



ICFAI UNIVERSITY, TRIPURA

REFLECTION



ICFAI SCIENCE SCHOOL

Department of Physics

Newsletter 2024-2025



ICFAI UNIVERSITY, TRIPURA

ICFAI Science School

Department of Physics

Newsletter 2024-2025

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From the Desk of the Vice-Chancellor



I, on behalf of “The ICFAI University Tripura” take this opportunity to welcome all readers’ community for reading ‘Reflections’, the Newsletter of Department of Physics of the ICFAI University Tripura. It is my immense pleasure to inform you that the issue is full of information regarding the academic achievements, extra-curricular activities of the students & faculty members of the department. I would like to appreciate and congratulate each and every member of the physics department for their respective roles in this inventive enterprise. It is indeed a creditable effort by the entire department of Physics to come up with this Newsletter in such short span.

I am delighted to acknowledge that our University is providing a powerful platform to Icfains to succeed in their endeavor. Our commitment to high quality and engaged classroom teaching and learning along with imparting required professional skill, soft skill and life skill oriented programs have been proved beyond doubt since the inception of the University. We are committed to provide a rewarding educational experience to our students and developing relevant knowledge on the frontiers of best practices.

I hope this dynamic effort of the physics department for publishing the ‘Reflections’ Newsletter is setting bars and putting the hands for the wellbeing of society.

I wish every success of this News letter!

Prof. (Dr.) Biplab Halder
Vice-Chancellor,
The ICFAI University Tripura

From the Desk of the Registrar

With immense happiness, I want to express my hearty congratulations to the Department of Physics, The ICFAI University Tripura for their endeavors in coming up with the Physics Newsletter Reflections. The Department of Physics is getting developed and shaped to become one of the finest Departments in the ICFAI University Tripura. Their Newsletter consists of the information regarding the departmental activity and different achievements.

Apart from imparting quality education and outstanding research, the holistic development of students is attempted by this department. They are regularly trying to enhance the quality of their service towards society by their scientific approach which is utterly needed in the present scenario across the globe for the wellbeing of mankind.

The current issue of 'Reflections' are bringing the change in all the sections. I am eagerly waiting to see it in published form. Congratulations to the editors and the faculty members for their untiring endeavor.

Dr. A. Ranganath
Registrar,
The ICFAI University Tripura

From the desk of the Dean, Faculty of Science and Technology

I am delighted to learn that the Department of Physics, ICFAI Science School is set to publish its Annual Newsletter on February 28, 2025, in celebration of National Science Day.

The department continues to be a dynamic hub of academic and research excellence, with faculty members actively contributing to international research journals, conducting guest lectures and organizing various student activities throughout the year make this department a vibrant part of our university.

I strongly encourage all faculty members to actively contribute to innovative research and seek external funding to support and expand their scientific endeavors. Pursuing research grants and collaborations will not only enhance the department's capabilities but also provide valuable opportunities for students to engage in cutting-edge discoveries.

Furthermore, the success of our students remains at the heart of our mission. Every faculty member must remain committed to mentoring, guiding, and fostering academic excellence among our students.

Let us work together to ensure that the Department of Physics become a center of excellence in education, research, and innovation. I appreciate faculty members unwavering commitment and look forward to another year of impactful contributions.

Lastly, I would like to congratulate the editorial team of this Newsletter, for taking the pain in compiling last year's activities. I express my deep sense of gratitude to all of them.

Best regards.

Dr. Priyangshu Rana Borthakur
Dean Faculty of Science & Technology,
The ICFAI University Tripura

From the desk of the Departmental head,

The new issue of the 'Reflections' showcases the energy and enthusiasm of the department. The talents of the students are nurtured throughout the year in various activities organized by the department and the university. 'Reflections' helps us to deja vu the dossier of the fraction of the timed voyage of our department. The Department is ahead with the National Education Policy, and in support of NEP, we share the country's rich inheritance through the Indian Knowledge System.

The depth of the knowledge of the departmental faculty members is unfathomable, and that is showcased by the list of publications and their dedication to the students.

Finally, whether night sky observation or class-coffee-day, this vibrant department is full of colors of physics, of science, of knowledge, of youth, and, of course, of life. Let this spring bring the greatest discoveries of Physics, as we are always thirsty.

I wish the entire team of 'Reflections' all the best. Also I wish Dr. Sourav and Dr. Dipayan thanks from the core of my heart for the pain they have taken to bring the issue out.

Dr. Sovan Ghosh
HOD, Department of Physics
The ICFAI University Tripura

From the Editor's Desk:

We, the editors of **Reflections**, present this newsletter as an earnest endeavor by the Department of Physics, ICFAI University Tripura, to create a bridge between the flow of thoughts, technical expertise, and artistic expression of our contributors. We aim to showcase the educational, cultural, sports, and extracurricular activities of both students and faculty within the department. **Reflections** aspires to mirror the values and excellence that define the Department of Physics through its novel conception, eloquent writing, and commitment to accuracy, meaningful discourse, and editorial balance. We seek not only to maintain the interest and respect of our readers but also to shape their perceptions of the institution while strengthening their connection to its growth and welfare.

With great pride, we present **Reflections**, the annual newsletter of the Department of Physics, ICFAI University Tripura, to you. It serves as a platform to celebrate the achievements and creativity of our students and faculty. The newsletter, in its current form, is the result of the collective efforts of all contributors, and we extend our heartfelt gratitude to everyone whose dedication has made this publication engaging and meaningful.

The challenging task of compiling and completing **Reflections** would not have been possible without the unwavering support of our efficient editorial team and the encouragement of the institution. It is our enthusiasm to exchange knowledge, our willingness to share ideas, and our passion for insightful discussions that have brought this newsletter to life.

Thank you all!!

With warm regards

Dr. Dipayan Chattopadhyay

Dr. Sourav Chattopadhyay

Editors of Physics Newsletter

About the Department of Physics

The Department of Physics was established as a separate department under ICFAI Science School in August of 2018, it has never looked back. Ever since its inception, the Department has not only been overcoming hurdles through its sincere perseverance and hard work but has also been committed to endorsing and nurturing young scientific minds towards the beauty of physics. Department currently consists of highly qualified faculty members who have been actively involved in cutting-edge research in various emerging fields, and in developing state of art technologies. The dynamic faculty members with their dedication and painstaking care have been involved in breeding a genre of students who will be able to independently think and excel in their area of choice. Presently we are offering Bachelors (B.Sc-Honors), Masters (M.Sc), and Doctorate (Ph.D.) courses. Students have been encouraged to join various esteemed institutions for their internship projects. Masters Projects are being conducted in numerous active research areas utilizing the Departmental facilities. To keep the students well informed about the recent trends in research and to enhance their presentation/academic skills as well as to inculcate the ability of entrepreneurship, numerous seminars are being conducted by the department throughout the year. We aim to impart a quality education and research environment to the students that would lead to their overall development in next coming years. The Department of Physics envisages itself becoming a Center of Excellence in the near future under the hood of ICFAI University Tripura.

Issue Editors: *Dr. Dipayan Chattopadhyay and Dr. Sourav Chattopadhyay*

Assistant Professor (Department of Physics)

Editorial Board:

Dr. Sovan Ghosh

Dr. Ganesh Adhikary

Dr. Camelia Das

Dr. Tuhin Subhra Mukherjee

Dr. Arunabha Saha

Dr. Bibhabasu De

Dr. Gobinda Pradhan

Courses Offered:

- **B.Sc. (Honours) Physics:** The B.Sc. (Physics) program is designed for six semesters (three years) to provide a systematic understanding of core physical concepts, principles, and theories along with their applications.
- **M.Sc. Physics:** The M.Sc. (Physics) program is designed for four semesters (two years) in a way that a good basic foundation of subjects is laid and applications along with recent developments are covered. The M.Sc. program aims to train the students such that they can make careers in R&D, industries, and academic institutions.
- **Ph.D. (Physics):** The Ph.D. program in Physics has been the newest addition to the Department. It has been designed for individuals who want to seek greater depth of knowledge of Physics and want to contribute towards the overall enhancement of science and technology. It would empower them with the ability to work in research and would enable them to create fresh knowledge, discover new things and develop new skills. By obtaining a Ph.D. in Physics, the candidates would acquire the education, skills, and hands-on experience necessary to access several careers within the field of physics.

