

Cover Letter

With due respect, I am writing this application to express my interest to associate with you as a researcher. I am Mitesh B. Solanki currently working as a Research Scholar at the School of Technology, Pandit Deendayal Petroleum University, Gandhinagar, Gujarat, India. My topic of research is “Nonlinear Optical Crystal based on Experiments and Theoretical Study of Nonlinear Optical Crystals Material”. and recently submitted my doctoral thesis. Apart from this, I have gained impressive experience in computational DFT studies such as Gaussian, Quantum espresso Presently, I am looking for a good post-doctoral opportunity. I am following your research group for a long time and my work is closely aligning with your research interest. In this regard, I would like to put my candidature for a possible Post Ph.D. research opportunity at your lab.

Ph.D. work was focused on Nonlinear Optical Crystal based on Experiments and Theoretical Study of Nonlinear Optical Crystals Material. I had researched specifically on growth and characterization of modified KDP single crystals and extensively explored their theoretical aspects using Density functional theory **by Quantum Espresso, VASP, Gaussian, Material Studio, and Wien2K DFT packages**. Further, I have worked as JRF at Dairy Science College where I have been involved in the development of Nano-Tag and Thread-based Micro-Fluidic Biosensor for Detection Aflatoxin M1 in Milk.

I am currently working on the first-principle calculation of novel YRuB₂ family rare-earth ternary boride topological Superconductor for quantum computing and thermoelectric application and got impressive results. To validate obtained results and further study the findings, I am searching for a mentor working on theoretical aspects in this area. Since my research work and expertise fully align with your group's research interest, I am keenly interested to work under your guidance.

furthermore; I have already Theoretically (DFT) calculate more than 80 up 2D material calculation like Nitrogenbase stable Perovskite, some MnBi₂Te₄ family topological superconductor, iodine base stable semiconductor, and quasicrystals materials

I have enclosed my resume with this application for your perusal to know more about my education and experience. I request you to kindly consider my candidature for post-doctoral research work and I will be grateful for the opportunity. Thanking you,

Reference 1:

Dr Manoj Pandey

Associate professor, department of Chemistry

Pandit Deendayal Petroleum University, Gandhinagar

Email: Manoj.Pandey@sot.pdpu.ac.in

Mob: 9978235337

Reference 2:

Dr Bharat Parekh

Associate professor, Department of Physics

Pandit Deendayal Petroleum University, Gandhinagar.

Email: bharat.parekh@spt.pdpu.ac.in

Regard

Mitesh Solanki

Research Scholar,
Pandit Deendayal petroleum University,
Gandhinagar, Gujarat, India
E-mail: mitesh4physics@gmail.com
M.No 918000117505

