 2010 Guide: Dr. T K Chaudhuri Co-guide: Dr. Anjana Kothari

Ms. Niharika Swain: *Preparation of nanostructured CdS films by sol-gel process and characterization*
[Currently working as a Scientific Writer, Grade-II, Springer Nature Technology and Publishing Solutions, India]

Mr. Naresh Kotadiya: *Preparation and characterization of nanocrystalline PbS thin films by chemical bath deposition*
[Currently pursuing PhD at Max-Plank Institute for Polymer Research, Mainz, Germany]

Mr. Jayesh Patel: *Development of nanocomposites of lead sulphide- conjugated polymer for solar cells*
Sponsored by GUJCOST (Sanction No. GUJCOST/MRP/ 201078/2007-08/1638 dated. 11.06.2007)(2007-2009)
[Currently working as a Research Scientist, Canadian Nuclear Laboratories, Ontario, Canada]

Research Grants received

Title of the Project (PI/Co-PI)	Name of the funding agency	Duration (Year)	Amount Rs. Lacs	Remarks
Development of thin film solar cells with low-cost earth-abundant materials by inkjet printing (as a Principal Investigator)	Science and Engineering Research Board (SERB), Department of Science and Technology (DST)	3	43.2256	Continuing (20 March 2017)
Inkjet printing of perovskite inks for low-cost solar photovoltaics (as a Principal Investigator)	Research Initiative Programme, CHARUSAT	3	4.10	Continuing (May 2016)
Hybrid solar air-conditioning (50 TR capacity) (Phase I) (as a Coordinator)	Charotar University of Science and Technology	~ 1	~ 150.00	Feb. - Oct. 2016
Development of solution-based ZnO nanostructures as light harvesters for low-cost solar photovoltaics (as a Principal Investigator)	Gujarat Council on Science and Technology (GUJCOST), DST, Government of Gujarat	2	4.50	Completed (January 2016 – Sept. 2018)
Inkjet printing of Inorganic thin films for Solar Photovoltaics (as a Co-Principal Investigator)	Solar Energy Research Initiative (SERI), (DST), Government of India	3.5	72.48	Completed Successfully
Development of new nanostructured materials for thin film solar cells, characterization and fabrication (as a Co – PI)	Charotar University of Science and Technology	2	6.00	Completed Successfully

