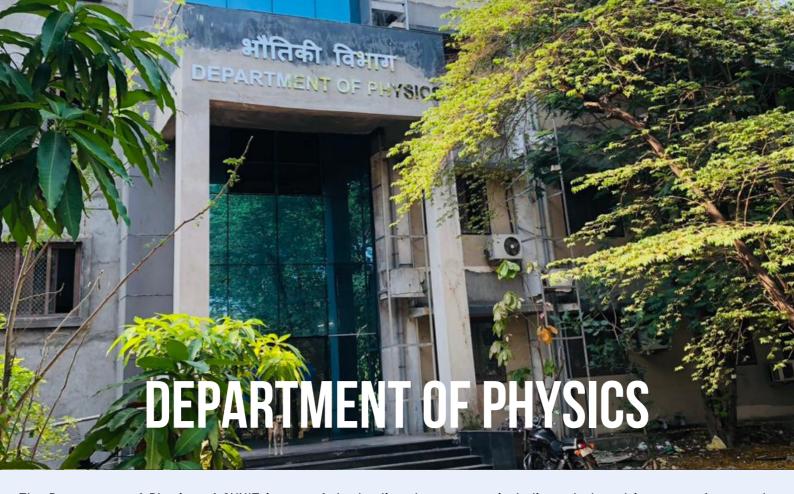


DEPARTMENT OF PHYSICS, SVNIT SURAT

NEWSLETTER

ISSUE - 2 SVNIT/DOP/2022-23



The Department of Physics of SVNIT is one of the leading departments in India and abroad in terms of research. Faculty and students from the Department have 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 supervised several students towards their Ph.D. degrees. It offers Ph.D. programs in the areas of Condensed Matter Physics, Material Science, Theoretical Physics, Space science, and Particle Physics. The Department has well-equipped laboratories attached to different divisions for conducting teaching and research activities.

VISION

The department visualises itself to be a centre of excellence for 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. ShahHead of Department

Greetings from the Department of Physics!

With the onset of the even semester, I feel exhilarated as I look back at the milestones that the Department has been able to achieve. I also welcome the new students who have joined the Department Of Physics, as well as returning students eager to catch up with each other and explore new challenges and opportunities, and established faculty invigorated after winter months focused on research. Each semester brings change, but the sense of revitalization we experience every time is a fundamental constant we look forward to and depend upon. We have come to the end of another successful semester 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 the research prominence of the department.

Faculty Adivsors:



Dr. Debesh R. Roy Associate Professor

It gives me immense pleasure to introduce the second 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 continued 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 second issue of our bi-annual newsletter. This issue covers the events conducted by the Department and Physics Club. It celebrates our student's accomplishments while also highlighting the staff's 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 all the students and faculty members to stay updated with and get insights into the departmental activities. We happily encourage and welcome feedback from students and faculty members.

TEAM MESSAGE

With immense pleasure, we present to you the second 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 semester, with students from the Department of Physics bringing honours 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, Head of the Department, and then faculty advisors and the editorial board. At last, we've mentioned our team, whom we owe an enormous debt of gratitude for their tireless devotion and efforts in continuing to build the legacy of the Department through this newsletter.

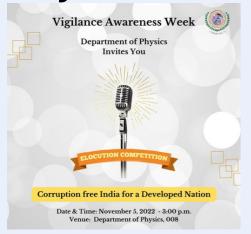
With Regards, Newsletter Team, DoP

1. Teacher's Day Celebration

Teacher's Day was celebrated in the Department of Physics on the 5th of September 2022. Speeches and talks were given by the students of the Department. Faculty members graced the occasion with their words of wisdom. The event ended with a cake-cutting celebration by the students and faculty members.



2. Vigilance Awareness Week



The recently concluded Vigilance Awareness Week in our department aimed at fostering awareness about the importance of integrity, accountability, and transparency in our work, encouraging ethical conduct among employees, and promoting a culture of vigilance in the workplace. The event successfully created a heightened sense of awareness and commitment towards maintaining the highest standards of integrity in our department.

3. FMAP - 2022 International Conference

The Second Virtual International Conference on Functional Materials and Applied Physics (FMAP-2022) was a great success. The conference, which was held between 14-15 October 2022, brought together researchers and students to exchange their knowledge and ideas. The conference was organized by Prof. K. N. Pathak, Dr. Dimple Shah, Dr. Yogesh Sonvane, Dr. D. R. Roy, and Dr. Lalit Saini, and was conducted in online mode.