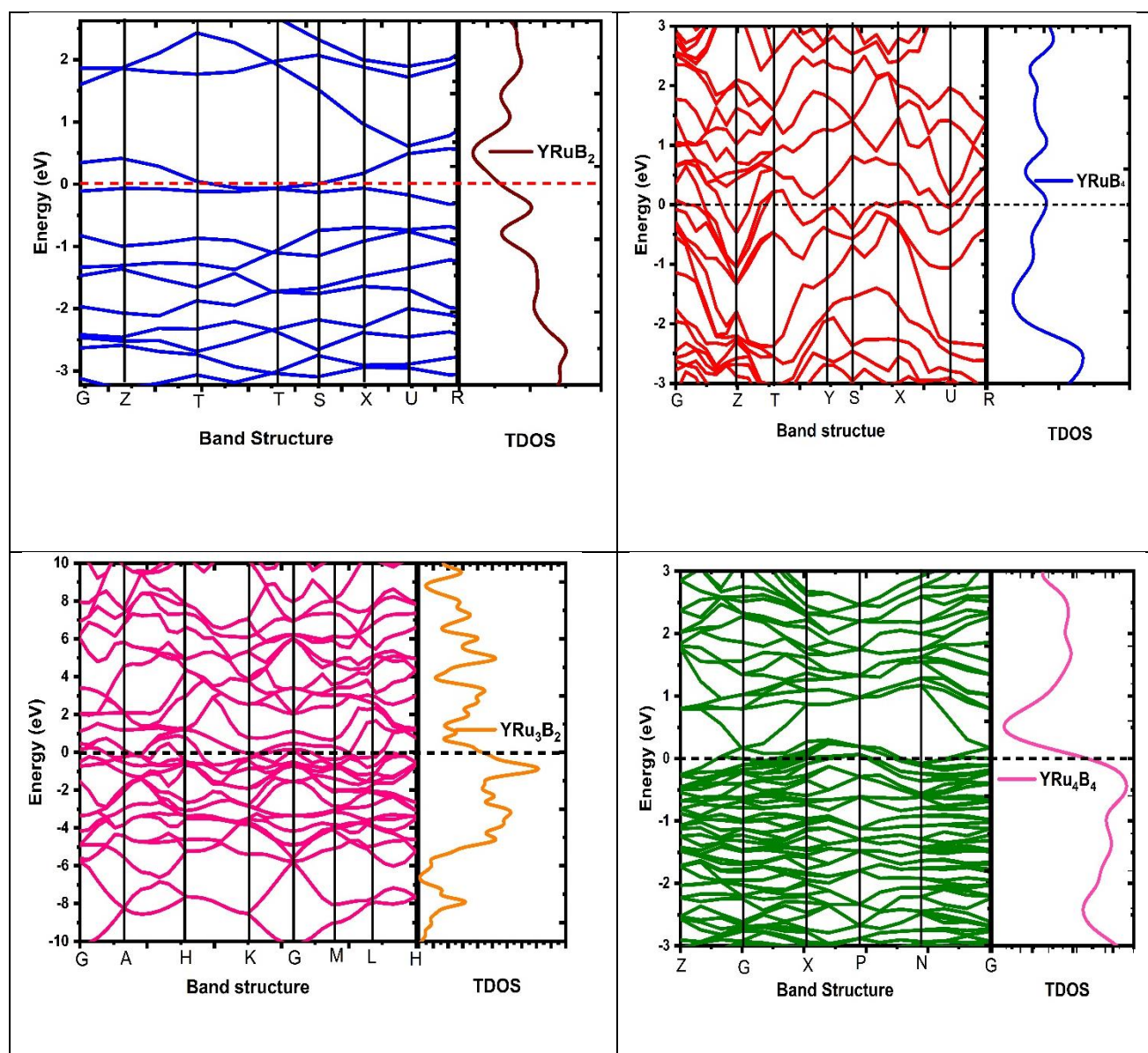
List Of Publications.

Title	Impact Factor	Year of Publications	Name Of Journals	Types of Articles	Remark
Experimental and Computational Approaches for the Structural Study of Novel Ca-Rich Zeolites from Incense Stick Ash and Their Application for Wastewater Treatment	4.232.	2021	Hindawi Adsorption Science & Technology Volume 2021, Article ID 6066906, 12 pages https://doi.org/10.1155/2021/6066906	Research article	Published
Enriched Catalytic Activity of TiO ₂ Nanoparticles Supported by Activated Carbon for Noxious Pollutant Elimination	2.986	2021	Nanomaterials 2021, 11, 2808. https://doi.org/10.3390/nano11112808	MDPI	Published
A First Principle calculation of CaMoN ₃ perovskites material	–	2021	IJIRT 153266 INTERNATIONAL JOURNAL OF INNOVATIVE RESEARCH IN TECHNOLOGY	IJIRT	Published
1 A first-principles study of the electronic structure, mechanical and optical properties of BeSiN ₂ and BeGeN ₂ wide band gap (WBG) nitrogenbase stable perovskite crystals.	3.442	2021	Journal of Physics and Chemistry of Solids	Research article	Just accepted
2. Experimental Measurements and Theoretical investigation of Physical Properties of Pure and Rubidium Chloride doped Potassium Dihydrogen Phosphate Single Crystals	3.8	2021	Journal of Optical Material	Research article	Submitted
3. A First Principle study in electronic structure, mechanical and optical properties of ZnSnN ₂ perovskites material	4.17	2021	JALCOM	Research article	Submitted
[1]. "Growth and Characterization of Lithium Chloride doped KDP Crystals: A DFT and Experimental Approach." M. B. Solanki , J. H. Joshi, P. Patel, S. Shinde, and B. B. Parekh,	0,557	2020	Journal of Ferroelectrics	Research article	Published
[2]. "Structural, FTIR and Dielectric Study of Lithium Doped KDP Crystals," <i>Invertis J. Sci. Technol.</i> , vol. 10, no. 2, p. 98, 2017, doi:	–	2017	Invertis J. Sci. Technology	Conference Proceeding	Published

