



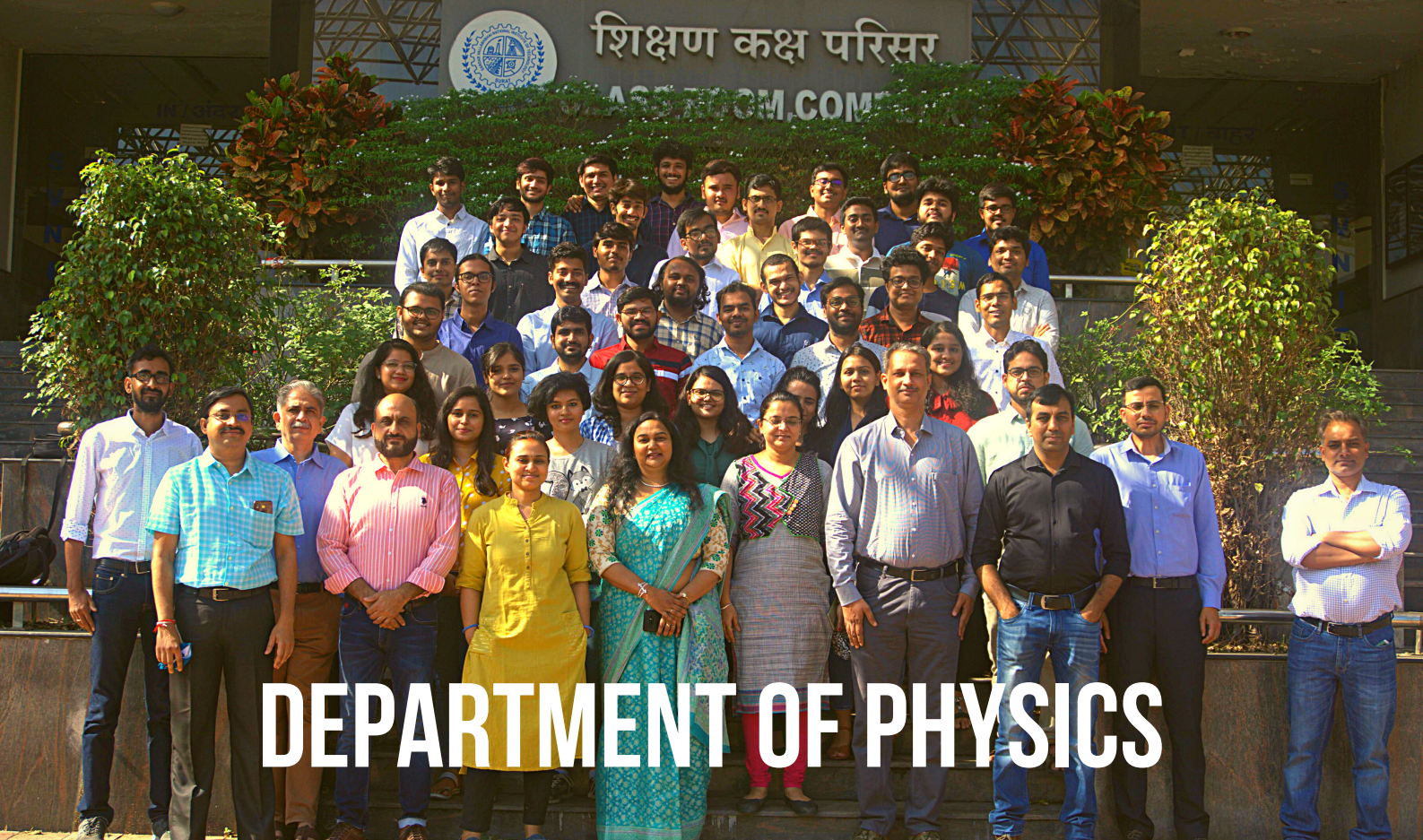
DEPARTMENT OF PHYSICS, SVNIT SURAT

# NEWSLETTER

ISSUE - 1

SVNIT/DOP/2021-22





The Department of Physics of SVNIT is one of the leading departments in terms of research. This Department has supervised several students towards their Ph.D. degrees and successfully completed many scientific projects sponsored by National Scientific Agencies. The Department of Physics has multifaceted roles to play in the institute. It is catering to the needs of the country by creating a scientist pool by conducting innovative five years integrated M.Sc. programs and Ph.D. programs. The Department has ten well-equipped laboratories attached to different divisions for conducting teaching and research activities. It also offers Ph.D. programs in the areas of Condensed Matter Physics, Material Science, Theoretical Physics, Space science, and Particle Physics.

## VISION

The department visualises itself to be a centre of excellence of learning the Physical Sciences.

## MISSION

The department endeavours to achieve its set goals through the introduction of innovative and intellectually challenging courses.

It vows to undertake to strengthen its presence in technical courses offered in the institute.





**Dr. Dimple V. Shah**  
Head of Department

Greetings from the Department of Physics!

The start of an academic year is always an exciting one. Fresh and familiar faces flood grounds, with beginning students (and faculty) anxious to make new acquisitions and start their programs, returning students eager to catch up with each other and explore new challenges and opportunities, and established faculty invigorated after summer months focused on research. Each year brings change, but the sense of revitalization we experience each fall is a fundamental constant we look forward to and depend upon. We have come to the end of another successful academic year in the department, and this newsletter is an opportunity to reflect on our accomplishments and look forward to next year.

As the semester winds down, it's a perfect time to look back on the achievements. Building on a wave of outstanding new faculty arrivals, our faculty continue to win prestigious awards and fellowships and propel research prominence of the department.

## Faculty Advisors:



**Dr. Debesh R. Roy**  
Associate Professor

It gives me immense pleasure to introduce the first issue of the bi-annual newsletter of our department. It is indeed a happy moment for me that our beloved students of the Department of Physics have taken this initiative and I congratulate them from the bottom of my heart! The newsletter aims to provide an overview of the seminars, and workshops conducted in the department and activities by the student chapter. This issue contains the achievements of our students and highlights the research publications, achievements and activities conducted by the faculty members.

I congratulate all the students and faculty members for their respective achievements. I sincerely hope that the release of our bi-annual newsletter will highlight the summary of the departmental activities at the Institute, Nat'l and Int'l levels as well.



**Dr. Yogesh A. Sonvane**  
Assistant Professor

I applaud the entire team for bringing out the first issue of our bi-annual newsletter. This issue covers the events conducted by the Department and Physics club. It celebrates our students' accomplishments while also highlighting staffs' research publications and initiatives. This is intended to guide the student community so that they can easily approach the concerned faculty members.