Highlights of the Department

- ❖ Undergraduate, Postgraduate, and Doctorate of Philosophy degrees are offered.
- ❖ Highly qualified faculty members.
- ❖ Well-equipped Laboratory facility.
- ❖ Research and publications in emerging research areas.
- ❖ Seminars by highly qualified experts from all over India and abroad.
- ❖ Preparatory classes for competitive examinations (NET, JEST, GATE, JAM, etc.)

Physics Laboratory highlights



Dielectric Constant of BaTiO_3



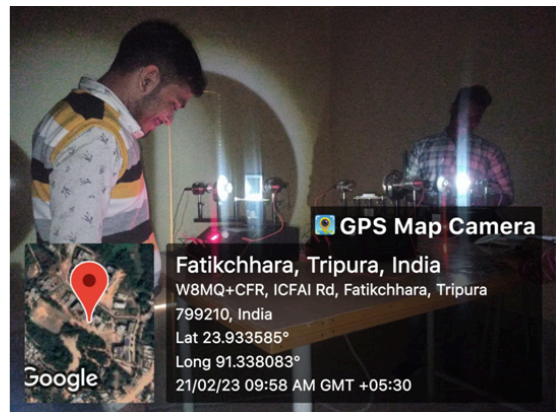
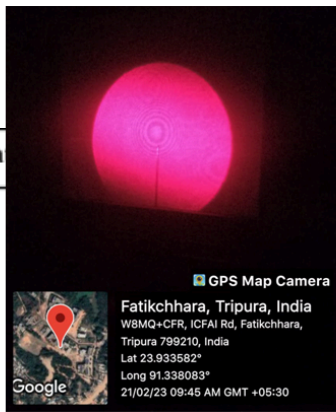
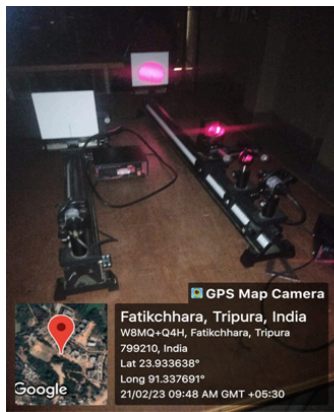
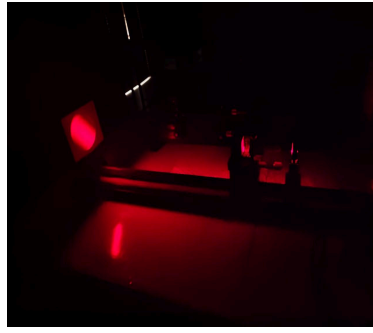
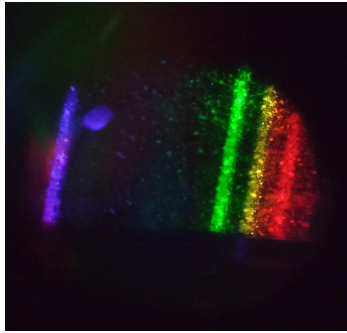
To determine the Plank's constant (h)



To determine the Hall Coefficient (R_H)



To determine Bohr Magneton (μ_B)



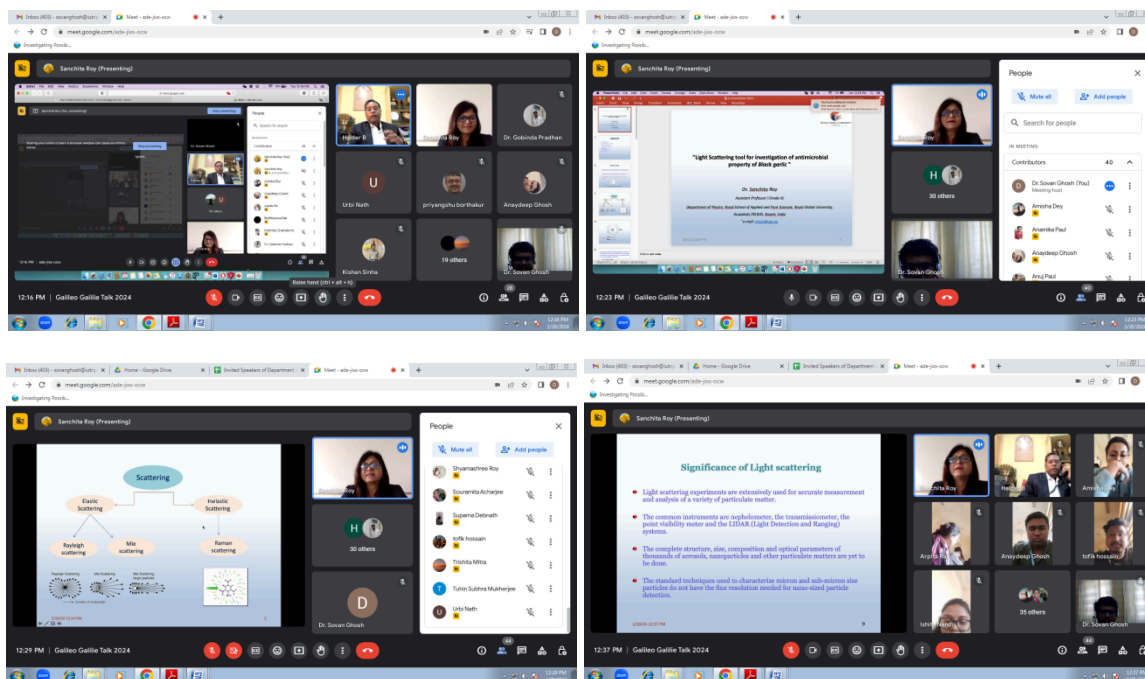
Areas of Research

- Nuclear Astrophysics
- Physics Informed Machine Learning
- Nuclear Reactions involving weakly bound nuclei
- Fluorescence Spectroscopy
- Statistical Mechanics
- Condensed Matter Physic
- Cosmology
- Experimental Condensed Matter Physics
- Time and Angle-Resolved Photon Spectroscopy
- Quantum Field Theory
- Mathematical Physics
- Particle Physics
- Cavity quantum optomechanics
- Cavity QED
- Parity-time symmetry and CV quantum information.
- Experimental Nuclear Structure Physics
- Nanomaterials and Nanostructures
- Thin films and experimental material science
- Solar energy applications
- Monte Carlo simulations
- Ultracold atoms in optical lattices
- Bose-Einstein Condensates and Many-body localization
- General Relativity and Gravitation
- Gravitational Lensing