10.5958/2454-762x.2017.00015.4. M. B. Solanki , J. H. Joshi, P. M. Vyas, M. J. Joshi, and B. B. Parekh,					
[3]. "Crystal growth and mechanical hardness of In ₂ Se _{2.7} Sb _{0.3} single crystal," <i>AIP Conf. Proc.</i> , vol. 1675, no. December, pp. 3–8, 2015, doi: 10.1063/1.4929246.Patel, S. M. Vyas, V. Patel, H. Pavagadhi, M. Solanki , and M. P. Jani,	0.40	2015	AIP Conference Proceeding.	Conference Proceeding	Pub
[4]. Dielectric Response and Thermal analysis of Ammonium Pentaborate (APB)"To cite this version : HAL Id : hal-01503798," no. April, 2017, doi: 10.2412/mmse.49.16.644.Hiral Raval, Mitesh Solanki , Bharat Parekh, M.J. Joshi	—	2017	Mechanics, Materials Science & Engineering	Research article	Pub

Future Research Plans.

I am currently working on the first-principle calculation of novel YRuB₂ family rare-earth ternary boride topological Superconductor for quantum computing and thermoelectric application and got impressive results.



To validate obtained results and further study the findings, I am searching for a mentor working on theoretical aspects in this area. Since my research work and expertise fully align with your group's research interest, I am keenly interested to work under your guidance.

I have enclosed my resume with this application for your perusal to know more about my education and experience. I request you to kindly consider my candidature for post-doctoral research work and I will be grateful for the opportunity. Thanking you,

Address:

12, Suryarath apartment
B/H, Drive in cinema
Near saptak apartment
Opps. Sarthi banglow no.52,
Memnagar
Ahmadabad-380058

Mob: - 80 00 11 75 05

E-mail: mitesh4physics@gmail.com

Solankimitesh87@yahoo.com

Mitesh.sphd13@sot.pdpu.ac.in



Curriculum Vitae

Dr. Miteshkumar Balavantbhai Solanki

SUMMARY:

- **Master of Science:** Having Specialization in Physics.
- **Ph.D. (Thesis Submitted)** in Condensed Matter Theoretical Physics in Department of Physics Department of Physics, Department of Sciences, School of Technology, Pandit Deendayal Petroleum University (PDPU), Gandhinagar
- **I am a life time member of "Indian association of physics teacher (IAPT)".**

Skills like:

- Ability to communicate effectively.
- Capacity to work in team or individually and take up responsibility.
- **Computer Skills:** Origin, Linux, Quantum Espresso, Ab initio, VASP, Wein2K, Material Studio, Discovery Studio, Auto_Dock, Schrotinger, XRD Software, LaTeX, Photoshop, MS Office, Paint.

EDUCATIONAL QUALIFICATION:

Degree	Institute	University/Board	Percentage	Year
Ph.D. (Thesis Submitted) Condensed Matter and Theoretical Physics	Department of Physics, Department of Sciences, School of Technology	Pandit Deendayal Petroleum University (PDPU), Gandhinagar	-	2021
M.Sc. Physics	Department of Physics University Campus.	Saurashtra University, Rajkot	60.81 % (1 st Class)	2012
B.Sc. Physics	Kamani Science and Pratap Rai Arts College Amreli	Saurashtra University, Rajkot	63.85 % (1 st Class)	2010
H.S.C.	Kamani Forward High School, Amreli	Gujarat High Secondary Board	50.80 % (2 nd Class)	2007
S.S.C.	Kamani Forward High School, Amreli	Gujarat Secondary Board	50 % (2 nd Class)	2005

NCC	Kamani Science and Pratap Rai art college, Amreli.	BN-6, Battalion, Bhavanagar, Gujarat.	NCC	NCC
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Ph. D. THESIS DETAIL:

1. Title: “**Experiment and Theoretical Study of Non-Linear Optical Material Crystals**”

Place: Department of Physics, School of Technology, Pandit Deendayal Petroleum University (PDPU), Gandhinagar, Gujarat, India.