I acknowledge the efforts put forward by the students. I hope this issue will be helpful to get the insights of the departmental activities. We will be happily welcoming feedbacks from students and faculty members.



Dear Readers,

We are happy to present to you the first issue of the newsletter from the Department of Physics. In this issue, we've covered the Department, Mission, Vision, Notes from the HOD and Faculties, Physics Department Activities, Physics Club activities, Faculty Achievements & Publications, Student Achievements, Scholarships, Internships, and Placements.

One of the objectives of this newsletter is to apprise activities in the Department of Physics throughout the year. We have also added student achievements and internships sections so anyone can approach and get further information about the work they've done.

Another splendid year, with students from the Department of Physics bringing honors to the institution in every possible sphere. Their achievements were so remarkable that all our effort to include their accomplishments in one issue went in vain. Isn't it rightly said, "A flower makes no garland"? Thus, this newsletter is not the outcome of the effort put in by an individual but is the immense effort put forward by, first and foremost, Dr. Dimple Shah and then the editorial board and faculty advisors. At last, we've mentioned our team, who owes an enormous debt of gratitude for their tireless devotion and efforts in starting and building this newsletter.

With Regards,  
Newsletter Team, DoP



**Dr. Dimple V. Shah****Head & Associate Professor****Area of Research:** Semiconductor, Crystal growth, Thin Films & Photovoltaic Materials**No. of Publications for the Academic Year (2021-2022): 05****Profile Link:** <https://www.svnit.ac.in/facup/dvs.pdf>**Dr. Kamlesh N. Pathak****Professor****Area of Research:** Upper Atmospheric Science, Earthquake Prediction & GPS Technology**No. of Publications for the Academic Year (2021-2022): 02****Profile Link:** <https://www.svnit.ac.in/facup/knp.pdf>**Dr. Ajay Kumar Rai****Associate Professor****Area of Research:** High Energy Physics & Hadron Spectroscopy**No. of Publications for the Academic Year (2021-2022): 18****Profile Link:** <https://www.svnit.ac.in/facup/akrai.pdf>**Dr. Vipul Kheraj****Associate Professor****Area of Research:** Thin Films and Materials Science & Semiconductor Optoelectronic Devices**No. of Publications for the Academic Year (2021-2022): 06****Profile Link:** <https://sites.google.com/view/omd-svnit-vipulkheraj/home>**Dr. Debesh R. Roy****Associate Professor****Area of Research:** Density Functional Theory, Atomic Clusters & Nanostructures, Physics of the Materials & Nano-Biophysics**No. of Publications for the Academic Year (2021-2022): 21****Profile Link:** <https://sites.google.com/site/iit08drr/>





## Dr. Lalit Kumar Saini

Assistant Professor

**Area of Research:** Theoretical Condensed Matter Physics, Strongly Correlated Electronic Materials & Topological quantum nano Materials

**No. of Publications for the Academic Year (2021-2022): 05**

**Profile Link:** <https://www.svnit.ac.in/facup/lks.pdf>



## Dr. Yogesh A. Sonvane

Assistant Professor

**Area of Research:** Computational Nanoscience, Density functional Theory, 2D Materials, Nanomaterials and Nanofluids & Biological Materials

**No. of Publications for the Academic Year (2021-2022): 17**

**Profile Link:** <https://sites.google.com/site/yasonvane7/>



## Dr. Shail Pandey

Assistant Professor

**Area of Research:** Pulsed microwave generated plasma, Plasma diagnostics: Electrical method and Optical Emission Spectroscopy & Cold atmospheric pressure plasma physics and interaction with various surfaces

**No. of Publications for the Academic Year (2021-2022): 02**

**Profile Link:** <https://sites.google.com/view/spsvnit/>



## Dr. Himanshu Pandey

Assistant Professor

**Area of Research:** Band Structural Calculation, Thin films and their Heterostructures, Heusler alloys and their exploration & Thermoelectric Materials

**No. of Publications for the Academic Year (2021-2022): 03**

**Profile Link:** <https://pandeyhimanshu.wordpress.com/>



## Dr. Vikash Kumar Ojha

Assistant Professor

**Area of Research:** Theoretical High Energy Physics, Quantum Chromodynamics & Proton Spin Puzzle

**No. of Publications for the Academic Year (2021-2022): 01**

**Profile Link:** <https://sites.google.com/phy.svnit.ac.in/vikashojha/home>





## Dr. Mithun Karmakar

Assistant Professor

**Area of Research:** Plasma Wave Breaking, Plasma Based Particle Accelerator, Whistler Waves & Particle in Cell (PIC) simulation

**No. of Publications for the Academic Year (2021-2022): 02**

**Profile Link:** [https://www.svnit.ac.in/facup/CV\\_Mithun.pdf](https://www.svnit.ac.in/facup/CV_Mithun.pdf)



## Dr. Dipika Patel

Assistant Professor

**Area of Research:** Nuclear reaction study at near the Coulomb barrier energies, Study of Break-up and Transfer effects on the fusion fission and scattering mechanisms using weakly bound nuclei & Continuum Discretized Coupled Channels and Coupled Reaction Channels Method

**No. of Publications for the Academic Year (2021-2022): 07**

**Profile Link:** <https://kherdipika2006.wixsite.com/drddipikapatel>



## Dr. Sharad Kumar Yadav

Assistant Professor

**Area of Research:** Magnetohydrodynamics (MHD) Plasma Turbulence, Computational modeling of conventional and non-conventional ion sources, Computational study of soft condensed matters

**No. of Publications for the Academic Year (2021-2022): 01**

**Profile Link:** [https://www.svnit.ac.in/facup/Sharad\\_CV\\_SVNIT.pdf](https://www.svnit.ac.in/facup/Sharad_CV_SVNIT.pdf)

## To Read All the Publications

Scan Here:



Click Here: <https://bit.ly/3wCN7T2>



## 1st Annual Physics Workshop on Advances in Applied Physics (AAP-2021)



Dr. Shail Pandey, Dr. Ajay Kumar Rai, Dr. Vipul A. Kheraj, and Dr. Debesh R. Roy were part of the 1st Annual Physics Workshop on Advances in Applied Physics (AAP-2021) which was held from 18-01-2021 to 22-01-2021. It was a self-sustained workshop. A total of 46 participants joined the workshop. Topics like Material Physics, Nuclear, sub-Nuclear Physics, Laser and Plasma Physics were included in the workshop.

