

DEPARTMENT OF PHYSICS

SRM UNIVERSITY-AP

Overview

The Department of Physics at SRM University-AP offers the Bachelor of Science B.Sc. Physics (Hons.), M.Sc. in Physics, and Ph.D. programmes in physics.

The B.Sc. Physics programme gives students a solid foundation in concepts and problem-solving skills, enabling them to solve real-world problems by modelling and designing them using new experimental techniques. The main objective of M.Sc. Physics programme is to develop expertise in Quantum Technology by learning courses such as Quantum Mechanics, Quantum Computation, Quantum Communications and/or to develop expertise in Device physics.

The Department encourages research opportunities for undergraduate, master's, and graduate students in several areas of experimental and computational/theoretical physics. The faculty members, PhD students, and undergraduate students have published more than 114 research articles in the journals recognised by Web of Science, with an average impact factor 5.7.

Highlights



Vision

To create a vibrant centre of academic excellence and interdisciplinary research, aimed at inspiring the next generation of physicists to serve society through interactive learning, fundamental research, industry partnerships, and academic collaborations.

Mission

Deliver a curriculum that provides a modern understanding of laws and extensive exposure to teaching and research laboratories, fulfilling industry needs. Create a research and innovation hub equipped with world-class facilities to make a lasting impact on fundamental discoveries and translational research. Cultivate an atmosphere to identify and address problems aligned with national and societal needs.



Academic Programmes

B.Sc. (Hons.) Physics | M.Sc. Physics Ph.D. in Physics

B.Sc. (Hons.) Physics

Specialisations:

- Battery Technology
- Data Science
- Device Physics
- Quantum Computation

M.Sc. Physics

Specialisations:

Research Track

- Astrophysics and Cosmology
- Condensed Matter

Industry Track:

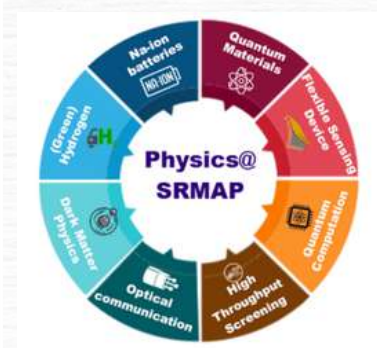
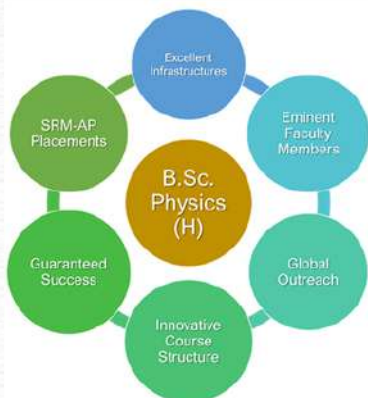
- Quantum Computation
- Renewable Energy

Ph.D. in Physics

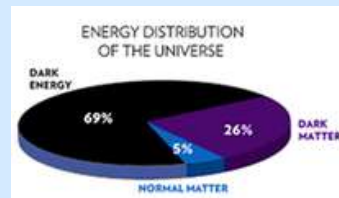
- We offer a fellowship of Rs 36,000 per month (first two years) and Rs 41,000 (for the next two years)
- Attractive Professional Development Grant (PDG)
- Full waiver of annual tuition of Rs 41000
- Subsidised boarding, lodging and transport facility

Scopes and Opportunities

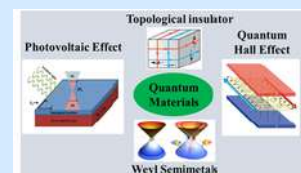
- Strong national and international collaborations offering valuable student exposure.
- Experienced faculty with strong teaching and research credentials.
- Supportive learning environment with accessible academic and career guidance.
- Problem-based curriculum preparing students for exams like NET, GATE, JEST, and GRE.
- Diverse electives and research opportunities in advanced fields.
- Internships at leading institutes, university placement support, higher study pathways, and career opportunities in PSUs (BHEL, DRDO, ISRO, BARC) and private sectors (semiconductors, telecom, batteries).