EVENTS

Galileo Galilei Talk 2024

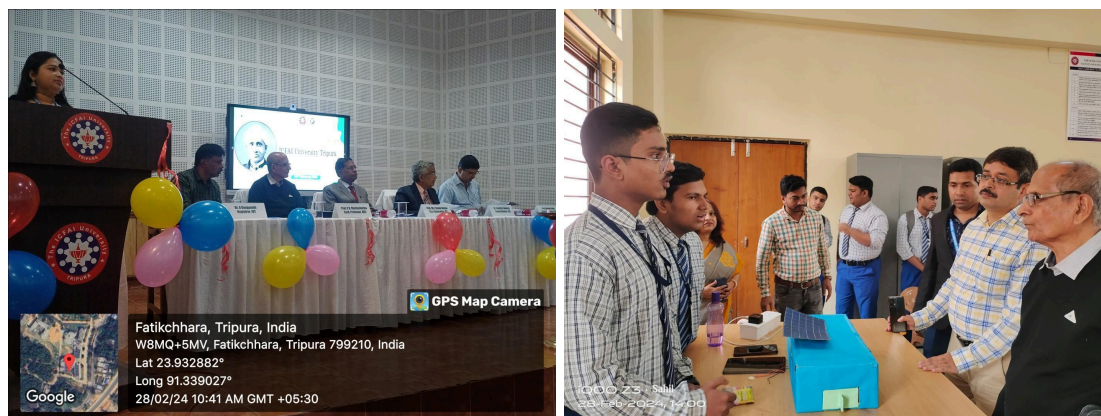
Department of Physics, The ICFAI University, Tripura organized the Galileo Galilei Talk on 20th February, 2024. Dr. Sanchita Roy, Assistant Professor (Grade-II), Department of Physics, Royal School of Applied and Pure Sciences, Royal Global University, Guwahati, was the resource person for the session. The session started at 12:00 noon with a welcome address by Prof. Dr. Biplab Halder, Hon'ble Vice Chancellor, ICFAI University Tripura, followed by a brief introduction of the speaker by Dr. Sovan Ghosh, Head, Dept. of Physics, The ICFAI University Tripura. The title of Dr. Roy's talk was "Light Scattering Tool for Investigation of Microbial Property of Black Garlic", where she explicitly elaborated the fundamental concepts behind the work. UG and PG students of the department actively interacted with the speaker and presented their queries. The session was ended with a vote of thanks by Dr. Tuhin Subhra Mukherjee, Assistant Professor, Dept. of Physics, The ICFAI University Tripura.



A few snapshots of Galileo Galilei Talk 2024

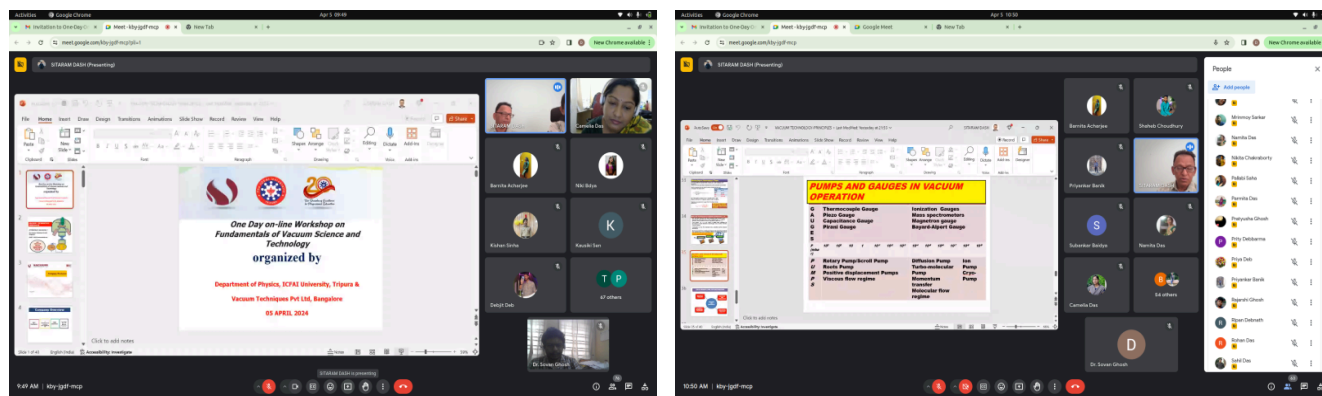
National Science Day 2024

ICFAI University Tripura, in collaboration with the Indian Association of Physics Teachers (RC-18), observed National Science Day on February 28, 2024, under the theme “*Indigenous Technology for Viksit Bharat.*” The event commenced with an inaugural session graced by Chief Guest Prof. Pramode Ranjan Bhattacharjee (Retd. Professor, Kabi Nazrul College) and Guests of Honor Mr. Ranjit Kumar Debnath (Former Director, School Education) and Prof. Anirban Guha (Professor, Tripura University). Vice-Chancellor Prof. Dr. Biplab Halder delivered an inspiring speech on the significance of National Science Day, followed by talks from distinguished guests emphasizing perseverance, scientific mindset, and collaboration. Guest lectures were delivered by Prof. Pramode Ranjan Bhattacharjee on ambiguity in traditional physics norms, Dr. Sovan Ghosh on cosmology, and Dr. Palas Mandal on metamaterials for earthquake mitigation. Various competitions, including Sit & Draw, Science Model, Poster Presentation, Quiz, Best Out of Waste, and PPT Presentation, saw enthusiastic participation from students across schools and universities. Umakanta Academy English won the Science Model Competition at the school level, while Bhavan’s Tripura B.Ed. College & Tripura University secured the top position at the university level. JNV Mohanpur and ICFAI University excelled in the Sit & Draw competition, while Bhavan’s Tripura B.Ed. College & Tripura University won the Poster Competition. Quiz winners included JNV West Tripura at the school level and ICFAI University at the university level, with ICFAI students also securing all top positions in Best Out of Waste and PPT Presentation. The event concluded with a prize distribution ceremony, reinforcing the importance of scientific curiosity and perseverance in shaping a progressive society.



One-day online workshop on Fundamentals of Vacuum Science & Technology

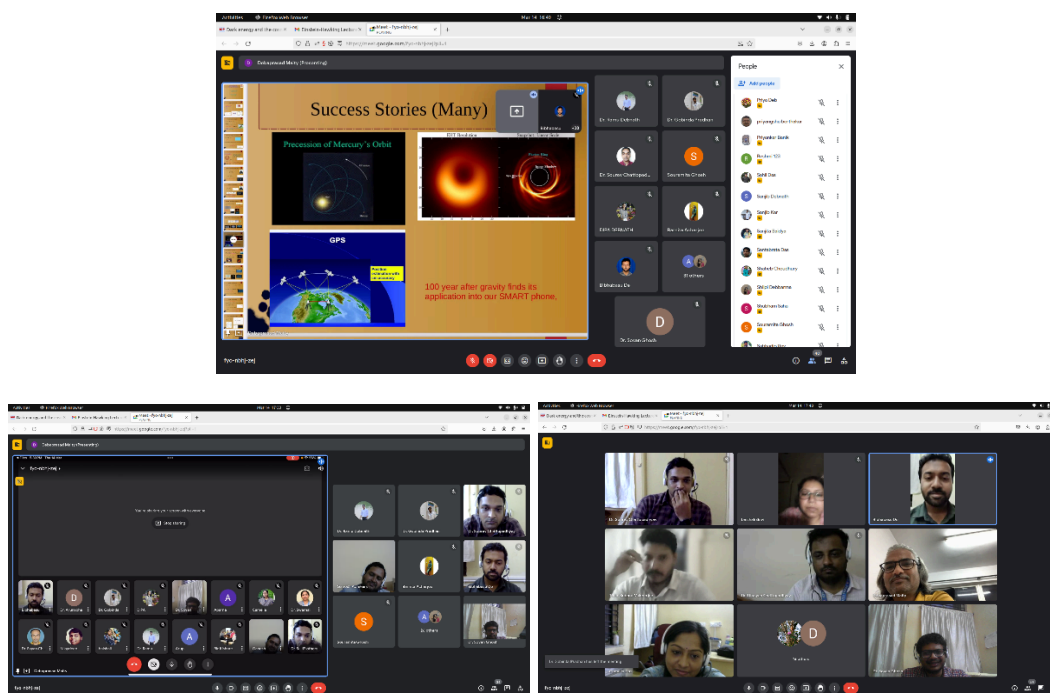
The One-Day Online Workshop on the Fundamentals of Vacuum Science and Technology, organized by the Department of Physics at ICFAI University Tripura in collaboration with Vacuum Techniques Pvt Ltd, proved to be an insightful and engaging event. Held on April 5th, 2024, the workshop aimed to provide participants with a comprehensive understanding of vacuum science and its applications. Around 149 participants took part in the workshop. The program commenced with an introduction by Dr. Sovan Ghosh, Head of the Department of Physics. Dr. Camelia Das, Assistant Professor, introduced the speakers and moderated the sessions effectively. The first session featured talks by Ms. Swapna Y, Director, and Dr. Sitaram Dash, Technical Advisor, both from M/s Vacuum Techniques Pvt Ltd, Bangalore. Their presentations covered various aspects of vacuum science and technology, offering valuable insights into the field. Participants actively engaged in a Q&A session, seeking clarification and further understanding. The second session, introduced by Dr. Camelia Das, delved deeper into the subject matter with a talk by Dr. Sitaram Dash. Again, participants had the opportunity to interact with the speaker, enriching their learning experience. Dr. Bibhabasu De, Assistant Professor, extended a vote of thanks, acknowledging the contributions of all involved in making the workshop a success. Overall, the workshop served as a significant platform for learning, collaboration, and networking in the field of vacuum science and technology, emphasizing the importance of such initiatives in academic and industrial domains.