4. CTPSE - 2022 STTP



The Computational Techniques for Physical Science & Engineering (CTPSE-2022) workshop was held from 19-23 September 2022, organized by Prof. V.H. Pradhan, Dr. J. M. Dhodiya, and Dr. Yogesh Sonvane. The one-week Short Term Training Programme (STTP) was conducted in a hybrid mode, with both online and offline components. Participants gained valuable knowledge and skills in computational techniques for physical science and engineering through this engaging and informative workshop.

1. Physics: A Logical Analysis

A talk by Dr. Abhishek Majhi was organised to explore some of the failures of Maxwell's Electromagnetism leading to Heisenberg's Uncertainty Principle. Students learnt to tackle Maxwell's theories through basic concepts of differentiation laid by Cauchy himself and talked about various problems that arise in physics due to semantics and misnomers. The talk ended with a concluding discussion on the famous paper by Einstein Podolsky and Rosen and the incompleteness as a general feature of any physics theory and not just limited to Quantum Physics.



2. Researchathon 2.0



The Physics Club conducted Researchathon 2.0, putting the participants' skills to the test with mind-boggling quizzes and physics problems. The event had three stages: two preliminary and one final 30-hour round. During the final round, students had to solve a research problem in a field of their choice. The judges for the final problem were top-notch professors with immense experience in their respective fields. The final problem's results were attested by these judges. Overall, Researchathon 2.0 was an intense and challenging event that pushed the limits of the participants' knowledge and abilities. It provided a platform for students to showcase their research skills and passion for physics.

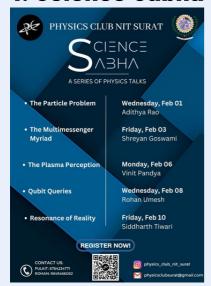
3. Logo Design Competition

The success of any brand heavily relies on its representation. To achieve this, the Department of Physics (DoP) realized the importance of having a strong visual identity and organized a logo design contest. The Physics Club took the initiative to invite creative individuals to participate in the competition and showcase their design skills. The primary objective of the contest was to select the best logo for the DoP. With many designers participating in the contest, it served as an excellent platform for them to enhance their careers and display their talents. The competition provided an opportunity for designers to create an appealing and polished logo that could represent the DoP.



DEPARTMENT OF PHYSICS

4. Science Sabha



The Physics Club at NIT Surat organized Science Sabha, a five-day physics talk series starting from 1st February. The event covered a range of topics including Neutrino oscillations, Multimessenger Astronomy, Plasma physics, Quantum computing, and String theory. The talks were conducted by talented seniors who stripped complex theories to their simple, basic ideas with clarity, making it accessible to anyone with little or no background knowledge. The sessions were interactive and encouraged the exchange of ideas, making it a fun learning experience for all attendees.

5. Pratyaksha

The Physics Club at SVNIT presented an exciting opportunity for exploration and conquest through their flagship event, Pratyaksha. The event consisted of four spectacular competitions that participants could enter to win exciting prizes. The first competition, Xplore the Xhibit, challenged participants to guess experiments based on their setups. Phyctionary, the second competition, was a physics-themed game of dumb charades. For the Treasure Hunt, participants solved a series of clues and questions scattered throughout the campus, ultimately leading them to a final treasure. Finally, the General Quiz tested participants with a mix of challenging questions.



6. COMSOL Workshop by Dr. Shail Pandey

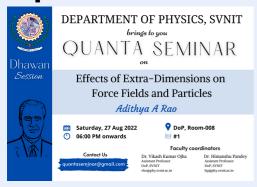


The Physics Club conducted a hands-on workshop on COMSOL Multiphysics software. The workshop aimed to address the difficulties encountered by students when dealing with clunky integrals and complex differential equations. The software is a powerful tool for solving physics and engineering problems related to coupled phenomena and multiphysics. The workshop was led by the expert guidance of Dr Shail Pandey, a faculty member of the club. The attendees were able to learn the software's functions and capabilities and were able to apply them to real-world problems. Overall, the workshop was a success and helped students overcome their fear of complex mathematical problems.

The Department of Physics at SVNIT-Surat is pleased to announce the successful completion of a series of Talks-cum-Discussions called "Quanta Sessions". These sessions were organized by the students of DoP, SVNIT and aimed at quenching the thirst for knowledge of Physics enthusiasts. The Talks-cum-Discussions were held regularly, and provided participants with the opportunity to dwell deeper into various aspects of Physics. Attendees engaged in lively discussions and shared their perspectives. The Quanta Sessions proved to be a great success and left attendees with an everlasting appreciation for the subject.