## Emerging trends in Research and Innovation -Tips & Techniques

A Virtual STTP on Emerging trends in Research and Innovation -Tips & Techniques (ETRITT-2021) was organized from 27-01-2021 to 31-01-2021 under the supervision of Prof. V. H. Pradhan, Dr. Jayesh Dhodiya, and Dr. Yogesh Sonvane. Over 40 students and faculty members participated and benefited from this self-sustained workshop.

**CALL FOR PARTICIPATION**

One week  
Online Short Term Training  
Programme  
(STTP)

**Emerging Trends in  
Research and Innovation -  
Tips & Techniques  
(ETRITT-2021)**

27-31 January 2021  
Under  
CCE, SVNIT

**Organized by**  
Applied Mathematics &  
Humanities Department (AMHD)  
and  
Department of Physics  
S.V. National Institute of Technology  
Surat – 395 007 (Gujarat), India

**Organizing Committee**

**Patron**  
Prof. S. R. Gandhi, Director, SVNIT, SURAT

**Coordinators**  
Prof. V. H. Pradhan, Professor, AMHD  
Dr. Jayesh M. Dhodiya, Associate Prof.,  
AMHD  
Dr. Yogesh Sonvane, Assistant Professor,  
Department of Physics

**Registration fees**  
Registration fee for the STTP is Rs.250/- for PG students, Rs.500/- for research students, Rs.750/- for faculty members and Rs.1000/- for industry person. The non-refundable registration fees should be sent through internet (NETT). Bank details for online transfer of registration fees:  
Bank Account Name: Director, SVNIT-CCE  
SBI Account No.: 37000749343  
Bank Name: State Bank of India  
IFSC Code: SBIN0003320  
Branch: SVNIT Branch

**Last Date of Registration**  
Hard copy of the duly filled registration form along with IDP should reach the Coordinator on or before 26th January, 2021.

**Address for Correspondence**  
Dr. Jayesh M. Dhodiya,  
Associate Professor  
Applied Mathematics & Humanities  
Department (AMHD),  
S.V. National Institute of Technology  
Phone: +91-982547040  
Email: [jmd@amhd.svnit.ac.in](mailto:jmd@amhd.svnit.ac.in)

## International Conference on Physical Sciences (ICPS-2021)



Dr. Ajay Kumar Rai, Dr. Vipul A. Kheraj, Dr. Debesh R. Roy, and Dr. Shail Pandey conducted the two days International Conference on Physical Sciences (ICPS-2021) on 5th and 6th February 2021. Around 116 students and 33 faculty members joined this self-sustained conference. About 38 of expert resources were utilized in the conference. The most recent trends, innovations and concerns in the field of Physical Sciences were discussed in the conference.

## One Week STTP Online Scientific Tools for Theoretical Science (STTS-2021)

From 22-02-2021 to 26-02-2021, Prof. K. N. Pathak, Dr. Dimple Shah, Dr. Lalit Saini, and Dr. Yogesh Sonvane organized a One Week Short Term Training Program (STTP) on Online Scientific Tools for Theoretical Science (STTS-2021). Total 26 students and 5 faculty members joined this self-sustained training program. The STTP was beneficial for the students as well as research scholars.

**Registration fees**

Registration fee for the STTP is Rs.500/- for PG student & research students, Rs.750/- for faculty members and Rs.1000/- for industry person. The non-refundable registration fees should be sent through internet (NETT). Bank details for online transfer of registration fees:  
Bank Account Name: Director, SVNIT-CCE  
SBI Account No.: 37000749343  
Bank Name: State Bank of India  
IFSC Code: SBIN0003320  
Branch: SVNIT Branch

**Executive Organizing Committee**

**Patron**  
Mr. S. R. Gandhi,  
Director, SVNIT, Surat

**Convener**  
Dr. A. K. Rai

**Coordinator**  
Head, APD, SVNIT, Surat

**Prof. K. N. Pathak, SVNIT, Surat**  
Dr. D. V. Shah, SVNIT, Surat  
Dr. L. K. Saini, SVNIT, Surat  
Dr. Yogesh Sonvane, SVNIT, Surat

**Contact Person**  
Dr. L. K. Saini,  
Assistant Professor  
Department of Physics,  
S.V. National Institute of Technology  
Email: [ls@physics.svnit.ac.in](mailto:ls@physics.svnit.ac.in)

**About the Training Program**

This Virtual One Week STTP on Scientific Tools for Theoretical Science (STTS-2021) delightfully welcomes all the researchers and developers to share their experiences and ideas through research talks and presentations from diverse fields in emerging theoretical Science. This event offers a platform in bringing together a forum for students, postdocs and established scientists to exchange their ideas and contributing an integrative approach to theoretical science and experiment.

**Topics**

- Astrophysics & Space Science
- Molecular Dynamics & Monte Carlo Simulation
- Ionospheric Science
- Computational Materials Science
- Computational Nano-electronics
- Designing Device for Energy Application
- Data Science and Machine Learning
- Cloud Computing

Quantum Wise

**CALL FOR PARTICIPATION**

**Virtual One Week STTP on**

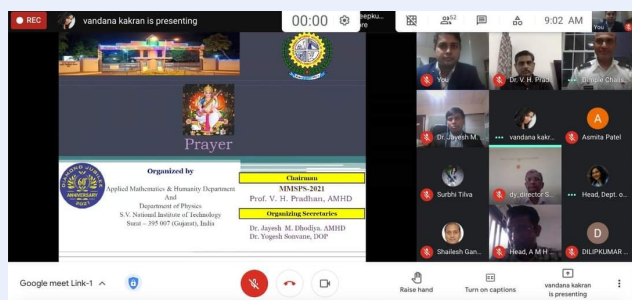
**Scientific Tools for Theoretical Science (STTS-2021)**

**22-26 February 2021 Under CCE, SVNIT**

**Organized by**  
Department of Physics  
S. V. National Institute of Technology  
Surat – 395 007 (Gujarat), India



## International Conference on Mathematical Modeling and Simulation in Physical Sciences (MMSPS-2021)



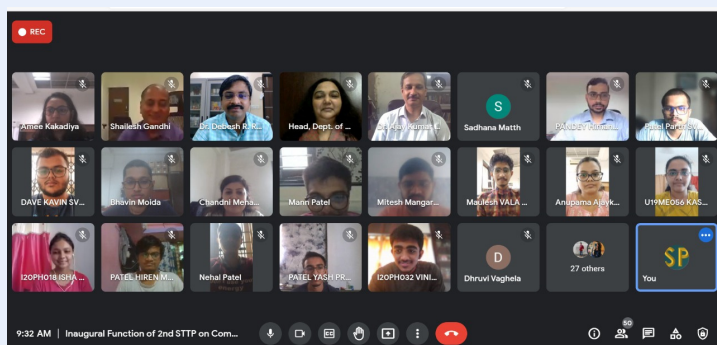
Prof. V. H. Pradhan, Dr. Jayesh Dhodiya, and Dr. Yogesh Sonvane were part of the organizing committee of the International Conference on Mathematical Modeling and Simulation in Physical Sciences (MMSPS-2021), which was organized from 17-04-2021 to 18-04-2021. Researchers and experts from various institutes gathered to discuss the researches and recent trends in Mathematical Modeling and Simulation in Physical Sciences.