A few screenshots of the online workshop

Einstein Hawking Lecture 2024

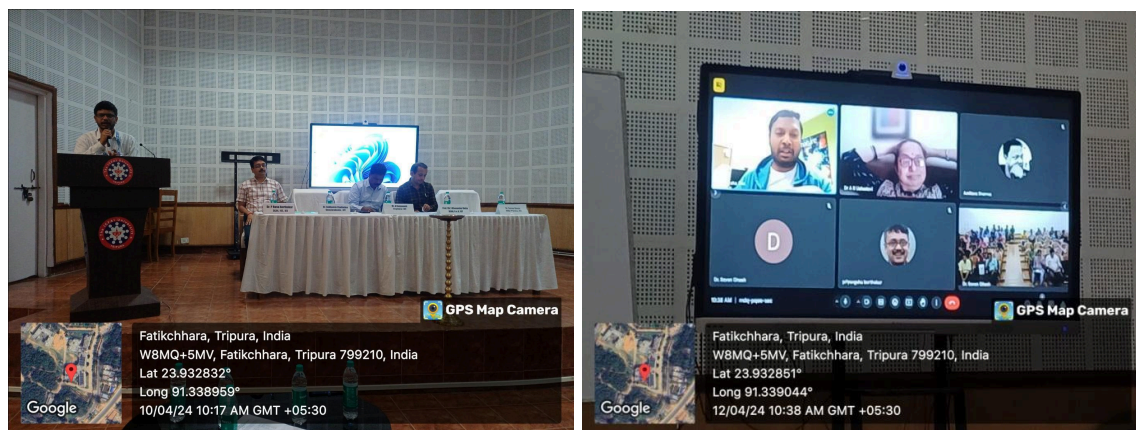
The Department of Physics at ICAI University, Tripura, organized the Einstein-Hawking Lecture on March 14, 2024, at 4:00 pm, to honor the contributions of Albert Einstein and Stephen Hawking to the field of physics. Dr. Debaprasad Maity, Associate Professor from the Department of Physics at IIT Guwahati, was the resource person and delivered a talk titled "Gravitational Waves: Theory and Observations." The department had invited participants to attend the event via the provided webinar link, with detailed program information. More than 40 attendees joined the webinar via the provided online link. The session also included a question-and-answer segment, allowing all participants to engage with the speaker.



A few screenshots of Einstein Hawking lecture

World Quantum Day 2024

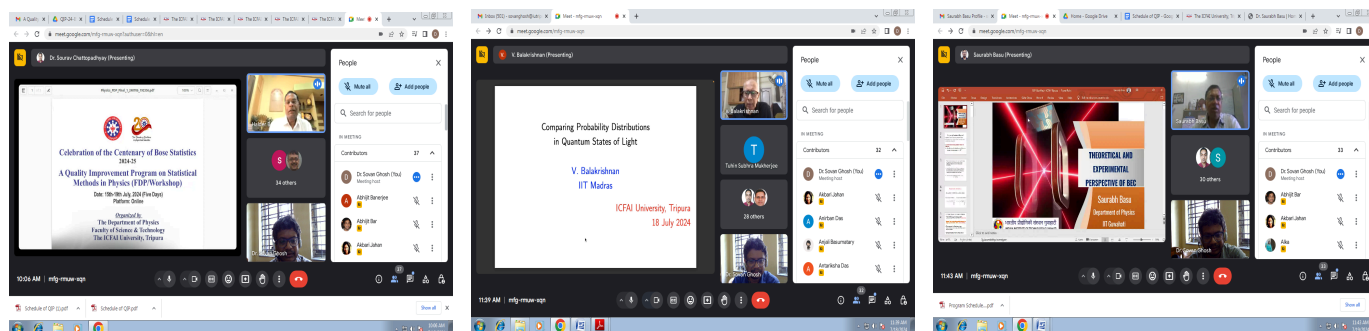
The Department of Physics, ICFAI University Tripura, celebrated World Quantum Day for the second time on April 10th and 12th, 2024, in collaboration with the Indian Association of Physics Teachers RC-18. The event began with a smokeless lamp-lighting ceremony to promote sustainability, followed by the unveiling of the latest issue of *Reflections*, the department's newsletter. Prof. (Dr.) A. Ranganath highlighted the impact of Quantum Science, while Prof. (Dr.) Priyangshu Rana Borthakur introduced India's Quantum Mission and ICFAI's contributions. The program featured an opening online talk by Prof. Usha Devi A. R. on Quantum Computation, a public quiz conducted by Dr. Arunabha Saha, and oral and poster presentations by M.Sc. students, with eight oral and 25 poster presentations receiving high praise. On April 12th, Dr. Antariksha Das from ICFO, Spain, delivered an insightful talk on entanglement distribution, and Dr. Satadal Bhattacharyya from Scottish Church College discussed the Correspondence Principle, marking its centenary. The event concluded with awards for oral and poster presentation winners and academic toppers, with Dr. Swapan Majumder commending the organization. The program, led by convener Dr. Sovan Ghosh, inspired a new wave of curiosity and innovation in quantum science.