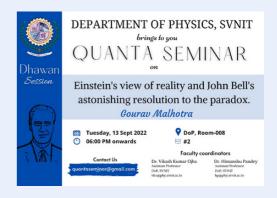
1. Quanta Seminar - Dhawan Session 1



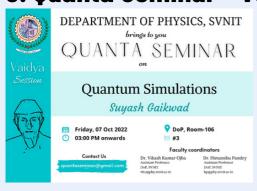
Mr. Adithya A Rao conducted the 1st Quanta Seminar of Dhawan Session on "Effects of Extra-Dimensions on Force Fields and Particles," which was a success. The seminar drew a good crowd, and attendees received valuable information on the latest research in this field. The topic discussed was well-received, and participants gained useful insights. The event was a fruitful experience for everyone who attended.

2. Quanta Seminar - Dhawan Session 2

The 2nd Quanta Seminar of Dhawan Session was conducted by Mr Gaurav Malhotra on the topic of the EPR Paradox and John Bell's Inequality. The seminar explored the concept of quantum entanglement and its implications on the laws of classical physics. Attendees gained a deeper understanding of the paradox and its significance in the field of quantum mechanics.



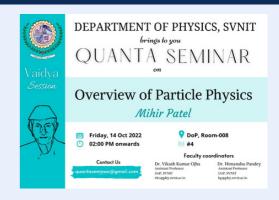
3. Quanta Seminar - Vaidya Session 1



The 3rd quanta seminar of the Vaidya Session was conducted by Mr Suyash Gaikwad. He spoke about Quantum Simulations, sharing valuable insights and information on the topic. The seminar was a great success and left attendees with a better understanding of quantum simulations.

4. Quanta Seminar - Vaidya Session 2

The 2nd Quanta Seminar of the Vaidya Session was conducted by Mr Mihir Patel. He gave an informative overview of particle physics, covering the fundamental building blocks of matter and the forces that govern them. The session was a great success and well-received by all attendees.



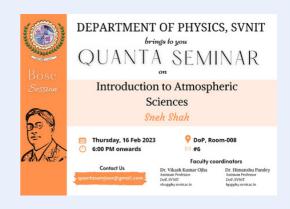
5. Quanta Seminar - Bose Session 1



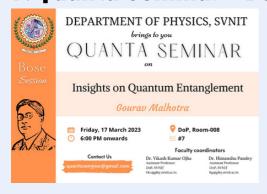
In the 1st Quanta Seminar of Bose Session, Mr Firoj Banerjee discussed the necessity of a new set of rules for curved spacetime. The seminar explored the challenges of applying traditional physics principles to curved spacetime and the need for new approaches. Attendees gained insight into the cutting-edge research being conducted in this field.

6. Quanta Seminar - Bose Session 2

The 6th Quanta Seminar was conducted by Mr Sneh Shah, who delivered a talk on "Introduction to Atmospheric Sciences." The seminar covered the fundamentals of atmospheric sciences, including topics like weather patterns, climate change, and atmospheric dynamics. The session provided valuable insights into this important field of study.



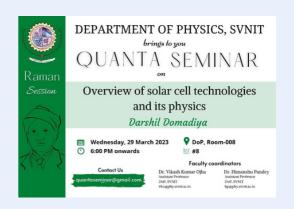
7. Quanta Seminar - Bose Session 3



The 3rd Quanta Seminar of Bose Session was conducted by Mr Gaurav Malhotra, who shared his insights on Quantum Entanglement. Attendees gained a deeper understanding of this fundamental concept in quantum mechanics. Overall, the seminar was a valuable learning experience for those interested in the field of quantum physics.

8. Ouanta Seminar - Raman Session 1

The 8th Quanta Seminar was led by Mr Darshil Domadiya, who provided an in-depth overview of solar cell technologies and their underlying physics. Attendees gained valuable insights into the latest advancements and applications of solar cells. The seminar was an enriching experience for those interested in renewable energy and photovoltaics.



ACHIEVEMENTS

Faculty Achievements

- Dr Yogesh Sonavne, Dr Dimpal Shah, Dr D R Roy appointed as Guest Editor of Material Today Proceeding Journal.
- Dr. Yogesh Sonvane is appointed as Associate Editor of Frontiers in Physics (SCI IF 3.78) journal.
- Dr. D. R. Roy has joined the Editorial Board of Frontiers in Chemistry (SCI IF 5.22) journal.
- Dr. Yogesh Sonvane has received SERB project grant of 30 lakh.