Research Areas



- Advanced Materials and Device Applications
- Computational Materials and Soft Matter Physics
- High Energy Physics
- Laser Physics and Photonics



Academic and Research Labs

The academic and research laboratories are equipped with advanced instruments with **updated research and industrial relevance.**

Academic Labs



Research Labs



Powder X-Ray Diffractometer



Sputtering cum and thermal evaporation unit



Impedance Analyzer & LCR Meter



HPCC - Surya & Chandrama

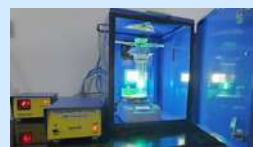


Photo Chemical Reactor



Spin Coating Unit & UV Ozone Cleaner

Some of our former Ph.D. Students



Dr Anjana Tripathi

Post-doc, Denmark
Technical University



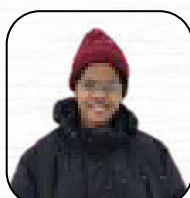
Dr Samadhan Kapse

Post-doc, University
of Barcelona, Spain



Dr Deepak S Gavali

Post-doc, Sejong
University Seoul,
South Korea



Dr Patnala Vanitha

Post-doc, Gwangju
Institute of Science
and Technology,
South Korea



Dr Y Bhaskara Rao

Post-doc, Umea
University, Sweden

Achievements of UG Students



Mr Bennet Benny (B.Sc. Physics with Research):

- With 100% EMJM Scholarship to pursue QuanTEEM Masters across 4 Universities - Bourgogne Franche-Comté France, Technische Universität Kaiserslautern, Germany, Aarhus Universitet, Denmark and Moscow Institute of Physics And Technology, Russia.
- Sakura Internship Program 2019 at the Japan Advanced Institute of Science and Technology (JAIST), Japan for research work.



Sreelekha Bhuvaneswari (B.Sc. Physics with Research):

- One-year internship for a research project at the National University of Singapore (NUS), Singapore 2022.
- Published a patent.
- Fully funded Scholarship for masters in Physics at Sapienza University Rome Italy.



MD Shoaib (B.Sc. Physics with Research):

- Three month Internship on Quantum science and technology at National Changhua University of Education Taiwan with 500 USD per month.
- Opportunity to attend Summer School on Quantum Cryptography, University of Gdańsk, Poland.



Sam (B.Sc. Physics with Research):

- Research articles in two Q1 journal and contributed to 2 patent (published).
- TEEP Internship at CYC University, Taiwan 2024 with a fellowship amount of NT\$ 36,000
- IASc-INSA-NASI Summer Research Fellowship 2024.

Selected Research Publications

- **Advanced Functional Materials**, e19452 (2025). [IF: 19.0] ([Ranjit Thapa](#))
- **Nature Communications**, 16, 11382 (2025). [IF: 15.7] ([Arghya Dutta](#))
- **Small**, 21, e2503960 (2025). [IF: 12.1] ([Sabyasachi Mukhopadhyay](#))
- **Nano Letters**, 24, 9221–9228 (2024). [IF: 10.0] ([Anita Halder](#))
- **ACS Applied Materials & Interfaces**, 16, 3654–3664 (2024). [IF: 9.5] ([Siddhartha Ghosh](#))
- **Physical Review Letters**, 131, 157101 (2023). [IF: 8.6] ([Soumyajyoti Biswas](#))
- **Journal of Power Sources**, 642, 236960 (2025). [IF: 7.9] ([Jatis K. Dash](#))
- **Journal of Cosmology and Astroparticle Physics**, 14 (2024). [IF: 5.3] ([Basabendu Barman](#))
- **The Astrophysical Journal**, 994, 216 (2025). [IF: 5.3] ([Arghajit Jana](#))
- **Quantum Science and Technology**, 9, 045029 (2024). [IF: 5.0] ([Nilakantha Meher](#))
- **ACS Applied Electronic Materials**, 5, 6938 (2023). [IF: 4.7] ([Pranab Mandal](#))
- **The European Physical Journal C**, 85, 964 (2025). [IF: 4.2] ([Amit Chakraborty](#))
- **The Journal of Physical Chemistry C**, 127, 7816 (2023). [IF: 4.18] ([Laxmi N. Patro](#))
- **Physical Review B**, 111, 075149 (2025). [IF: 3.7] ([Pankaj Bhalla](#))
- **Optics and Lasers in Engineering**, 194, 109178 (2025). [IF: 3.7] ([Ravi Kumar](#))
- **Optics and Lasers in Engineering**, 194, 109161 (2025). [IF: 3.7] ([S. Gangi Reddy](#))
- **New Journal of Physics**, 28, ae437a (2026). [IF: 3.5] ([Supravat Dey](#))
- **Journal of Physical Chemistry B**, 129(18), 4282–4297 (2025). [IF: 3.46] ([Debabrata Pramanik](#))