A few snapshots of World Quantum Day 2024

A Quality Improvement Program on Statistical Methods in Physics

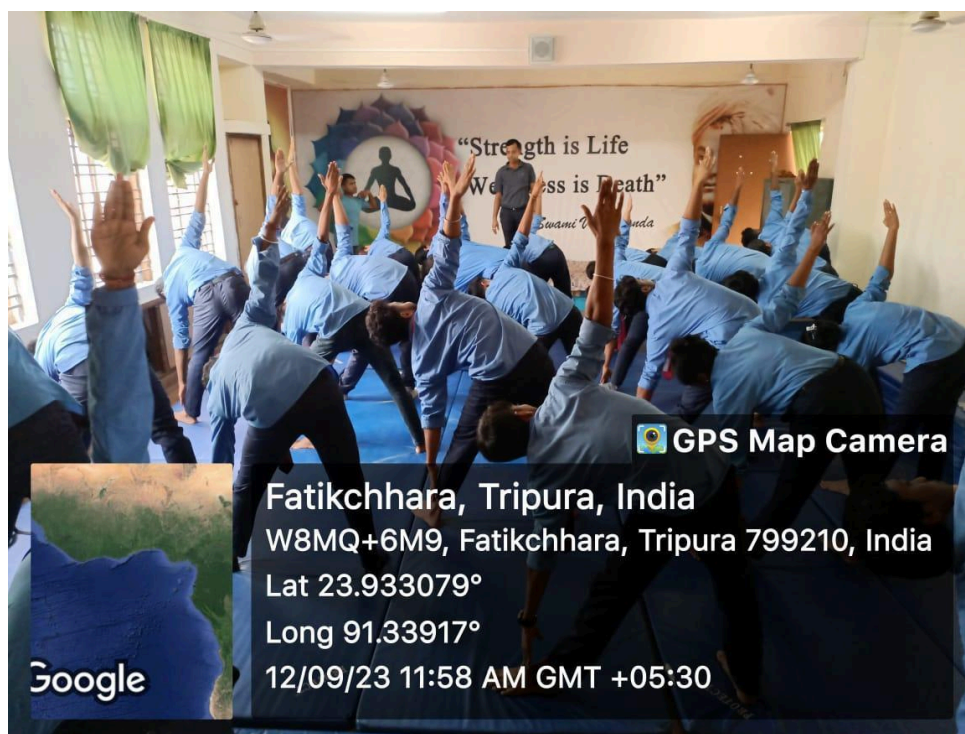
Department of Physics, ICFAI University Tripura, organized “A Quality Improvement Program on Statistical Methods in Physics” from 15.07.2024 to 19.07.2024. The program was organized to celebrate the centenary of Bose statistics. The program started with the welcome address by Dr. Sovan Ghosh, HOD, Department of Physics, ICFAI University Tripura, followed by the inaugural speech by Prof. (Dr.) Biplab Halder, Vice Chancellor, ICFAI University Tripura. On the first two days we had four talks from Dr. Tuhin Subhra Mukhrjee, Assistant Professor, department of Physics, ICFAI University Tripura. He gave a pedagogical introduction to probability theory as applied to Physics. He also organized two problem solving sessions. On the third day we had two talks from Dr. Sourav Chattopadhyay, Assistant Professor, department of Physics, ICFAI University Tripura. He gave a very interesting talk on stochastic experiment on computer, where he demonstrated how to simulate stochastic processes in a computer. He also gave a presentation on Bose-Einstein condensation. On day four, we had two talks. One of the talks was delivered by Dr. Sourav Chattopadhyay on Bose-Einstein condensation. The other talk was by V. Balakrishnan, Professor Emeritus (Retd.), IIT Madras. He talked about “Comparing Probability Distributions in the Quantum State of Light”. On the final day of the program we again had two talks. One of the talks titled “Bose-Einstein Condensation: An Introduction” was delivered by Dr. Prof. Satadal Bhattacharyya, Department of Physics, Scottish Church College. The other talk, titled, “Theoretical and experimental perspective of BEC” was delivered by Prof. Saurabh Basu, Department of Physics, IIT Guwahati. Throughout this five day there were lots of stimulating discussions between the speakers and the participants.



A few screenshots of Quality Improvement Program on Statistical Methods in Physics

A Hands-on Session on Yoga

A hands-on yoga session was organized by the Department of Physics, ICFAI University Tripura, on September 12, 2023, for B.Sc. Physics students at Rupen Bhowmik Yoga Hall. The session, attended by 26 students and faculty members, was inaugurated by Dr. Sovan Ghosh, HOD, Physics, followed by an introductory lecture on yoga. Prof. Prasenjit Majumder from the Department of Physical Education and Yoga led the session, emphasizing the benefits of yoga in daily life. He demonstrated various postures, gradually increasing the difficulty level, while explaining their effects. The students actively participated, performing the postures with enthusiasm. The session concluded with a vote of thanks by Dr. Gobinda Pradhan, making it an engaging and informative experience for all.



B.Sc Physics students performing yoga under the guidance of Prof. Prasenjit Majumder

National Space Day 2024

The Department of Physics at ICFAI University Tripura celebrated National Space Day on September 13, 2024, with various competitions aimed at fostering enthusiasm for space science among students. The event provided a platform for students to showcase their creativity in scientific applications and engage in stimulating interactions. Participants from both the university and local schools took part, making the celebration both educational and enjoyable. The event successfully sparked interest in space science and encouraged young minds to explore the wonders of the universe.



A few snapshots of National Space Day 2024

Indian Knowledge System (IKS) Talk on Observational Astronomy and Indian Calendar

Department of Physics, The ICFAI University, Tripura organized the Indian Knowledge System Talk on Observational Astronomy and Indian Calendar at 24/09/2024. Dr. Sovan Ghosh, Associate Professor & Head, Department of Physics, was the speaker for the aforementioned event. With a well-illustrated presentation he explained various aspects of Indian astronomy and the measurement of time during the ancient era. The scientific backbone of Indian Calendar system was discussed very precisely. The talk was ended with a bombardment of queries from the enthusiastic audience.



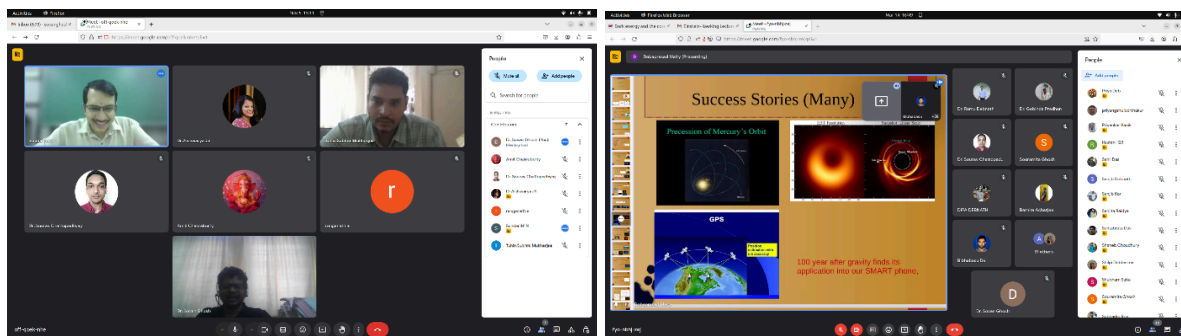
Dr. Sovan Ghosh delivering talk on Observational Astronomy and Indian Calendar

Indian Knowledge System (IKS) Talk on Smart Materials and its Applications

The Department of Physics organized an Indian Knowledge System Talk on "Smart Materials and Its Applications" on Tuesday, 24th September 2024, through an online platform. Dr. Rajkumar Modak, a Project Assistant Professor at the Graduate School of Frontier Sciences, The University of Tokyo, Japan, was the speaker. Dr. Modak, with a strong background in materials science, has made significant contributions as a Special Researcher and JSPS Postdoctoral Fellow at the National Institute for Materials Science. He earned his Ph.D. in Physics from IIT Guwahati and specializes in magnetocaloric and spintronic studies. The talk was scheduled at 2 pm, and the link was shared with participants on the day of the event. The session attracted more than 30 attendees interested in smart materials and their diverse applications

Webinar on Vision into Vision of Animals

The Department of Physics hosted a webinar on the topic "Vision into Vision of Animals" on 5th November 2024 at 2:00 pm, with Mr. Sundar M. N. from the Department of Physics at Jain University, Bangalore, as the speaker. The program began with a welcome at 2:00 pm, followed by the introduction of the speaker at 2:05 pm. Mr. Sundar M. N. delivered his talk from 2:10 pm to 2:40 pm, after which a discussion took place at 2:40 pm. The session concluded with a vote of thanks at 2:45 pm. Participants joined the webinar via the provided link to explore this intriguing topic, which offered insights into everyday questions related to animal vision.



A few screenshots of the webinar on Vision into Vision of Animals

Two-day Night Sky Observation Camp

The Department of Physics at The ICFAI University, Tripura, successfully organized a two-day “**Night Sky Observation Camp**” on the 15th and 16th of November, 2024, from 4:30 PM to 9:00 PM at the university campus. This event provided an immersive experience for astronomy enthusiasts, students, faculty members, and anyone passionate about exploring the wonders of the night sky. We were privileged to have Prof. Sundar M.N., Assistant Professor in the Department of Physics at Jain University, Bangalore, as the resource person for this camp. With his extensive knowledge and expertise in observational astronomy, Prof. Sundar guided participants through various stargazing techniques and provided deep insights into celestial objects, including constellations, planets, deep-sky objects, and other astronomical phenomena.