Guide: **Dr. Bharat B. Parekh and Co-Guide: Dr Satyam Shinde.**

Description: Study of crystal growth features, and enhance of third-generation Nonlinearity, Structural Properties, Optical Properties, Mechanical Properties, Thermal Properties, Electrical Properties and Dielectric Properties of Single Crystal and Also study the theoretical aspect with the help of density function Study (DFT) using Quantum Espresso, Ab-initio, VASP and Material Studio Software’s.

JRF PROECT DETAIL:

1. Title: “**Development of Nano-Tag and Thread based Micro-Fluidic System Biosensor for Detection Aflatoxin M1 in Milk.**”

Place: Department of Dairy Microbiology, College of Dairy Science, Kamdhenu University, Amreli

Guide: **Dr Vimal Ramani.**

Description: As a (**JRF**) **Junior Research Fellow**, We are Developing Thread base devices to detect Aflatoxin M1 carcinogenic Protein in Milk as well as Human blood.

2. Title: “**Effect of Different Beverages on Growth of Struvite Crystals.**”

Place: Department of Physics, Saurashtra University, Rajkot

Guide: **Dr Mihir J. Joshi**

Description: Study of crystal growth features, Growth morphology, Bond vibrations, Transferences and XRD.

EXPERIENCE:

Employer Name Employer Address Employer Contact Details	Designation	Nature of Work	Date of Joining Date of Leaving	Job Type Nature of Appointment	Pay Scale	Is Current?
STEP-UP JEWELS Khatodara GIDC Darwaja, Udhana Gate, Surat Gujarat, India Mo-9824561940	Research Assistant	To Synthesis of Diamond Crystal Growth.	23/08/2021 To Still Date	Full Time	FIX 50000	yes

KHYATI INSTITUTE OF SCIENCE GROUP OF COLLEGES, Palodiya village, Shilaj Village, Ahmedabad, Gujarat, India Mo-9824561940	ASSISTANT PROFESSOR	ACADEMIC AND ADMIN	01/02/2020 To 30/01/2021	Full Time	25000 FIX	No
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY-VADODARA, GANDHINAGAR CAMPUS.	I Teaching Assistant (Mechanics and Thermodynamics Course)	ACADEMIC AND ADMIN	20/09/2019 To 30/12/2019	Part-Time	18000 FIX	No
PANDIT DEENDAYAL PETROLEUM UNIVERSITY, GANDHINAGAR	Visiting Faculty	ACADEMIC	02/07/2019 To 18/08/2019	Visiting Faculty	18000 Fix	No
KADI SARVA-VISWAVIDHYALAYA KADI, MEHSANA.	ASSISTANT PROFESSOR	ACADEMIC AND ADMIN	06/06/2017 To 30/04/2019	Full Time	29500 Fix	No

REFERANCES:

Name	Designation	Address	Email	Contact No
Dr. Bharat B. Parekh	Associate Professor	Department of Physics, School of Technology, Pandit Deendayal Petroleum University, Gandhinagar Gujarat, India	Dr.bharatparekh@gmail.com	094262 49360
Dr. Satyam Shinde	Associate Professor and Head of Department	Department of Physics, School of Technology, Pandit Deendayal Petroleum University, Gandhinagar Gujarat, India	Satyam.shinde@sot.pdpu.ac.in	07923275445
Prof. Dr Mihir Joshi	Professor and Head of Department	Department of Physics, Saurashtra University, Rajkot, Gujarat,	Mshilp24@rediffmail.com	9099939431