Research Projects 2022-23

Name of Project	Principal Investigator	Funding Agency	Amount	Status
Interface engineering of 3D/2D Lead-Free Halide Perovskites Materials for Solar Cells	Dr. Yogesh Sonvane	SERB-DST	₹ 30,00,000/-	Ongoing
Nanostructured Metal Oxide-Drug Assemblies and their Interaction Mechanism with Biomolecules: A Joint Experimental and First Principal Investigation for Possible Therapeutic Applications	(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

STUDENT ACHIEVEMENTS

• **Suyash Santosh Gaikwad (118PH057),** has secured PhD admission at Max Planck - Harvard Center for Quantum Optics, Munich, Germany.

- **Sreejita Das (119PH017)**, has got DAAD-WISE Scholarship 2023 and has secured an internship at Max Planck Institute for Astronomy, Heidelberg.
- **Siddharth Kumar Tiwari (119PH015),** has secured an internship at the Department of Physics, Jadavpur University on the topic of Non-Hermitian Quantum mechanics.
- **Hershini Hemantkumar Gadaria (119PH041),** has got a DAAD-WISE fellowship and has secured an internship at the Technical University of Munich, Germany on the topic of Astroparticle Physics.
- Adithya A Rao (119PH001), has got a DAAD-WISE fellowship and has secured an internship at Friedrich-Schiller-Universität Jena on the topic of Theoretical High Energy Physics.
- **Sidharth (19PH043),** has got a DAAD-WISE fellowship and has secured an internship at INP Greifswald on the topic of cold atmospheric plasma.
- **Anupam Shaw (119PH046),** has got a DAAD-WISE fellowship and has secured an internship at Ludwig Maximilian University of Munich on the topic of Laser-Plasma Interaction Physics.
- **Darshil Domadiya (119PH061),** has got an IASc Fellowship (Indian Academy of Sciences) and secured an internship at Bhabha Atomic Research Centre, Mumbai on the topic of Solar cells also he represent India at Asian Science Camp 2022 Korea.
- M Midhun Goutham (119PH050), has secured internship at Laboratoire Lagrange, Observatory de la Cote d'Azur, Nice, France.
- Tanuj Kumar Arya (119PH006), has secured IAS Summer Research Fellowship at University of Hyderabad, Hyderabad
- Harsh Kaushalkishore Verma (120PH038), has secured an upcoming summer internship at "SAC ISRO" on the topic of Designing & Developing Onboard Software for determining space weather & establishing telemetry between ground stations & satellites and also secured an internship at Space Technology & Aeronautical Rocketry.
- **Utkarsh Kumar Singh (120PH056),** has got a Gold medal in bodybuilding in the All India inter NIT power sports Tournament and a silver medal in "shot put " in inter NIT athletic tournament " at MNIT Jaipur and also "Champion of Champions" in bodybuilding.
- Disha R Hegde (I20PH007), has attended Asian Science Camp 2022 and she was among the 11 students selected by the Department of Science and Technology, India to attend the Asian Science Camp 2022 (South Korea) remotely as a member of the Indian Delegation, which involved a series of lectures by Nobel laureates & eminent professors across the world and a scientific poster presentation.
- Rohan Umesh (120PH015), has secured an internship at Indian Statistical Institute, Kolkata on the topic of Quantum Communication and Quantum Information.

STUDENT ACHIEVEMENTS

 Vinit Pandya (120PH032), has attended the 37th National Symposium on Plasma Science & Technology (PLASMA 2022) atInstitute for Plasma Research, Gandhinagar on the topic Development of an algorithm for the Inversion of Line Integrated Emissivity Measurements from Tokamak Plasma.