The Night Sky Observation Camp offered a unique and rare opportunity for participants to engage in hands-on stargazing experiences. Attendees had the chance to observe celestial bodies up close through high-quality telescopes, enhancing their understanding of the night sky. We observed the moon’s surface in detail, including its craters and maria, as well as planets such as Jupiter with its four largest moons (Io, Europa, Ganymede, and Callisto), Venus, and Saturn with its spectacular rings. With the guidance of Prof. Sundar, participants also learned to identify major constellations with the naked eye and understand their significance in astronomy and mythology. In addition to direct observations, the camp included insightful discussions on topics such as planetary motion, the life cycle of stars, deep-sky objects like nebulae and star clusters, and the latest advancements in space exploration.

The event received an overwhelming response, with more than 150 students and faculty members actively participating. The enthusiasm and curiosity of the attendees were evident as they eagerly engaged in telescope observations, asked thought-provoking questions, and gained valuable knowledge about astronomy. This initiative by the Department of Physics at ICFAI University, Tripura, successfully ignited a sense of wonder and curiosity about the universe, inspiring many to explore astronomy further. The camp not only provided theoretical insights but also allowed participants to experience the beauty of the cosmos first-hand.

The Night Sky Observation Camp was a memorable and enriching experience, leaving participants with a deeper appreciation for the universe and its celestial wonders. The event reinforced the importance of



practical observational astronomy and encouraged students and faculty members to pursue further exploration in the field.



A Few glimpse of Night Sky Observation Camp

SCIENTIFIC PUBLICATIONS

Apart from teaching, the faculty members of the Department of Physics are actively involved in research. In the year 2024, the faculty members of Physics have published 8 articles in reputed scientific journals of high impact and 3 articles in conference proceedings. The details of the publications are as follows:

- ❖ *Direct production of SM-singlet scalars at the muon collider, Bibhabasu De, Phys. Lett. B 852 (2024) 138634.*

This work proposes a minimal extension of the Standard Model (SM) where a gauge-singlet scalar (ϕ) can be directly produced at the muon colliders without relying on its mixing with any other doublet state present in the theory. The New Physics (NP) interactions include a TeV-scale scalar leptoquark of electromagnetic charge $1/3$ arising naturally in a grand unifying gauge formulation. Within the proposed framework, the SM-singlet scalar can effectively couple to various SM fields at the one-loop level, out of which the $\mu\mu\phi^-$ and $\gamma\gamma\phi$ couplings are crucial to produce it at the future muon colliders. Assuming $O(1)$ NP couplings, the decay widths and production cross-section of the singlet scalar have been discussed in detail over the considered parameter space. Depending on the resonance scale, di-lepton and/or di-gluon channels can be significant to test/falsify the model.

- ❖ *Leptoquark-induced CLFV decays with a light SM-singlet scalar, Bibhabasu De, Phys. Lett. B 855 (2024) 138784.*

The Standard Model (SM), if augmented with a light SM-singlet scalar ϕ and a TeV-scale scalar leptoquark (LQ) S_1 , 2-body charged lepton flavor violating (CLFV) decay channels can be accessed with ϕ as one of the final states, where the leading order effective interactions between ϕ and the SM fields arise at one-loop level. Further, in the presence of S_1 , ϕ can mediate 3-body CLFV processes with either two photons or two gluons in the final states. Thus, the model predicts an exotic 3-body CLFV channel: $l_A \rightarrow l_B \gg$, which can be tested/constrained only through some future high-energy experiments looking for di-gluon signals from a leptonic decay

- ❖ *The effect of laser energy on the size of WS₂ quantum dots synthesized by pulsed laser ablation in liquid, Bhattacharjee, B., Sharma, A.K. & Pradhan, G. Interactions 245, 306 (2024).*

This study aims to synthesize WS₂ quantum dots (QDs) by pulsed laser ablation in liquid. The synthesis was carried out by varying laser energy in the range of 10-40 mJ and keeping all other

parameters unchanged. The quantum dots so formed were characterized using Raman spectroscopy, Field emission transmission electron microscope (FETEM), and Photoluminescence (PL) spectroscopy. The identified prominent Raman peaks are at 356.78 (E_{2g}^1) and 420.71 cm^{-1} (A_{1g}) for 10 mJ laser energy, at 351.40 ($2LA$), 357.03 (E_{2g}^1) and 421.57 cm^{-1} (A_{1g}) for 20 mJ laser energy, at 353.21 (E_{2g}^1) and 419.161 cm^{-1} (A_{1g}) for 40 mJ laser energy. The Peak frequency difference between $A_{1g}(\Gamma)$ & $E_{2g}^1(\Gamma)$ increases, peak intensity ratio $I_{E_{2g}^1}/I_{A_{1g}}$, decreases, and the FWHM for $E_{2g}^1(\Gamma)$ & $A_{1g}(\Gamma)$ increases for laser energies from 10 mJ to 40 mJ. The FETEM images of synthesized quantum dots exhibited the significant influence of laser energy on the size of WS_2 quantum dots; the mean size increased from 3.56 nm to 6.1 nm for laser energy, from 10 to 40 mJ, respectively. The deconvoluted PL spectrum for different laser energies shows multiple peaks, indicating size distribution of WS_2 QDs. The PL peaks having maximum area intensity exhibit red shifts from 3.26 eV to 3.09 eV with increasing laser energy from 10 mJ to 40 mJ, indicating increase in size of WS_2 QDs and narrowing of the band gap energy of the QDs.

- ❖ *Experimental evidence of shell effects in slow quasifission, S. Santra, A. Pal, D. Chattopadhyay, A. Kundu, K. Ramachandran, R. Tripathi, S. Kailas, et.al, Phys. Rev. C **110**, 034601, 2024*

Mass distributions of fission fragments arising from the slow quasifission (SQF) process, derived by comparing the measured data with theory for several reactions, show distinct features. Irrespective of fissioning systems, the peak corresponding to lighter fragments in the SQF mass distribution is found to be always at $A \approx 96$, whereas the peak position of the heavier fragments increases linearly with the mass of the dinuclear system. Further, the yield of quasifission events decreases with the increasing projectile energy. These observations within certain model dependence provide clear evidences of shell effect in slow quasifission, where the lighter fragments are possibly some closed-shell nuclei in the mass region $A \approx 96$ (possibly ^{96}Zr or ^{94}Sr). Further, the results from a model independent approach involving multi-Gaussian fit to the high energy data points reaffirm the above conclusion.

- ❖ *Sub-Coulomb breakup of ^6Li ($\rightarrow \alpha + d$) off ^{209}Bi target, D. Chattopadhyay, S. Santra, A. Pal, A. Kundu, K. Ramachandran, R. Tripathi, S. Kailas, Nucl. Phys. A **1053** (2025) 122965.*

Cross section for dissociation of ^6Li into $\alpha + d$ in the field of ^{209}Bi target nucleus has been measured at an energy about 20% below the Coulomb barrier by detecting α and d in coincidence using a segmented Si-Strip detector array. Measured distribution of relative energy ' E_α ' suggests

that the dissociation of the projectile at present beam energy proceeds dominantly through direct breakup and by a small fraction through sequential breakup via $3+$ resonance state. The Q-value distribution shows that the events are accompanied by the residual target nuclei remaining at the ground state. Measured angular distributions of direct breakup cross-section are analyzed within the framework of Continuum Discretized Coupled Channel (CDCC) calculations. Asymptotic Normalization Coefficient (ANC) describing the amplitude of the tail of the bound state wave function in α +dis obtained from the variation of spectroscopic amplitude with the Single particle asymptotic normalization coefficient. The estimated ANC parameter ($2.581 \pm 0.212 \text{ fm}^{-1/2}$) is in excellent agreement with the values previously found in the literature.