## International Conference on Function Materials and Applied Sciences (FMAS)

The International Conference on Function Materials and Applied Sciences was supervised by Prof. K. N. Pathak, Dr. Dimple Shah, Dr. Lalit Saini, and Dr. Yogesh Sonvane at the Department of Physics. The conference was organized on 14th and 15th of May, 2021 sponsored under Diamond Jubilee. many faculty members, research scholars, and students joined the conference.



## 2nd STTP on Computational Tools for Physics (CTP-2021)

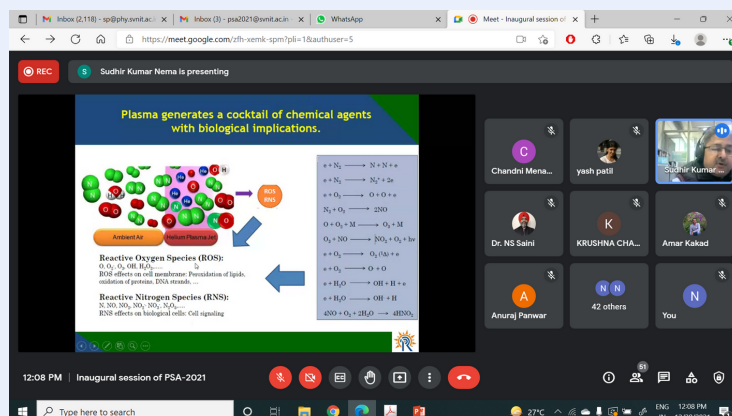


Dr. A. K. Rai, Dr. H. Pandey, Dr. D. R. Roy, Dr. V. A. Kheraj, and Dr. Shail Pandey coordinated the 2nd STTP on Computational Tools for Physics. It was organized at the Department of Physics from 4th to 8th October 2021. Faculty members and experts from the institutes of repute delivered the lectures and imparted the training. MATLAB, Mathematica, OriginLab, LabVIEW & experimental interfacing were the major highlights of the program.



## Virtual National Conference on Plasma Science And Applications (PSA-2021)

Dr. A. K. Rai & Dr. Vipul Kheraj handled the chairmanship of the Virtual National Conference on Plasma Sciences and Applications. Dr. Shail Pandey, Dr. Mithun Karmakar, and Dr. Himanshu Pandey were the Organizing Secretaries of the same organized on 20th and 21st December, 2021. Researchers and experts from academia & industry discussed the most recent innovations & concerns in the field of Plasma Science and its applications.



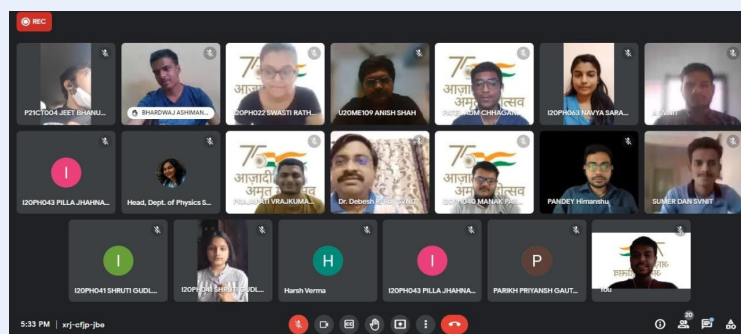
## Workshop on Nuclear Physics

WHO CAN ATTEND IT	ABOUT THE WORKSHOP	CALL FOR PARTICIPATION
<ul style="list-style-type: none"> <li>Faculty members from AICTE recognized institutes</li> <li>Research Scholars pursuing Ph.D.</li> <li>PG/UG students from science and engineering background</li> <li>Industry personnel</li> </ul> <p>Limited seats will be filled based on first come, first serve basis.</p> <p><b>IMPORTANT DATES</b> Last date of registration: 10<sup>th</sup> April 2022. Intimation of selection through E-mail: On or before 11<sup>th</sup> April 2022.</p> <p><b>MODE OF PROGRAM</b> This Workshop will be conducted through Google Meet platform, so participants should be equipped with the necessary infrastructure. Google meet link will be shared to only selected participants prior to the session starts via email.</p> <p><b>CONTACT PERSON</b> Dr. A. K. Rai Mobile: +91-9904003860 Email: <a href="mailto:akrai@phy.svnit.ac.in">akrai@phy.svnit.ac.in</a> Dr. Vikash Kumar Ojha Department of Physics Mobile: +91-9920642686 Email: <a href="mailto:vikash@phy.svnit.ac.in">vikash@phy.svnit.ac.in</a> Dr. Dipika Patel Department of Physics Mobile: +91-9537411323 Email: <a href="mailto:dipika@phy.svnit.ac.in">dipika@phy.svnit.ac.in</a></p>	<p><b>MAJOR HIGHLIGHTS</b></p> <ul style="list-style-type: none"> <li>Nuclear reactions</li> <li>Frontier in theoretical Nuclear Physics</li> <li>Nuclear Astrophysics</li> <li>Experimental techniques</li> <li>Nuclear Data Acquisition techniques</li> </ul> <p><b>RESOURCE PERSON</b> Faculty members and experts from institutes of repute will deliver lectures and impart the training.</p>	<p><b>1<sup>st</sup> Workshop on Nuclear Physics</b> <b>Nuclear Physics Workshop (NPW-2022)</b> <b>12<sup>th</sup> April – 16<sup>th</sup> April, 2022</b></p> <p><b>Chief Patron</b> Prof. (HAG) R.V. Rao Director, SVNIT Surat</p> <p><b>Patron</b> Prof. (HAG) P.L. Patel Dy. Director, SVNIT Surat</p> <p><b>Chairman</b> Dr. D.V. Shah, HoD, DoP, SVNIT</p> <p><b>Coordinators</b> Dr. Dipika Patel Dr. A. K. Rai Dr. V. K. Ojha</p> <p><b>Department of Physics</b> Sardar Vallabhbhai National Institute of Technology Surat Gujarat - 395 007, India (An Institute of National Importance of Govt. of India) Website : <a href="http://www.svnit.ac.in">www.svnit.ac.in</a> In Association with: CCE, SVNIT</p>

Nuclear Physics Workshop, 2022 (NPW 2022) was conducted from April 12 to April 16, 2022, under the guidance of Dr. Dipika Patel and covered a wide variety of topics in nuclear physics, including experimental and theoretical components. The attendees were introduced to new developments in nuclear physics research. The seminars were also intended to demonstrate how to conduct experimental measurements, collect data, and analyse the findings.