RESEARCH PAPER PUBLISHED IN CONFERENCE PROCEEDING

1.Title: “CRYSTAL GROWTH AND MECHANICAL HARDNESS OF $IN_2SE_{2.7}SB_{0.3}$ SINGLE CRYSTAL. Author’s name: Piyush Patel, S. M. Vyas, Vimal Patel, Himanshu Pavagadhi, **Mitesh Solanki**, and Maunik P. Jani Paper has published in International Journal of AIP CONFERENCE PROCIDING, Volume 1675, 2015, pp.030030-1 -030030-2, ISSN 978-0-7354- 1322-1 and doi: 10.1063/1.4929246

2.Title: “Crystal Structure , Dielectric Response and Thermal analysis of Ammonium Pentaborate (APB)”

Author's name: Raval, H., Solanki, M., Parekh, B., Joshi, M. J., Raval, H., Solanki, M.
 Paper has Published in International Journal of Physics and Applications
 Volume 2, Number 3 (2010), pp. 95--99, and with ISSN 0974-3103

RESEARCH PAPER PUBLISHED IN NATIONAL & INTERNATIONAL JOURNALS

Paper Title Type of Paper	Type of Journal Name of Journal	Author Type Author Name	Publication Date Volume No, Issue No, Page No, ISSN No, DOI, Impact Factor	UGS Approved? Journal No	Publisher Name
Experimental and Computational Approaches for the Structural Study of Novel Ca-Rich Zeolites from Incense Stick Ash and Their Application for Wastewater Treatment Journal Article	International Hindawi Adsorption Science & Technology	Co-Author Virendra Kumar Yadav ,1 Nisha Choudhary ,2 Daoud Ali,3 G. Gnanamoorthy, 4 Gajendra Kumar Inwati ,5 Mohammed HA. Almarzoug ,3 Gokhlesh Kumar,6 Samreen Heena Khan ,2 and Mitesh B. Solanki7	Hindawi Adsorption Science & Technology Volume 2021, Article ID 6066906, 12 pages https://doi.org/10.1155/2021/6066906 I. F. - 4.2	YES	Hindawi Adsorption Science & Technology
Enriched Catalytic Activity of TiO ₂ Nanoparticles Supported by Activated Carbon for Noxious Pollutant Elimination Journal Article	International Nanomaterials 2021, 11, 2808	Co-Author Suriyaprabha Rajendran 1, Gajendra Kumar Inwati 2,* , Virendra Kumar Yadav 3,* , Nisha Choudhary 1, Mitesh B. Solanki 4, Magda H. Abdellattif 5 , Krishna Kumar Yadav 6 , Neha Gupta 7, Saiful Islam 8 and Byong-Hun Jeon 9	Received: 19 September 2021 Accepted: 18 October 2021 Published: 22 October 2021 Enriched Catalytic Activity of TiO ₂ Nanoparticles Supported by Activated Carbon for Noxious Pollutant Elimination I. F. - 5	YES	Nanomaterials 2021, 11, 2808
A First Principal calculation of CaMoN ₃ perovskites material Journal Article	International IJIRT	Hardik Dave1, Mitesh Solanki2, Aditya Vora	Date- 15/11/2013 November 2021 IJIRT Volume 8 Issue 6 ISSN: 2349-6002 I. F. -2.0	YES	IJIRT 153266 INTERNATIONAL JOURNAL OF INNOVATIVE