- ❖ *Determination of electron screening potential of ${}^6\text{Li}(p, \alpha){}^3\text{He}$ reaction using Multi Layer Perceptron based neural network, D. Chattopadhyay, Nuclear Instruments and Methods in Physics Research Section B: Beam Interactions with Materials and Atoms Volume 557, December 2024, 165529*

Understanding nuclear reactions between light-charged nuclei in the sub-Coulomb energy region is crucial for several astrophysical processes. Accurate determination of the reaction cross-section within the astrophysically important Gamow range is challenging due to electron screening. Various methods, including polynomial fits, R-Matrix, and the indirect Trojan Horse Method (THM), have estimated electron screening energies that exceed the adiabatic limit. This study aims to derive the bare astrophysical S-factor for the reaction ${}^6\text{Li}(p, \alpha){}^3\text{He}$ and to extract electron screening energies using Multi-Layer Perceptron-based Artificial Neural Network (ANN) analysis. Experimental S-factors for ${}^6\text{Li}(p, \alpha){}^3\text{He}$, obtained from the literature, are reanalyzed with the ANN algorithm to determine the energy-dependent S-factor. The bare astrophysical S-factor is calculated from data above 60 keV, where electron screening is negligible. The electron screening potential is then derived by comparing the shielded S-factor with the bare S-factor. The ANN-based analysis yields an electron screening potential of 220 eV, suggesting that ANN could be a viable tool for estimating electron screening potentials in light nuclei reactions.

- ❖ *Systematic study of cross section for proton-induced reactions on Neodymium up to 65 MeV using TALYS-1.96 code, A. Saha, 2025 Chinese Phys. C 49 014101.*

A systematic study was conducted on the theoretical estimation of the nuclear cross sections of charged particle induced reactions on rare earth nuclei. The production cross sections of the $^{150,149,148,146,144,143,141}\text{Pm}$ and $^{149,147}\text{Nd}$ nuclei were calculated theoretically via proton induced reactions on neodymium using TALYS (version 1.96) code in the default mode, with different combinations of nuclear models as well as adjusted nuclear model parameters from the reaction threshold up to a proton energy of 65 MeV. The theoretically computed results were compared with the experimental results taken from the EXFOR database and literature reported by various research groups. Moreover, the effects of various level density models, preequilibrium models, optical model potentials, and gamma strength functions on the cross section calculation were considered. This theoretical analysis will help elucidate the theory of nuclear reaction models and improve the evaluated nuclear data libraries.

❖ *Experimental measurements and theoretical calculations of excitation functions of $^{103}\text{Rh}(\alpha, xn)^{106m,105g,104g}\text{Ag}$ and $^{103}\text{Rh}(\alpha, \alpha xn)^{101m,102g}\text{Rh}$ reactions up to 40 MeV, Sk Wasim Raja, R. Acharya, A. Saha*

Activation cross sections of $^{103}\text{Rh}(\alpha, xn)^{106m,105g,104g}\text{Ag}$ and $^{103}\text{Rh}(\alpha, \alpha xn)^{101m,102g}\text{Rh}$ radionuclides were measured at energies ranging from their respective threshold energies up to 40 MeV. Standard stacked foil activation technique was employed for irradiation. Residual activity was assayed using high-resolution gamma-ray spectrometry. Excitation functions were also theoretically calculated using TALYS nuclear reaction model to reproduce the experimental cross section data. The present data are compared with the available literature data, TENDL-2023 data using default values as well as the theoretical data calculated by TALYS-1.96. The shape and amplitude of the experimentally obtained excitation functions were well reproduced theoretically for all the studied radionuclides except for ^{105g}Ag , for which magnitude of the cross sections was not reproduced. The integral yields were also deduced using the measured cross sections and the stopping power of natural Rh from 40 MeV down to their threshold energies for these radionuclides, and compared with the experimental yield data available in the literature.

❖ *Classification of Dark Energy Models, Sovan Ghosh and Baishali Devi, International Conference on Frontiers in Pure and Applied Physics, Journal of Physics: Conference Series 2919 (2024) 012014.*

Accelerated expansion is well-defined from the observational redshift. It is found from Type Ia Supernova data that the major share of the energy of the universe is yet to be explained and that

prompted the search for dark energy and dark matter. Dark energy is expected to be around 68% of the total energy of the universe. To match with experimental observations different theoretical models of dark energy are proposed over the years. Here it is attempted to classify the models of current scenario

- ❖ *Theoretical Analysis of Cosmological Constant and the Constraints of Varying Fine Structure Constant, Dipa Debnath, Anwesha Bhowmik, Shaheb Choudhury, Sovan Ghosh, International Conference on Frontiers in Pure and Applied Physics, Journal of Physics: Conference Series 2919 (2024) 012015*

Cosmological constant is considered to be one of the most important factors in cosmology after the discovery of the presence of dark energy. The ratio of vacuum energy density to matter density is expressed as function of scale factor in a cosmological model. In the present article this model is tested with two different function of scale factor. Varying fine structure is a point of concern to the cosmological constant based dark energy models. Different constraints against variation of fine structure are surfaced. The constraints are discussed in terms of the considered model in the article. Here we have analyzed those constraints.

- ❖ *Study of the Density Parameters of the Dark Energy and the Cosmological Constant in the context of Brans-Dicke Theory, Shaheb Choudhury, Priya Deb, Anwesha Bhowmik, Dipa Debnath, Sovan Ghosh, International Conference on Frontiers in Pure and Applied Physics, Journal of Physics: Conference Series 2919 (2024) 012014*

The discovery of supernova projects at the end of the 20th century altered the theory of current cosmology and sparked the hunt for dark energy and dark matter. The time evolution of the density parameter is examined here by considering a test function. Using the Brans-Dicke framework, the calculations are advanced. The density parameters of dark energy (Ω_D) and matter (Ω_m) are connected by mathematical descriptions and found to produce a unit value when Ω_D and Ω_m are in fraction. As the calculations are built on the structure of the scale factor, this present article is attempt to describe the framework in terms of scale factor (a) as well. The results coming from the test function model show nice resemblance with known observations. The use of Brans-Dicke theory makes provision for in detailed study of Ω_D and Ω_m .

- *Critical analysis of multiple reentrant localization in an antiferromagnetic helix with transverse electric field: Hopping dimerization-free scenario, Sudin Ganguly, Sourav Chattopadhyay, Kallol Mondal, and Santanu K. Maiti, PsiPost Physics Core, Vol. 8, Published on 30-01-2025, Page 12*

Reentrant localization (RL), a recently prominent phenomenon, traditionally links to the interplay of staggered correlated disorder and hopping dimerization, as indicated by prior research. Contrary to this paradigm, our present study demonstrates that hopping dimerization is not a pivotal factor in realizing RL. Considering a helical magnetic system with antiferromagnetic ordering, we uncover spin-dependent RL at multiple energy regions, in the absence of hopping dimerization. This phenomenon persists even in the thermodynamic limit. The correlated disorder in the form of Aubry-André-Harper model is introduced by applying a transverse electric field to the helical system, circumventing the use of traditional substitutional disorder. We conduct a finite-size scaling analysis on the observed reentrant phases to identify critical points, determine associated critical exponents, and examine the scaling behavior linked to localization transitions. Additionally, we explore the parameter space to identify the conditions under which the reentrant phases occur. Described within a tight-binding framework, the present work provides a novel outlook on RL, highlighting the crucial role of the electric field, antiferromagnetic ordering, and the helicity of the geometry. Potential applications and experimental realizations of RL phenomena are also explored.

Research Presentations by Faculty Members:

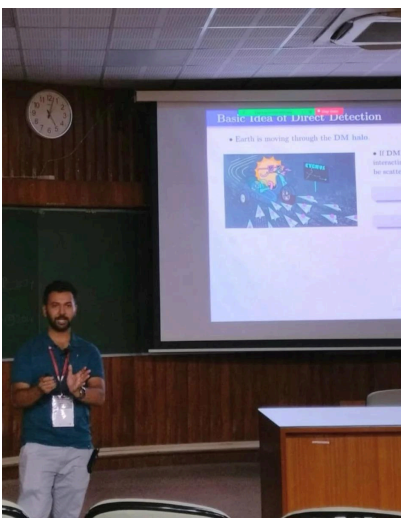
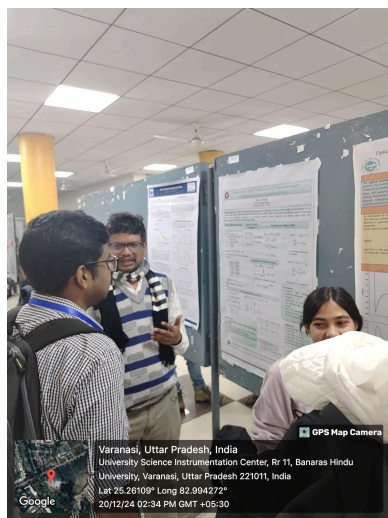
Dr. Sovan Ghosh presented his research article Coupled Dark Energy Models and CPL Parametrization to Explain the Chosen Equations of State in XXVI DAE BRNS HEP Symposium at Banaras Hindu University, from 19-23 December 2024.