- Atri Mondal (120PH012), has secured an internship at Sardar Vallabhbhai National Institute of Technology, Surat on the topic of Study of Interaction between the moon and the solar wind.
- Pranav Chandrakant Abegaonkar (I20PH003), has secured an internship at Sardar Vallabhbhai National Institute of Technology, Surat on the topic of the effect of breakup coupling on elastic scattering in case of proton HALO (8B), at different energies involving 58Ni target.
- **Disha R Hegde (120PH007),** has secured an internship at the Indian Institute of Astrophysics, Bengaluru on the topic of the Study of hot white dwarfs in the field of the open cluster NGC 188 using UVIT.
- **GNANESH CHANDRA MADDURI (120PH028),** has attended Introductory Summer School on Astronomy and Astrophysics at The Inter-University Centre for Astronomy and Astrophysics.
- **Rushikesh Lokhande (121PH022),** has secured an internship at the Indian Centre for Space Physics, Kolkata on the topic of estimating the membership probability of open cluster using the Gaussian mixture model under the scientist Dr Devendra Bisht.
- **Prathamesh Kadam (I21PH002),** has secured an internship at S.N. Bose National Centre for Basic Sciences (SNBNCBS) on the topic of Transmission spectra of the Extrasolar planet.
- **KISHANT KUMAR BHUSHAN (I20PH010),** has secured All India Rank One in NPTEL Exam (95%) on the Foundation of Classical Electrodynamics.
- **Prathamesh Kadam (I21PH002),** has secured a summer internship at Indian Space Research Organisation (ISRO).
- **Ayush Bidlan (I21PH018),** has participated in a project at the University of Wisconsin at Milwaukee and the Albert Einstein Institute.

DEPARTMENT OF PHYSICS

PLACEMENTS



Sushil Piploda 118PH056 P P Savani (CFE Kota)



Ujjawal patidar 118PH053 Aaksash BYJU'S



Durgesh Sahu 118PH051 TATA ELXSI



Shashank Kashyap 118PH046 Aakash BYJU'S



Yarlagadda Trinath 118PH045 TATA ELXSI



Kelash B Gehlot 118PH044 Aakash BYJU'S



Sagar Sharma 118PH043 **Physics Wallah**



Shwetank Shekhar 118PH041 P P Savani (CFE Kota)



Devansh Soni 118PH038 Aakash BYJU'S



Vadthiya Meghana 118PH016 TCS- ninja



Saurabh Yadav 118PH012 TCS- ninja



Gauray Darekar 118PH009 Aakash BYJU'S



Vanshita Kesarwani 118PH004 Federal Bank



Sanket Ashish Patadiya 118PH003

Viraj sidapara 118PH008 Federal Bank Aakash BYJU'S



Deepak Kumar

118PH052 **Physics Wallah**

CSIR NET 2023





Devansh soni I18PH038AIR 172 (CSIR NET 2023)



Hetul Ashit Sukharamwala I19PH005 309/340 (GRE)

GATE 2023



SURAJ SANTOSH RAI 119PH023 AIR 34 (GATE Physics 2023)



Divyesh Chauhan I20PH017AIR 247 (JAM) and AIR 617 (GATE)



Siddharth Kumar Tiwari 119PH015 AIR 1123 (GATE 2023)



Anupam Shaw
I19PH046
AIR 1916 (GATE Physics 2023)



Krishna Jayeshbhai Lad I18PH011 AIR 1916 (GATE 2023)



Gangiredla Surya Prakash I20PH039 AIR 2627 (GATE 2023)



Rayapudi Paul Sujeev I20PH051 (GATE 2023)



Dhimmar Hetavi Kamleshkumar I19PH037 (GATE 2023)

Ph.D Students Achivements

- Vishwa K. Desai (D22PH011), achieved DST INSPIRE Fellowship for Ph. D.
- Dr. Pankaj Kumar (D18PH001), received Post Doctoral fellowship in Ariel University, Israel.

List of Ph.D Students passed in 2022-23

	Name of Student	Admission Number	Guide
1	Shaikh Israr Abdulahmed	D14PH002	Dr Dimple Shah
2	Vishva Mahavir Jain	D15PH006	Dr Dimple Shah
3	Chaudhari Vilas Pababhai	D17PH003	Dr Debesh R Roy
4	Kumavati Sandip Rohidas	D18PH002	Dr Yogesh Sonvane
5	Pankaj Kumar	D18PH001	Dr Debesh R Roy
6	Tiwari Rohitkumar Pawansut	D18PH006	Dr Ajay Kumar Rai
7	Sondarva Sohal Jayantilal	D18PH008	Dr Dimpal Shah
8	Sharad Kumar Upadhyay	DS16PH001	Dr L K Saini
9	Vikas Kiritbhai Patel	DS17PH002	Dr Ajay Kumar Rai



Pranav Abegaonkar I20PH003 Student Co-ordinator



Rushikesh Lokhande
I21PH022
Designer



Vratika Ranjitkumar Khaire I21PH033 Content Writer





Department of Physics

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