## Vigilance Awareness Week 2021

The institute organised Vigilance Awareness Week, 2021, with the theme "INDEPENDENT INDIA @75: SELF RELIANCE WITH INTEGRITY" from 26-10-2021 to 01-11-2021. The main idea behind this was to spread awareness among youth. In order to accomplish this, a poster making competition, slogan writing competition and a debate competition were conducted by the Department of Physics for the students of SVNIT. The topics for the poster design contest were: Startup India, Stand up India, Atmanirbhar Bharat-We can! (Space sector, Agriculture sector, Corporate sector, Telecom IT sector), Vigilant People, and Digital India-E Kranti.





# Sarabhai Lecture Series:

## 1. Journey of the Humble Nucleus

The first talk of the Online Sarabhai Lecture series, presented by Dr. Soumya Bagchi from IIT(ISM) Dhanbad, was a fantastic start for the lecture series. It attracted around 70 physics enthusiasts from all over the country as the professor narrated the "Journey of the Humble Nucleus" story. He gave a lucid insight into the stability of elements and Halo nuclei. He explained how the Shell Model of The Atomic Nucleus discovery fetched the Nobel Prize to Maria Geoppert Mayer in 1963. He engaged in exciting discussions with the audience and enthusiastically answered their questions.



## 2. Gravitational Waves: The New Wave in Physics, Technology and Astronomy



The second talk of the "Sarabhai Online Lecture Series" by Dr. C.S. Unnikrishnan was a fascinating peek into the world of "Gravitational Waves: The New Wave in Physics, Technology and Astronomy". The talk attracted almost a hundred physics enthusiasts from all over the country. Dr. Unnikrishnan talked about General Relativity and how Einstein had predicted the presence of Gravitational Waves in 1960. He addressed how various experimentalists across the world worked for over 60 years to prove the presence of Gravitational Waves. He presented the future avenue for research in Gravitational Physics in India. Prof. Unnikrishnan made the session interactive and nicely guided the audience.

## 3. Exotic World of Neutron Stars

The third talk of "Online Sarabhai Lecture Series" attracted over 80 physics enthusiasts from across the country to tour the "Exotic World of Neutron Stars" with Dr. Sudip Bhattacharyya. He talked about how every phenomenon that physicists wanted to study could be studied in this body, from particle-particle interactions to curvature of space-time by massive bodies. He also showed the current progress in research on neutron stars and the planned future. In the end, all of us engaged in exciting discussions related to the topic.





## 4. Observing Black Holes and Understanding their imprints



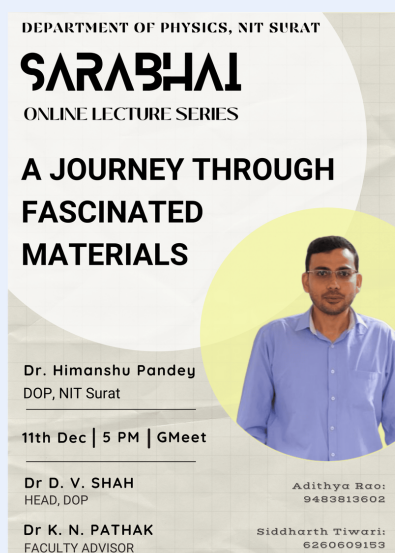
The Fourth talk of "Sarabhai Online Lecture Series" by Dr. Manomeeta Chakraborty from IIT, Indore, on "Observing Black Holes and Understanding their imprints" was a whopping success attracting more than 50 physics geeks from all over the nation. Dr. Chakraborty talked about the Life Cycle of stars and how different physicists interpret the black holes in different ways. She described the various exciting properties of Black Holes. Prof. Chakraborty explained the different Observational Techniques employed in Black Hole research and their challenges. She ended this fantastic talk with an exciting interaction with the audience, answering their questions and encouraging them towards research at the same time.

## 5. Phases of QCD and Application to Neutron Stars

The fifth talk of the Sarabhai Lecture Series by Dr. Andreas Schmitt on "Phases of QCD and Application to Neutron Stars" was a massive success, with up to 100 fellow physics enthusiasts joining us in this talk. Dr. Andreas Schmitt introduced the Quantum Field Theory. He explained that Quantum chromodynamics (QCD) is the theory of the strong interaction between quarks and gluons, the fundamental particles that make up composite hadrons such as the proton, neutron, and pion. He explained how it is an integral part of the Standard Model of particle physics and is backed by much experimental evidence over the years. The talk ended with a Q&A session and a fruitful discussion with the professor.



## 6. A Journey through Fascinated Materials

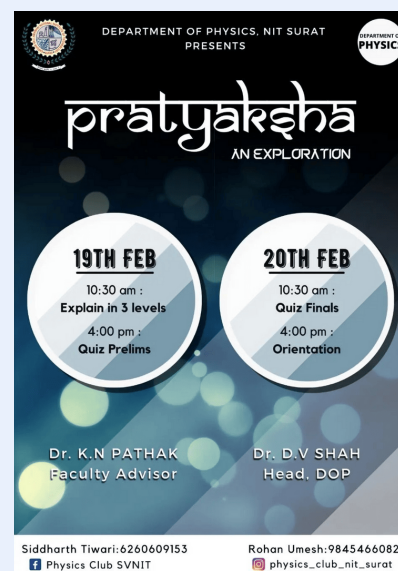


The final talk of the "Sarabhai Online Lecture series" was held on 11th December 2022 with an average participation of 70. We had Dr. Himanshu Pandey, assistant professor in the Department of Physics, SVNIT as the speaker who talked about 'A Journey through Fascinated Materials.' In the talk, Dr. Pandey discussed the importance of measuring physical quantities the right way by using the example of the Mars Climate Orbiter. He talked in detail about various topics, including 'Chromism' and the mechanism behind different material technologies. He concluded by highlighting the top 10 advancements in the field of material sciences and left the audience with a few questions to ponder upon.