Peer Reviewed Publications

1. Anjana Kothari and Kunjal Dave, *Solution-based deposition of SnS nanostructures from mechanochemically prepared precursor bath,* **Materials Letters 236 (2019) 299 – 302**. [IF: 3.019]
2. Kinjal Trivedi, Anjana Kothari, Kinnari Parekh and R V Upadhyay, *Effect of Particle Concentration on Lubricating Properties of Magnetic Fluid,* **Journal of Nanofluids 7 (2018) 1- 8.** [Scimago: 1.79] [Citation No. 1]
3. Anjana Kothari and T K Chaudhuri, *Chemical Bath Deposition and Characterization of ZnO Rod-array Films*, **International Journal of Research in Modern Engineering and Emerging Technology (IJRMEET) (UGC approved), 5 (2017) 633-641**. [IF: 0.654]
4. D. Vankhade, A. Kothari, T. K. Chaudhuri, *Direct-Coated Photoconducting Nanocrystalline PbS Thin Films with Tunable Band Gap*, **Journal of Electronic Materials 45, 6 (2016) 2789 - 2795** [Citation No. 10] [IF: 1.676]
5. Anjana Kothari and T K Chaudhuri, *One-step deposition of ZnO morphologies from single aqueous chemical bath prepared from reverse osmosis processed water*, **Materials Letters 137 (2014) 366 – 368** [Citation No. 5] [3.019]
6. T. K. Chaudhuri, A. J. Kothari, D. Tiwari and A. Ray, *Photoconducting nanocomposite films of PbS nanocrystals in insulating polystyrene*, **Physica Status Solidi (a), 210, 2 (2013) 356 - 360** [Citation No. 11] [IF: 1.606]
7. Naresh B. Kotadiya, **Anjana Kothari**, D. Tiwari, T. K. Chaudhuri, *Photoconducting nanocrystalline lead sulphide thin films obtained by chemical bath deposition*, **Applied Physics A 108 (2012) 819 – 24** [Citation No. 29] [1.784]
8. **Anjana Kothari** and Tapas K Chaudhuri, *One-minute microwave-assisted chemical bath deposition of nanostructured ZnO rod-arrays,* **Materials Letters 65 (2011) 847 - 849** [Citation No. 16] [IF: 3.019]
9. Tapas K Chaudhuri and **Anjana Kothari,** *Microwave-assisted chemical bath deposition of nanostructured ZnO particles,* ***Journal of Nanoscience and Nanotechnology*** **(ICONSAT 2008) 9 (2009) 5578–5585** [Citation No. 6] [IF: 1.354]
10. T. K. Chaudhuri and **Anjana Kothari**, *ZnO flowers by forced hydrolysis of ammonium zinc complex on hot glass substrate*, ***Journal of Optoelectronic and Biomedical Materials*** **1 (2009) 20–24** [Citation No. 7] [IF: 1.33]
11. S.K. Arora, **Anjana Kothari**, Bhupendra Chudasama and Brijesh Amin, *Synthesis and characterization of cadmium tartrate single crystals,* ***Crystal Research and Technology*** **42, 6 (2007) 589–594** [Citation No. 25] [1.09]
12. K. Sangwal, **A. Kothari** and S.K. Arora, *Formation of indentation cracks and origin of indentation size effect in cadmium tartrate pentahydrate single crystals,* ***Surface Science*** **600 (2006) 1475–1486** [Citation No. 22] [1.849]
13. S.K. Arora, **A. J. Kothari**, R.G. Patel, K.M. Chauhan and B. N. Chudasama, *Optical absorption in gel grown cadmium tartrate single crystals,* ***Journal of Physics: Conference Series*** **(ICMAT- Symposium Y), 28 (2006) 48–52** [Citation No. 13]
14. S.K. Arora, Vipul Patel, **Anjana Kothari** and Bhupendra Chudasama, *Micromechanical hardness of strontium tartrate trihydrate crystals,* ***Journal of American Ceramic Society*** **88, 12 (2005) 3469–3473** [Citation No. 6] [IF: 3.094]
15. S.K. Arora, **Anjana Kothari** and Bhupendra Chudasama, *Single crystal growth and photoelectrochemical study of copper tungstate,* ***Journal of Crystal Growth*** **275 (2005) e651–e656** [Citation No. 16] [IF: 1.573]
16. S.K. Arora, Vipul Patel, **Anjana Kothari** and Brijesh Amin, *Gel growth and preliminary characterization of strontium tartrate trihydrate*, ***Crystal Growth and Design*** **4, 2 (2004) 343 – 349** [Citation No. 30] [IF: 4.153]
17. S.K. Arora, Vipul Patel, **Anjana Kothari** and Bhupendra Chudasama, *Optical absorption in* $SrC_4H_4O_6.3H_2O$ *crystals,* ***Materials Science and Engineering B*** **113, 3 (2004) 263–268** [Citation No. 2] [IF: 3.507]
18. S.K. Arora, Vipul Patel, R.G. Patel, **Anjana Kothari**, Brijesh Amin, *Electrical characterization of strontium tartrate single crystals,* ***Journal of Physics and Chemistry of Solids*** **65 (2004) 965–973.** [Citation No.28] [IF: 2.752]
19. S.K. Arora, Vipul Patel and **Anjana Kothari**, *Kinetics and mechanism of thermal decomposition of strontium tartrate crystals,* ***Materials Chemistry Physics*** **84, 2-3 (2004) 323–330** [Citation No. 17] [IF: 2.781]
20. S.K. Arora, Vipul Patel, **Anjana Kothari** and Brijesh Amin, *Dielectric behavior of strontium tartrate single crystals,* ***Bulletin of Materials Science*** **27, 2 (2004) 141–147** [Citation No. 78] [IF: 1.264]

Reviewer Experience

I have reviewed manuscripts of the following Journals and Symposium.

1. Indian National Journal of Physics (Springer Publ., USA)
2. Journal of Applied Physics (American Institute of Physics, AIP Publ., USA)
3. APL Materials (American Institute of Physics, AIP Publ., USA)
4. Nanoscience and Nanotechnology Letters
5. Applied Surface Science (Elsevier B.V., The Netherlands)
6. Journal of Materials Science: Materials in Electronics (Springer Publ., USA)
7. Optik - International Journal for Light and Electron Optics (Elsevier B.V., The Netherlands)
8. Department of Atomic Energy - Solid State Physics Symposium, (DAE-SSPS)
9. Science and Engineering Research Board (SERB), Department of Science and Technology (DST), Government of India (Project proposals**)**