Selected External Fundings

- **ML to Device Integration for 2D Spintronics** – Dr. Anita Halder (ANRF-PMECRG, 2025) | ₹48.60 L
- **Oxygen Vacancies in Hematene/Ilmenene for NRR** – Prof. Ranjit Thapa (ASEAN-MEA, 2025) | ₹38.80 L
- **Piezo-Flexible Medical Devices & CO₂ Reduction (SDGs 7 & 13)** – HoD, Physics (DST-FIST, 2024) | ₹169.00 L
- **Organic Memory Beyond Silicon** – Dr. Sabyasachi Mukhopadhyay (DST-SERB-CRG, 2024) | ₹40.42 L
- **ML-Assisted Optical Communication (OAM)** – Dr. G. Salla (ISRO, 2024) | ₹29.95 L
- **Nonlinear Transport in Topological Quantum Materials** – Dr. Pankaj Bhalla (DST-SERB-SURE, 2023) | ₹24.20 L
- **Secure Optical Information Processing** – Dr. Ravi Kumar (DST-SERB-SURE, 2023) | ₹28.93 L
- **Protein–DNA Interaction via Molecular Modeling** – Dr. Debabrata Pramanik (DST-SERB-SURE, 2023) | ₹23.43 L

Selected Patents

Modulation of optoelectronic and mechanical properties across (bio) molecular junctions under external stimuli
M. Sabyasachi, N. Ashwini
Application No - 202141017530 published - (2021).

A method and set-up for characterisation of temperature dependence of impedance, pyroelectric current
P. Mandal, P. Tulasi Rao, K. N. Malleswari and C. Dey
Application No - 202241005220 granted (2025).

Two-Dimensional Transition Metal Oxide Layers and A method for their Synthesis
J. K. Dash, S. M. Abzal, K. Kurapati, S. L. Janga
Application No - 202241005220 granted- (2023).

Faculty Members



Prof. Ranjit Thapa

Professor and Dean Research

✉ ranjit.t@srmap.edu.in

240 **14** **7800** **47** **3**
Publications Projects Citations H-Index Patent

Research Interests

1. Quantum Mechanics/Machine Learning
2. Catalyst: Theory
3. Carbon and Boron Based Materials



Prof. C V Tomy

Professor and Dean-SEAS

✉ tomy.cv@srmap.edu.in

166 **2454** **27**
Publications Citations H-Index

Research Interests

1. Materials Land slide susceptibility analysis using Remote sensing
2. Improving the accuracy of Digital Multi-spectral land cover classifications



Dr Soumyajyoti Biswas

Associate Professor & HoD

✉ soumyajyoti.b@srmap.edu.in

70 **2** **1268** **19**
Publications Projects Citations H-Index

Research Interests

1. Statistical physics, complex systems, machine learning
2. Fracture, breakdown, earthquakes
3. Multi-agent modes of society