## Pratyaksha

Pratyaksha is the term used to talk about the search for knowledge. It is also the well-justified title of Physics Club's trademark event. It started with the event "Explained at 3 levels," where the participants enthusiastically took up the challenge to explain the undergraduate Physics topics at three levels: toddler, high schooler, and undergraduate. This event attracted over 80 participants which was followed by Orientation of the Physics Club and a fun quiz.



## Research Opportunities in Physics

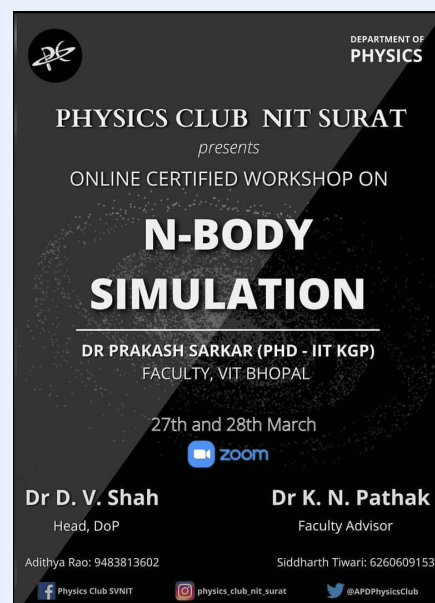


June, It's that time of the year when we sit back and start planning for the upcoming academic year. Internship through portals or emailing professors? When and where to apply? CV? Writing a good SOP? We know it's very easy to get caught up in these questions, and that's exactly why Physics Club encouraged us to attend the webinar on 'Research Opportunities in Physics' on 19th June 2021.

Suraj Singh, Nidhi Mehandiratta and Devanshu Sharma aided us in navigating through various opportunities available for Physics students.

## N-body Simulation Workshop

An N-body simulation approximates the motion of particles, often specifically particles that interact with one another through some physical forces. The types of particles that can be simulated using N-body methods range from celestial bodies to individual atoms in a gas cloud. With Dr. Prakash Sarkar, the two days certified workshop on N-body simulation was a wonderful experience, and the student community is always grateful to Physics Club for organizing such events.





## Celebration of National Science Day



On National Science Day 2022 (28th February), Dr. Debarati Chatterjee, an acclaimed theoretical astrophysicist, associate professor at IUCAA Pune, and Chair of LIGO-India Education and Public Outreach, gave an online discussion titled 'Gravitational waves: A portal to an unanticipated world.' Dr. Chatterjee discussed gravitational-wave astronomy. National Science Day drew 60 participants. She emphasised why it's necessary to research the universe with many EM wavelengths now. She described the LIGO GW megaproject. Dr. Chatterjee answered questions. The discussion ended by outlining India's existing and prospective GW initiatives and future potential in GW astronomy.

## Mathematica Workshop

Physics club organized a 2-day online workshop under the guidance of Dr. Vikash Kumar Ojha on the 7th and 8th of August. Around 30 students took benefits of the sessions in which, Dr. Vikash thoroughly explained the theory and specifications of the online software - Mathematica. Students raised various doubts during the tutorial session, and sir happily resolved them. He individually guided everyone and nicely explained various concepts.



## Origin Workshop



The first offline workshop of the Physics club was organized in March with over 40 participants. Origin is a popular software widely used by the research community for Data Analysis and Plotting. Physics Club, with the support of the Department of Physics, SVNIT conducted this workshop to introduce this amazing tool of research to the budding scientists in SVNIT and aid them in their future ambitions. Dr. Himanshu Pandey introduced everyone to the basics of data analysis and its utmost importance in the research world. He taught students about various graphs that can be plotted using Origin. Moreover, he gave multiple exercises to the students to solve and taught some advanced methods.



## Departmental Achievements

- Department of Physics, SVNIT has received DST FIST project grant of 1.25 crore for 2018-2023.
- The faculty members in the Department of Physics received more than fifteen sponsored research projects with a total grant of about 3 crores.

## Faculty Achievements

- Dr. D. R. Roy has received Hanse-Wissenschaftskolleg - Institute for Advanced Study (HWK) fellowship for 2019-2020, Germany.
- Dr. D. R. Roy was elected as a Fellow of the Indian Chemical Society, Kolkata, 2019.
- Dr. Vipul Kheraj and his P.hD student Akshay Jariwala have designed an innovative probe for Surface Photovoltage Spectroscopy of thin materials at the Optoelectronic Materials and Devices research group at the department. The design has been registered by the Patent office of GOI.

## Research Projects 2021-22

Name of Project	Principal Investigator	Funding Agency	Amount	Status
Nanostructured Metal Oxide-Drug Assemblies and their Interaction Mechanism with Biomolecules: A Joint Experimental and First Principal Investigation for Possible Therapeutic Applications	Dr. D. R. Roy (Mentor)	SERB-DST	₹ 18,30,000/-	Ongoing
Group III-V Inorganic Semiconductor Clusters for Future Nanoelectronics Applications	Dr. D. R. Roy	SERB-DST	₹ 33,67,513/-	Ongoing
Microwave Plasma Interaction with Conducting Surfaces and its Effect on Plasma Parameters	Dr. S. Pandey	SVNIT-Seed Grant	₹ 10,00,000/-	Ongoing
To Study the nucleon structure using the Quasiprobability distribution function in the light-front dressed quark model	Dr. V. K. Ojha	SVNIT-Seed Grant	₹ 5,35,000/-	Ongoing
Accelerator based Nuclear Physics	Dr. D. Patel	SVNIT-Seed Grant	₹ 9,50,000/-	Ongoing
Synthesis and Characterization of Nanostructured materials for Photocatalytic and Gas Sensing Application	Dr. H. Pandey	SVNIT-Seed Grant	₹ 9,65,000/-	Ongoing
Entry mechanism of solar wind particles in lunar wake environment	Dr. M. Karmakar	SVNIT-Seed Grant	₹ 9,50,000/-	Ongoing
Numerical Study of the Solar Wind Plasma Turbulence	Dr. S. K. Yadav	SVNIT-Seed Grant	₹ 9,10,000/-	Ongoing
Physics and Application of Plasma-Surface Interaction: Tuning Effect of Pulsed Microwave Electric Field and Electrostatic Magnetic Field	Dr. S. Pandey	DST-INSPIRE-Faculty Grant (Transferred from NITJSR)	₹ 35,00,000/-	Completed