						RESEARCH IN TECHNOLO GY
Growth and characterization of lithium chloride doped KDP crystals: a DFT and experimental approach Journal Article	International Journal of FERROELECTRICS (Springer)	Mitesh B. Solanki, Pratik Patela, Satyam Shinde, Bharat B. Parekh, and Mihir Joshi	FERROELECTRICS 2021, VOL. 571, 1–25 https://doi.org/10.1080/00150193.2020.1853734 -IF-1.2	YES	FERROELECTRICS	
Structural, FTIR and Dielectric Study of Lithium Doped KDP Crystals Journal Article	Invertis Journal of Science and Technology,	Co-Author MITESH B. SOLANKI1, JAYDEEP H. JOSHI2, POORVESH M. VYAS3, MIHIR J. JOSHI2 and BHARAT B. PAREKH	Invertis Journal of Science and Technology, Vol. 10, No. 2, 2017 ; pp. 98-103 DOI No. : 10.5958/2454-762X.2017.00015.4 I. F. -0.5	YES	Invertis Journal of Science and Technology,	
Crystal Structure, Dielectric Response and Thermal analysis of Ammonium Pentaborate (APB) Journal Article	International Mechanics, Materials Science & Engineering,	Co-Author Hiral Raval, a, Mitesh Solanki, Bharat Parekh, M.J. Joshi	Mechanics, Materials Science & Engineering, April 2017 – ISSN 2412-5954	No	Mechanics, Materials Science & Engineering	
Crystal Growth and Mechanical Hardness of In ₂ Se _{2.7} Sb _{0.3} Single Crystal Journal Article	International AIP Conference Proceeding	Principal Author Piyush Patel, S.M. Vyas, Vimal Patel, Himanshu Pavagadhi, Mitesh Solanki and Maunik Jani	Date- 13/08/2015 Vol.-1675 Issue. No- PP- 0300 30-1-2 ISSN No. – 978-0-7354 -1322-1 DOI- 10.1063/1.4929246 I. F. -0.37	Yes 26916	American Institute of Physics	

TRAINING/ SHORT TERM TRAINING PROGRAM:

Name of Program	Nature of Training	Duration Date	Days	Training Program Type	Organizing Institute	Place
“Hands on training on Computational Tools for Drug Design. (Schrodinger Soft.)”	Short term Training Program	06TH TO 07TH MARCH, 2019.	02	National	In this Programme conducted by “DEPARTMENT OF CHEMISTRY,” and organized by GUJARAT UNIVERSITY, AHMEDABAD.	Ahmedabad, Gujarat.
“SERB School on Density Functional Theory and Beyond:	Short term Training Program	24TH NOVEMBER TO 13TH	21	National	In this Programme conducted by “DEPARTMENT OF	MAHARAJ SIYAJIRAO UNIVERSITY

Computational Material Science and Materials Design.”		DECEMBER, 2014			PHYSICS,” and organized by MAHARAJ SIYAJIRAO UNIVERSITY VADODARA	VADODARA Gujarat.
“ A Short Term Training Programme Of Instrumental Method Of Chemical Analysis. ”	Research Scholar Training Program	29TH MAY, 2017. 02 JUNE, 2017.	05	University	This Short term training program was conducted by the DEPARTMENT OF SCIENCE, SCHOOL OF TECHNOLOGY, PANDIT DEENDAYAL PETROLEUM UNIVERSITY GANDHINAGAR.	GANDHINAGAR, Gujarat.

Workshop/CONFERENCES/ SEMINARS/ SYMPOSIUM ATTENDED DETAILS:

Event Name	Event Type	Event Category	Institute	Place	Event Date	Role
Ph.D scholar Research Symposium	Conference	University	Pandit Deendayal Petroleum University, Gandhinagar Gujarat, India	Gandhinagar Gujarat, India	18 JUNE 2021	Presented Oral Talk.
One-Day Symposium on Nanostructure Material for Energy Conversion, Storage and Sensor Application.	Conference	University	Pandit Deendayal Petroleum University, Gandhinagar, Gujarat	Gandhinagar Gujarat, India	14TH OCTOBER, 2019	Attendee
PRL Conference on Condensed Matter Physics-2018.	Conference	National	PHYSICAL RESEARCH LABORATORY, AHMEDABAD.	Ahmedabad Gujarat.	14TH TO 16TH March, 2018.	Presented paper.
International Conference on Supramolecules and Forensic Nanotechnology.	Conference	International	Forensic Science university, Gandhinagar	Gandhinagar Gujarat.	23RD TO 24TH FEBRUARY, 2018.	Presented paper.
“The National Conference On Applied Material Science-2018”	Conference	National	CENTRE FOR APPLIED CHEMISTRY, CENTRAL UNIVERSITY, GANDHINAGAR.	Gandhinagar Gujarat.	06TH TO 07TH APRIL, 2018.	Poster Presented
One day State-Level Seminar on IPR (Intellectual Property Right)”	Workshop	University	HVHP INSTITUTE OF POST GRADUATE STUDIES AND RESEARCH-KADI, MEHSANA.	Mehsana Gujarat.	1ST MARCH, 2014	Attendee
National Research Scholar Meet on Condensed Matter Physics and Material Science (CMPMS-2018)	Conference	National	DEPARTMENT OF PHYSICS GUJARAT UNIVERSITY, AHMEDABAD.	Ahmedabad Gujarat.	08TH DECEMBER 2018.	Poster Presented