Dr Sabyasachi Mukhopadhyay

Associate Professor

✉ sabyasachi.m@srmap.edu.in

38 **3** **2993** **13** **5**
Publications Projects Citations H-Index Patents

Research Interests

1. Optoelectronic Materials
2. Molecular Electronics
3. Atomic Force Microscopy



Dr Gangi Reddy Salla

Associate Professor

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58 **2** **981** **20** **1**
Publications Projects Citations H-Index Patents

Research Interests

1. Scalar and vector optical vortex beams
2. Free space optical communication
3. Polarization speckles



Dr Pranab Mandal

Associate Professor

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49 **2** **2952** **24** **4**
Publications Projects Citations H-Index Patents

Research Interests

1. Pb-free Piezoceramics
2. Oxide ion conductors
3. Sensing Devices for Biomedical applications



Dr Jatis Kumar Dash

Associate Professor

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50 **2** **1172** **19** **2**
Publications Projects Citations H-Index Patents

Research Interests

1. 2D materials and device applications
2. Optoelectronic Memory and sensing devices
3. Supercapacitors and Green Hydrogen evolution



Dr Laxmi Narayana Patro

Associate Professor

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48 **2** **950** **16** **1**
Publications Projects Citations H-Index Patents

Research Interests

1. Solid state ionics
2. Li-ion, Na-ion and F-ion batteries
3. All-solid-state batteries



Dr Siddhartha Ghosh

Associate Professor

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51 **1** **1562** **18** **4**
Publications Projects Citations H-Index Patents

Research Interests

1. Physics at the interfaces
2. Wettability studies of metal-oxide thin-film
3. Nano-magnetism



Dr Mallikarjuna Rao Motapothula

Assistant Professor

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52 **2** **2900** **27** **1**
Publications Projects Citations H-Index Patents

Research Interests

1. Heterogeneous catalysts
2. Ion beam applications
3. Functional nanostructures



Dr Amit Chakraborty

Associate Professor

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34 **1** **625** **15**
Publications Projects Citations H-Index

Research Interests

1. Theoretical Particle Physics
2. Higgs Boson and Dark Matter Phenomenology
3. Beyond Standard Model using ML



Dr Supravat Dey

Assistant Professor

PhD: IIT Bombay, India

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33 **621** **11**
Publications Citations H-Index

Research Interests

1. Statistical Physics
2. Soft-matter
3. Biophysics



Dr Debabrata Pramanik

Assistant Professor

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16 **1** **342** **10**
Publications Projects Citations H-Index

Research Interests

1. Computational Biophysics
2. Statistical Physics
3. Rare Events Sampling



Dr Pankaj Bhalla

Assistant Professor

PhD: PRL, Ahmedabad, India

✉ pankaj.b@srmap.edu.in

33 **2** **526** **11** **1**
Publications Projects Citations H-Index Patents

Research Interests

1. Topological Quantum Materials
2. Transport/optical properties in 2D materials
3. Many body physics



Dr Ravi Kumar

Assistant Professor

PhD: IIT (ISM) Dhanbad

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56 **1** **1052** **22** **1**
Publications Projects Citations H-Index Patents

Research Interests

1. Optical Information Processing
2. Digital Holography
3. Computational Optical Imaging



Dr Ashmita Das

Assistant Professor

PhD: IACS, Kolkata, India

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21 **312** **11**
Publications Citations H-Index

Research Interests

1. Semiclassical Gravity Theories
2. Unruh- Fulling Effect and its Applications
3. Relativistic Quantum Information & Quantum Gravity Phenomenology



Dr Anita Halder

Assistant Professor

PhD: S N Bose National Centre for Basic Sciences

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16 **2** **267** **11**
Publications Projects Citations H-Index

Research Interests

1. First principles electronic & magnetic structure calculation
2. Study of strongly correlated materials
3. Machine learning assisted materials prediction