- **Dr. Kaptan Rajput**, Ph.D. (2021), an alumnus of DoP, received Post Doctoral Fellowship in KAIST, Korea (QS world rank = 41).
- **Dr. Deobrat Singh**, an alumnus of DoP, is doing his Post Doctoral at Uppsala University, Sweden.
- **Dr. Shivam Kansara**, an alumnus of DoP, is doing his Post Doctoral at Chungbuk National University, South Korea.
- **Ramkumar Radhakrishnan (I17PH002)** has secured Ph.D. admission at North Carolina State University, USA.
- **Tiyasa Kar (I17PH008)** secured Ph.D. admission at North Carolina State University, USA.
- **Suraj Kumar Singh (I17PH003)** joined Joint PhD programme at Justus Liebig University Gießen, Germany, in collaboration with GSI Helmholtzzentrum für Schwerionenforschung, Darmstadt, Germany.
- **Kavin Dave (I17PH035)** will be working on an ISRO-funded project at Dr. Shalabh Gupta's lab at IIT Bombay as a JRF scientist.
- **Deepak Kumar (I17PH017)** cleared the Combined Defense Services Exam.
- **Vinay Tumuluru (I17PH047)** has been awarded a prestigious DAAD fellowship to pursue a Ph.D. The University of Munich in Germany.
- **Rahul Kumar Choudhury (I17PH031)** attended the conference and presented a paper entitled "Charge Transfer Mediated Ammonia Adsorption Study Over Tungsten Based MXene: A First-Principles Study." at the International Conference on Renewable Energy 2022.
- **Utpal Kumar (I17PH038)** has worked as TnP (Training and Placement) coordinator of the PHYSICS Department.
- **Jagriti Rani Singh (I17PH025)** has worked as Cinephilia Head (2020-2021); Cinephilia is the film club of SVNIT Surat.
- **Suyash Santosh Gaikwad (I18PH057)** was the advisor to Research Innovation Affairs Council (RIAC) SVNIT. He offered expert lectures and led a research-based event called 'Propose, Research and Publish,' Students formulated an issue in a subject of their interest, performed elementary research, and published a journal.
- **Aryan Borkar (I18PH024)** has published a research article on Arxiv Collaboration Work in 2021. During the DESY summer student program 2021, young scientists from more than 13 countries worked together (connecting via a remote) to provide computer codes within the Rivet framework for 19 HERA measurements.- (<https://arxiv.org/abs/2112.12598>)
- **Suyash Santosh Gaikwad (I18PH057)** was selected amongst the top 20 candidates with applications worldwide in the Summer Student Program, MCQST Munich.
- **Mihir Patel (I18PH037)** was selected for the Summer Research Fellowship Program (SRFP) 2022 of the Indian Academy of Sciences. Location of Work: Indian Institute of Science, Bengaluru

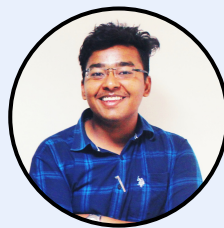


- **Roshan Raj (I19PH002)** published his literature book on "कालसंघर्ष।KaalSangharsh: लघु काव्य संग्रह। Short Poetry Collections (Hindi Edition)."
- **Aditya Rao (I19PH001), Siddathrth Tiwari (I19PH015), Hershini Gadaria (I19PH041), and Shreyan Goswami (I19PH035)** have worked as the core members of the Physics Club SVNIT.
- **Darshil Domadiya (I19PH061)** has worked as Secretary of SPIC MACAY SVNIT Student Chapter, and Convenor of SPARSH (The cultural fest of SVNIT).
- **Siddharth Ramesh (I19PH043)** has worked as Convenor of SCOSH SVNIT Student Chapter.
- **Reva Shaker (I19PH012)** has Worked as head of Hindi Cell SVNIT.
- **Roshan Raj (I19PH002)** has worked as Joint Academic Affairs Secretary, AAS Council SVNIT.
- **Harsh Verma (I20PH038)** and **Pranav Abegaonkar (I20PH003)** were the Zonal toppers in the MIMAMSA-2021 national exam conducted by IISER Pune.
- **Yash Chaudhari (I20PH055)** and his team won by a large margin in the online BGMI (PUBG) tournament hosted by IIIT Surat Gaming Club on January 26th, 2022. He was his team's MVP and single-handedly led them to the tabletop several times.
- **Pranav Iyer (I21PH017)** and his team won the modeling competition organized by SVNIT on National Mathematics Day.
- **Sneh Shah (I21PH019)** - Received first place in the Modelling competition. - Modelling (National Mathematics Day 2021)
- **Abhi Savaliya (I21PH040), Saurabh Suman (I21PH038), and Abhyuday Verma (I21PH021)** secured second position in the PRP (Propose Research Program) organized by the SVNIT Research and Innovation Affairs Council.





**Prateekraj Sahu**  
**I17PH026**  
Systems Engineer  
TCS R & D



**Mengana Nithin Kumar**  
**I17PH007**  
Content Development  
Byju's



**Nidhi Mehendiratta**  
**I17PH019**  
Project Engineer  
Wipro



**Jaiminchandra B. Parmar**  
**I17PH029**  
Project Engineer  
Wipro



**Rajesh Kumar Das**  
**I17PH015**  
Project Engineer  
Wipro



**Ritu Meena**  
**I17PH013**  
Academic specialist  
Byju's



**Jagriti Rani Singh**  
**I17PH025**  
Academic specialist  
Byju's



**Deepak Kumar**  
**I17PH017**  
Academic specialist  
Career Launcher



**Aishvi Kishorekumar Jain**  
**I17PH010**  
Assistant System Engineer  
TCS Ninja



**Utpal Kumar**  
**I17PH038**  
Assistant System Engineer  
TCS Ninja





**Jaiminchandra Parmar**  
I17PH029

- He completed his internship on "Quantum Principal Component Analysis" under the guidance of Dr. Kavita Dorai, Professor (IISER Mohali).

- She did her internship in the "Electronics and instrumental section" field under the guidance of Mr. Arun Kumar Chauhan, Senior Scientific Officer, Heavy Water Plant, Kota, Rajasthan.



**Ritu Meena**  
I17PH013



**Prateekraj Sahu**  
I17PH026

- He did his internship at 6Wresearch PVT. Ltd. under Srajan Yadav, Market Research Analyst, on a market research project on the Home Decor Market. The project involves secondary research, KPI analysis, primary research, and market engineering.