International Science Symposium-2017.”	Conference	International	CHRIST COLLEGE, RAJKOT.	Rajkot Gujarat.	27 TH 28 th FEBRUARY, 2017	Oral Paper Presentation
National Conference on Material Characterizations (NCMC-2016)	Conference	National	DEPARTMENT OF PHYSICS AND SPONSORED BY IQSC, SAURASHTRA UNIVERSITY RAJKOT.	Rajkot, Gujarat	21 ST MARCH, 2017.	Best Poster Presentation Prize
National Conference on Microscopy & Advance in material Science (NCMAMS-2015)	Conference	National	CRYSTAL GROWTH AND MATERIAL RESEARCH LAB, DEPARTMENT OF PHYSICS & ELECTRONICS, JAMMU UNIVERSITY, JAMMU	Jammu, Jammu & Kashmir	02 ND T 04 TH MARCH, 2015.	Poster Presentation
National Seminar on One-day Acquaintance Program.	Conference	National	DEPARTMENT OF PHYSICS GUJARAT UNIVERSITY, AHMEDABAD.	Ahmedabad Gujarat.	19 TH JULY, 2014.	Attendee

EXTRA ACTIVITIES:

<p>.Title: Two-day State Level Science & Technology Exhibition-2019.” Place: KADI SARVA VISHWAVIDHYALAYA, GANDHINAGAR Date: 07-08 January 2019 Description: In this exhibition, I work as a valuable guidance for scientific model presentation.</p> <p>2.Title: One day Science far “ Manthan- 2019” Attending as a mentor Place: P.D PATEL INSTITUTE OF APPLIED SCIENCE, CHARUSET, CHANGA, GUJARAT. Date: 05TH JANUARY, 2019. Description: In this Science far P.D PATEL INSTITUTE OF APPLIED SCIENCE, CHARUSET UNIVERSITY. In this Science far as a present College mentor and Conducting guidance.</p> <p>3.Title: “ Regional Training Programme on URKUND (An Anti- Plagiarism Detection Tool)” Place: PANDIT DEENDAYAL PETROLEUM UNIVERSITY, GANDHINAGAR. Date: 24th September 2015. Description: In this Workshop, conducted by PANDIT DEENDAYAL PETROLEUM UNIVERSITY, GANDHINAGAR. and INFLIBNET Center in Collaboration with URKUND, Sweden & e Galactic-pune, held at PANDIT DEENDAYAL PETROLEUM UNIVERSITY, GANDHINAGAR.</p> <p>4.Title: “ A State- Level workshop On Electronic Circuit And Quantum Physics.” Place: PRAMUKHSWAMI SCIENCE COLLEGE AND H.D PATEL ARTS COLLEGE KADI. Date: 30TH JANUARY TO 01ST FEBRUARY 2019. Description: In this State Level Workshop by PRAMUKHSWAMI SCIENCE COLLEGE AND H.D PATEL ARTS COLLEGE KADI. Furthermore, I have worked as an official Committee member.</p> <p>5.Title: Three-day State Level Science & Technology Exhibition-2018.” Place: SWAMI VIVEKANAND VIDHYALAYA, SEC.12 KADI SARVA VISHWAVIDHYALAYA, GANDHINAGAR Date: 05TH TO 07TH January 2018</p>

Description: In this exhibition, I work as a valuable guidance for scientific model presentation and poster presentation.

PERSONAL PROFILE:

Date of Birth: 22nd Feb, 1989

Marital Status: Unmarried

Nationality: Indian

Languages: English, Hindi and Gujarati

Hobbies: Reading, listening music, Volleyball playing chess, Football.

I hereby declare that the particulars given in this resume are true to the best of my knowledge and belief.

Date: - / / 2020

Place: -Ahmadabad

Signature:

(Mr. Mitesh B. Solanki)