Society Membership

- Materials Research Society of India (ID: LMB 2003)
- Indian Association of Physics Teachers (ID: 9461L5814)
- Global Materials Network – International Union of Materials Research Society (GMN-IUMRS)

Teaching Experience (6 years 1 months)

July – August 2018 PDPIAS, CHARUSAT	PS907: Thin Film Technology M.Sc. (Physics) [Semester III] PS714: Solid State Physics – I M.Sc. (Physics) [Semester I]
December 2017 – May 2018 PDPIAS, CHARUSAT	PD253: Analog systems and Applications PD256: Analog systems and Applications Lab B.Sc.(Physics) [Semester IV]
August – December 2017 PDPIAS, CHARUSAT	Course: Thermal Physics [Laboratory practicals] B.Sc. (Physics) [Semester III]
September 2017 PDPIAS, CHARUSAT	Course: Analytical Techniques (Microscopy) M.Sc. (Physics) [Semester III]
March 2016 - April 2016 PDPIAS, CHARUSAT	Topic taught: Lasers M.Sc. (Physics) [Semester IV]
January 2011 - May 2011 CSPIT, CHARUSAT	Course: Engineering Physics [Conducted laboratory sessions and invigilated course assignments B.Tech. (1st year), Charotar Institute of Technology, CHARUSAT
June 2009 - May 2010 PDPIAS, CHARUSAT	Theory courses: Nucleation and Growth Theory; Nanoscience: Theory and Applications; Instrumentation Designed Basic Physics experiments; Prepared Theoretical and Experimental write-ups and conducted laboratory sessions and Tutorials M.Sc. (Nanoscience and Technology) (commencement of the course)
June 2004 - Sept 2006, NVPAS, S P University, VVN	B.Sc. (Physics), Laboratory classes: Optics [Conducted laboratory sessions and invigilated course assignments]

- **Administrative Skill / Other responsibilities [Please refer Annexure I (pp. 7-8)]**

Annexure I

Administrative skills

- ***Judge*** of a painting competition organized by Ramanbhai Patel College of Pharmacy (RPCP), CHARUSAT on the theme of "Rain Water Harvesting" : August 2019.
- ***Coordinator***, Collage making, a scientific event 'Science Manthan 2019' organized by CHARUSAT in association with Gujarat Council on Science and Technology (GUJCOST) held on 5 January 2019.
- ***Coordinator***, Science Photography and Collage making, a scientific event 'Science Manthan 2018' organized by CHARUSAT in association with Gujarat Council on Science and Technology (GUJCOST) and supported by Education Times (A group of Times of India) held on 25 February 2018.
- ***Programme Committee Member***, 2nd *Gala Industry-Academia Meet* organized by UIIC-CHARUSAT and GUJCOST, DST, Government of Gujarat on 11 November 2017.
- ***Judge*** of a Debate Competition "Word Worriers" organized by R P College of Pharmacy (RPCP), CHARUSAT on the occasion of *World Pharmacist Day* on 23 September 2017.
- ***Session Chair***, International Conference on "Recent Innovation in Science and Workshop on Spectroscopy & its Perspectives" held on 15-16 September 2017 at Department of Physics, Municipal Arts & Urban Science College, Mehsana, Gujarat.
- ***Programme Committee Member***, *Gala Industry-Academia Meet* organized by UIIC-CHARUSAT and GUJCOST on 10 October 2015.
- ***Conducted*** a program on *"Hands-on Solar Training on Photovoltaics (Hast-PV)"* as a Trainer at KRADLE, CHARUSAT during 5 - 7 June 2014.
- ***Judge*** of Scitoons event in Avalanche'12 organized by RPCP, CHARUSAT on 3-4 February 2012.
- Conducted *a Short term Course on Instrumentation*: Hands-on training of Atomic Force Microscope (AFM, Nanosurf), Particle size analyzer (Malvern S90), Fourier Transform Infrared Spectrophotometer (Nicolet 6700) at KRADLE, CHARUSAT during May 2011 for 15 days.
- ***Programme Committee Member***, *International Conference on Molecular Medicine (MOLMED)* organized by CHARUSAT, IIT Madras and University of Buffalo (The State University of New York) at CHARUSAT: Jan. 2011.
- ***Member***, University-Industry Interaction cell (UIIC) - representing KRADLE at CHARUSAT: April 2011 – continuing
- ***Technical Advisory Committee Member***, *National Women's Conference on Exploring Potentialities of Women in Engineering* organized by CITC, CHARUSAT during 3 – 4 July 2009.
- ***Representative***, KRADLE for University magazines – *Comet* and *Samaj Goshthi*: 2007 – 2011
- ***Programme Committee Member***, *Workshop on Biomedical and Biotechnological Research (BMBTR)* organized by CHARUSAT during 22-23 January 2009.
- Appointed as a ***Representative***, University Grants Commission (UGC) - Women's Anti-Harassment Cell, Sardar Patel University, Vallabh Vidyanagar: 2003
- Frequently served as an ***In-charge Warden***, University Women's Hostel, Sardar Patel University, Vallabh Vidyanagar: 2001 – 2004