- He is working on the quantum optical formulation of superfluorescence in X-Ray free-electron lasers under the guidance of Prof. Dr. Nina Rohringer, Group Leader, and Dr. Andrei Benediktovitch, FS-TUXS Group, DESY, Germany;
- He did an internship on the emergence of superfluidity in two-component Fermi gases under Professor Mathew Davis, who is in charge of the University of Queensland and the ARC Centre of Excellence for Engineered Quantum Systems.
- He completed an internship under Prof. Dr. Subhadeep De at the Precision and Quantum Measurements Laboratory, IUCAA, India, on "Development of a Simulator Toolbox for Laser Stabilization using the Pound Drever Hall method for applications in ion trap experiments and GW interferometry."



**Suyash Santosh Gaikwad**  
I18PH057



**Siddharth Thakker**  
I18PH019

- He did his internship in the fields of "Study of b-jet production in the ATLAS experiment at the LHC", Poland (The Institute of Nuclear Physics-Polish Academy of Sciences (IFJ-PAN)) and "Free-space quantum key distribution" under SRFP-Indian Academy of Sciences at the Physical Research Laboratory, Ahmedabad.

- He completed his internship on "Electron-Ion collider Project" under the guidance of Dr. Kavita Lalwani at MNIT Jaipur.



**Mihir Patel**  
I18PH037



**Aryan Borkar**  
I18PH024

- He completed his internship on "Quantum Chromodynamics predictions in Deep Inelastic Scattering" under the guidance of Prof. Hannes Jung (CMS Group), DESY, Germany.



## CSIR NET-JRF

**Shashi Tarode****I17PH049**

AIR 104 (CSIR NET-JRF 2022)

**Prateekraj Sahu****I17PH026**

AIR 147 (CSIR NET-JRF 2022)

**Avinash Tatarwal****I17PH023**

AIR 212 (CSIR NET-JRF 2022)

## JEST

**Avinash Tatarwal****I17PH023**

AIR 86 (JEST 2022)

## GATE

**Akash Agrawal****I17PH004**

AIR 32 (GATE 2022)

**Avinash Tatarwal****I17PH023**

AIR 122 (GATE 2022)

**Shashi Tarode****I17PH049**

AIR 149 (GATE 2022)

**Kavın Sanjay Dave****I17PH035**

AIR 239 (GATE 2022)

**Nithin Kumar Mengana****I17PH007**

AIR 261 (GATE 2022)

**Prateekraj Sahu****I17PH026**

AIR 285 (GATE 2022)





**Mitesh Mangroliya**

**I17PH014**

AIR 579 (GATE 2022)



**Jaiminchandra B. Parmar**

**I17PH029**

AIR 579 (GATE 2022)



**Jagriti Rani Singh**

**I17PH025**

AIR 608 (GATE 2022)



**Chinmay Seth**

**I17PH046**

AIR 1311 (GATE 2022)



**Sagar Sharma**

**I18PH043**

AIR 1497 (GATE 2022)



**Kavaiya Yashkumar**

**I16PH021**

AIR 3384 (GATE 2022)



**Mahesh Kumar**

**I18PH015**

AIR 1576 (GATE 2022)



**Abhishek Kumar**

**I19PH022**

AIR 1497 (GATE 2022)



**Anupam Shaw**

**I19PH046**

AIR 1660 (GATE 2022)





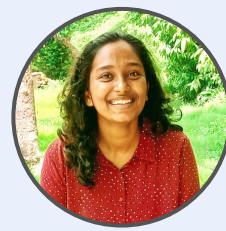
**Vilas P Chaudhary**  
**D17PH003**  
DST INSPIRE Fellow



**Chandni Menapara**  
**DS18PH004**  
DST INSPIRE Fellow



**Jaiminchandra B. Parmar**  
**I17PH029**  
SHE-INSPIRE



**Rashi Kaimal**  
**I18PH017**  
DAAD-WISE



**Suyash Santosh Gaikwad**  
**I18PH057**  
DAAD-WISE



**Sumedh Kulkarni**  
**I18PH006**  
SHE-INSPIRE



**Krishna J. Lad**  
**I18PH011**  
SHE-INSPIRE



**Gaadha Lekshmi S**  
**I18PH047**  
SHE-INSPIRE



**Adithya A Rao**  
**I19PH001**  
SHE-INSPIRE



**Viren Wadhwa**  
**I19PH029**  
SHE-INSPIRE



**Hetavi Dhimmer**  
**I19PH037**  
SHE-INSPIRE



**Prajapati Vraj Kumar G**  
**I19PH016**  
SHE-INSPIRE



**Hershini Gadaria**  
**I19PH041**  
SHE-INSPIRE



**Jadav Yogesh**  
**I19PH051**  
SHE-INSPIRE



**Dhruvi Saraniya**  
**I19PH058**  
SHE-INSPIRE



**Darshil N. Domadiya**  
**I19PH061**  
SHE-INSPIRE



**Disha R Hegde**  
**I20PH007**  
SHE-INSPIRE



**Riya Shah**  
**I20PH016**  
SHE-INSPIRE



**G Surya Prakash**  
**I20PH039**  
SHE-INSPIRE



**Aastha Tripathi**  
**I21PH014**  
SHE-INSPIRE





**Darshil N. Domadiya**  
**I19PH061**  
Student Co-ordinator



**Dhruvi Saraniya**  
**I19PH058**  
Editor



**Bhavya Jaiman**  
**I19PH032**  
Editor

## Design Team



**Keith Kamson Fernandes**  
**I19PH004**  
Chief Designer



**Aditya A. Rao**  
**I19PH001**  
Chief Designer



**Harsh Verma**  
**I20PH038**  
Designer



**Shruti Gudla**  
**I20PH041**  
Designer

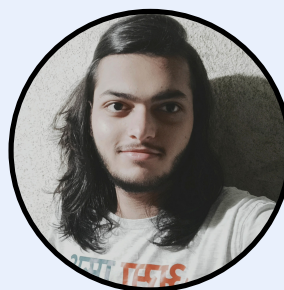
## Content Team



**Swasti Rathod**  
**I20PH022**  
Chief Content Writer



**Parikshit Paleja**  
**I20PH020**  
Content Writer



**Abhay Karia**  
**I20PH002**  
Content Writer



**Navya Saraswat**  
**I20PH063**  
Content Writer





# Department of Physics

Sardar Vallabhbhai National Institute of Technology (SVNIT)  
Surat - 395007, Gujarat, India