Dr Basabendu Barman

Assistant Professor

PhD: IIT Guwahati

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52 **1031** **20**
Publications Citations H-Index

Research Interests

1. Particle physics phenomenology
2. Early universe cosmology
3. Collider phenomenology



Dr Nilakantha Meher

Assistant Professor

PhD: IGCAR, Kalpakkam

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21 **342** **10**
Publications Citations H-Index

Research Interests

1. Quantum Optics
2. Quantum Information Processing, Entanglement
3. Quantum interferometry, Optomechanics



Dr Krishna Prasad Maity

Assistant Professor

PhD: IISc Bengaluru

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18 **319** **9**
Publications Citations H-Index

Research Interests

1. 2D semiconductors and ferroelectric
2. Conducting polymers
3. Neuromorphic computing



Dr Swetamber P Das

Assistant Professor

PhD: IIT, Madras

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14 **79** **6**
Publications Citations H-Index

Research Interests

1. Nonlinear Dynamics and Chaos
2. Complex Systems
3. Nonequilibrium Physics



Dr Arghya Dutta

Assistant Professor

PhD: S N Bose National Centre for Basic Sciences

✉ arghya.d@srmap.edu.in

14 **209** **10**
Publications Citations H-Index

Research Interests

1. Machine learning
2. (Bio)-Material design
3. Quantum mechanics



Dr Arghajit Jana

Assistant Professor

PhD: Indian Centre for Space Physics

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51 **1** **880** **16**
Publications Projects Citations H-Index

Research Interests

1. Accretion and obscuration properties in AGNs
2. High energy astrophysics
3. Time-domain Astrophysics & Variability



Dr Rohit Babar

Assistant Professor

PhD: IISER Pune

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18 **487** **13**
Publications Citations H-Index

Research Interests

1. Disorder in solids
2. Quantum materials
3. Qubit and color center modeling



Dr Soumyakanti Bose

Assistant Professor

PhD: University of Calcutta, West Bengal

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12 **127** **7**
Publications Citations H-Index

Research Interests

1. Continuous-variable information theory
2. Light-matter interaction
3. Quantum communication



Dr Mukaddar Sk

Assistant Professor-Ad Hoc

PhD: SRM IST

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43 **397** **11**
Publications Citations H-Index

Research Interests

1. Catalysis
2. Energy materials
3. Machine Learning



Dr Diksha

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PhD: SRM University-AP

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4

Publications

29

Citations

3

H-Index

Research Interests

1. Fracture breakdown and earthquakes
2. Machine Learning
3. Statistical physics



Dr Kunchanapalli Ramya

Assistant Professor-Ad Hoc

PhD: SRM University-AP

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11

Publications

55

Citations

4

H-Index

Research Interests

1. DFT+NEGF Calculations
2. Halide Perovskites
3. Molecular Electronics

Contact Details

Dr Soumyajyoti Biswas

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Neerukonda, Mangalagiri Mandal,

Guntur District, Andhra Pradesh - 522240, India

Website: <https://srmap.edu.in/seas/physics-department/>

For Admission: <https://srmap.edu.in/admissions/>



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Website



Message From HOD



At the Department of Physics, we are committed to deepening our understanding of the fundamental principles of science while engaging with rapidly evolving technological frontiers. Our academic and research efforts bridge the gap between basic science and real-world applications, reflecting our belief that curiosity-driven inquiry can inspire transformative innovations.

Our key research areas include advanced materials and device physics, quantum communication and photonics, computational materials and soft matter physics, and theoretical high-energy physics. Our faculty members are actively involved in cutting-edge research, with a strong record of securing competitive funding, publishing impactful work, and mentoring students to develop both foundational knowledge and practical skills.

We take pride in fostering a dynamic, diverse, and student-centric environment—one that values academic rigor, interdisciplinary collaboration, and the free exchange of ideas. The Department continues to evolve with the times while staying rooted in its commitment to excellence in teaching and research.