Professional development

- Completed Online Certification Course on Non-conventional Energy Resources with a consolidated score 88% (Performance: Elite) conducted by Indian Institute of Madras (IIT Madras) under National Programme on Technology Enhanced Learning (NPTEL), Funded by Ministry of Human Resource Development (MHRD), GoI, and valid under Faculty Development Programme (FDP) commenced by All India Council of Technical Education (AICTE): Oct. 2018.

- Delivered demo lectures on *Atomic Force Microscopy* and *UV-VIS-NIR Spectroscopy* to about 350 undergraduate students of science colleges of Gujarat in three different languages: *Gujarati, Hindi and English* during their visit to KRADLE from December 2017 to March 2018.
- Delivered lectures on ***'Scanning Electron Microscopy – Introduction and Morphology Analysis'*** in the ***Experimental Workshop on Basic Understanding of Synthesis and Characterization of Nanoparticles: Level – I'*** conducted for the Final Year B.Sc. (Physics) students, St. Xavier's College, Ahmedabad: December 2017.
- Conducted laboratory sessions (04) on AFM and UV-VIS-NIR Spectroscopy for participants of GUJCOST sponsored two days' Workshop on ***"Recent Trends in Advanced Nanomaterials: Synthesis and Characterization"*** organized by Department of Mechanical Engineering, C S Patel Institute of Technology, (CSPIT), CHARUSAT during 15 – 16 February 2017.
- Imparted Hands-on training to the Teaching Faculties, Department of Mechanical Engineering, CSPIT, CHARUSAT, on Atomic Force Microscope (AFM) from July to August 2016.
- Certificate of participation in *Science Academies' 57th Refresher Course in Experimental Physics* organized by National Academy of Sciences at CHARUSAT, Changa from 18th March to 2nd April, 2014.
- Delivered an expert lecture, entitled, "**Nanostructures for Photovoltaics**" in All India Council on Technical Education (AICTE) sponsored Staff Development Programme (SDP) on ***Recent trends in Materials Sciences and Technology*** held at S. V. National Institute of Technology (SVNIT), Surat, Gujarat, India during 7-12 December 2009.

Mentorship

- **Ph. D. Supervisor,** Department of Physical Sciences, Faculty of Applied Sciences, CHARUSAT since September 16, 2013. Area of Specialization: Nanostructures and Thin Films.

- **Visit to National Laboratories/ Universities for research purpose*:**

  1. Indian Institute of Science, Bangalore
  2. National Chemical Laboratory, Pune (Council for Scientific and Industrial Research – CSIR Laboratory).
  3. Central Salt & Marine Chemical Research Institute, Bhavnagar (CSIR Laboratory).
  4. Institute for Plasma Research (under Department of Atomic Energy), Gandhinagar.
  5. The Maharaja Sayajirao University of Baroda, Vadodara.
  6. Gujarat University, Ahmedabad.
  7. Anand Agriculture University, Anand.
  8. Sophisticated Instrumentation Centre for Applied Research and Testing, Vallabh Vidyanagar (DST-SAIF).

  ***** For characterization of research samples and library access for literature review.

- **Extra-curricular activities carried out as a student:**

  - Stood 3rd in Quiz competition organized by Indian Physics Association at Vallabh Vidyanagar, India: 2000
  - Qualified state level examinations of Hindi (Balpothi to Hindi Vineet) and Sanskrit languages
  - Completed Certificate course for Basic proficiency in French (Level: A1, A2), d'Alliance Française, Ahmedabad
  - Completed Certificate course of English language, English Edge , British Broad Casting Active LIQUID, Vallabh Vidyanagar [LIQUID has developed the English Edge program in association with BBC Active]

- **Languages known:**

  Gujarati (native), Hindi (fluent), English (fluent), French (intermediate), Bangla (beginner)

- **Interests / Hobbies:**

  Handicrafts, Mirror and Bead work, Gardening, Cooking