Dr. Arunabha Saha presented his research article entitled “*Theoretical estimation of cross section of $natCd(\alpha,x)110Sn$ and $natCd(\alpha,x)115mIn$ reactions up to 50 MeV using TALYS-1.96*”, Proceedings of the DAE Symp. Nucl. Phys. 68, 421 (2024) in 68th DAE-BRNS Symposium on Nuclear Physics, Dec 7-11, 2024 held at IIT Roorkee, Uttarakhand.

Dr. Bibhabasu De delivered a lecture, titled “DM-Electron Scattering — A Probe of Sub-GeV Dark Matter” as an invited speaker in the Workshop of Dark Matter and Astroparticle Physics (WDMAP@IoP) at Institute of Physics, Bhubaneswar. The conference was held from 7th to 9th August, 2024.

Dr. Gobinda Pradhan presented a research paper entitled “*Synthesis and application of WS₂ quantum dots for feasible green energy generation*” in the **Fourth International Conference on Material Science (ICMS-2024)** organized by Department of Physics, Tripura University (a Central university) during 31 January to 2 February, 2024.

Dr. Bibhabasu De delivered an invited lecture in WDMAP@IoP at Institute of Physics, Bhubaneswar, 7-9 August, 2024.



Student Achievements (2024)

The Department of Physics at ICFAI University Tripura has witnessed remarkable student achievements in 2024, reinforcing its commitment to academic excellence and research.

One of the most significant accomplishments this year was by **Sanjib Kar**, an M.Sc. Physics student who successfully cleared the **CSIR-UGC NET** examination conducted by the Ministry of Human Resource Development (MHRD) and the Council of Scientific and Industrial Research (CSIR). He qualified for both the **Junior Research Fellowship (JRF)** and **Lectureship (LS)**, an esteemed recognition that will enable him to pursue advanced research in physics.

Another outstanding achievement was by **Sankarshan Dutta**, an M.Sc. student, who secured admission to the **Institute of Mathematical Sciences (IMSc)**, one of India's premier institutions for theoretical physics and mathematical research **after clearing the GATE examination**. His selection is a testament to his strong academic background and research potential.

The undergraduate students of the department have also excelled in competitive examinations. **Sourav Sutradhar**, a B.Sc. Physics student, successfully cleared the **Joint Admission Test for Masters (JAM)**, a gateway to postgraduate programs in leading institutions like IITs and IISc. This accomplishment highlights the department's emphasis on strong foundational knowledge and problem-solving skills.



Furthermore, seven M.Sc. students—**Mrinmoy Sarkar**, **Anwesha Bhowmik**, **Shaheb Choudhury**, **Priyanwita Das**, **Supa Ghosh**, **Priya Deb**, and **Dipa Debnath**—presented four posters at the

International Conference on Frontiers in Pure and Applied Physics (ICFPAP-2024), organized by the Department of Physics, USTM.

These works were converted into the following scientific articles at the **Journal of Physics conference series, IOP Publishing**. Their research was well received, contributing to ongoing advancements in physics.

M.Sc students of the Department of Physics presenting their works in the International Conference **ICFPAP-2024**.



These students also successfully published two scientific articles in the **Journal of Physics: Conference Series**. The titles of their publications are:

International Conference on Frontiers in Pure and Applied Physics
Journal of Physics: Conference Series **2919** (2024) 012014
doi:10.1088/1742-6596/2919/1/012014

International Conference on Frontiers in Pure and Applied Physics
Journal of Physics: Conference Series **2919** (2024) 012015
doi:10.1088/1742-6596/2919/1/012015

Study of the Density Parameters of the Dark Energy and the Cosmological Constant in the context of Brans-Dicke Theory

Shaheb Choudhury, Priya Deb, Anwesha Bhowmik, Dipa Debnath, Sovan Ghosh

Department of Physics, The ICEAI University Tripura, Agartala, India

Interactions (2024) 245:306
<https://doi.org/10.1007/s10751-024-02145-z>

CONFERENCE PROCEEDING



The effect of laser energy on the size of WS₂ quantum dots synthesized by pulsed laser ablation in liquid

Bidyut Bhattacharjee^{1,2}, Ashwini Kumar Sharma³, Gobinda Pradhan¹

Accepted: 24 September 2024
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THEORETICAL ANALYSIS OF COSMOLOGICAL CONSTANT AND THE CONSTRAINTS OF VARYING FINE STRUCTURE CONSTANT

Dipa Debnath¹, Anwesha Bhowmik², Shaheb Choudhury, Priya Deb and Sovan Ghosh

Department of Physics, The ICEAI University Tripura, India

International Conference on Frontiers in Pure and Applied Physics
Journal of Physics: Conference Series **2919** (2024) 012017
doi:10.1088/1742-6596/2919/1/012017

Classification of Dark Energy Models

Sovan Ghosh¹ & Baishali Devi^{1,2}

¹Department of Physics, Faculty of Science and Technology, ICEAI University Tripura

²Department of Physics, Maharaja Bir Bikram College, Agartala, Tripura 799004, India

In addition to these individual achievements, the **research scholars** of the department have contributed significantly to academic literature. Several research articles authored by students and faculty members have been published in **internationally acclaimed journals** and presented at prestigious conferences. Their work has received recognition for its innovation and scientific rigor.

Additionally, **Satwika Bhattacharya**, a third-year B.Sc. Physics student, received a job offer from **Tata Consultancy Services (TCS)** as she is pursuing a **B.Sc. Physics Honours with Data Science General Elective Courses**. Her success is a testament to the department's efforts in integrating data science with physics education. It is a proud moment for the department, as she is from the first batch to complete this combination. The **Department of Physics** has initiated a group of elective courses for **Data Science**, marking a significant milestone in its academic offerings.

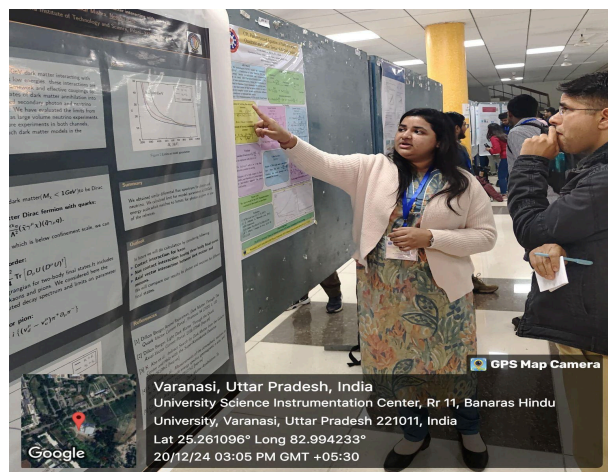


These accomplishments reflect the dedication of students and faculty in fostering an environment of learning, research, and professional growth, further strengthening the reputation of the Department of Physics at ICFAI University Tripura.

Shaheb Choudhury and Priya Deb, research scholars of the Department of Physics, presented their research articles on the international stage of the prestigious XXVI DAE BRNS High Energy Physics Symposium in Banaras Hindu University from 19-23 December 2024.

The article presented by Shaheb Choudhury is 'Connecting Λ CDM Models with Different Functional Form and Common Density Parameter.'

Priya Deb presented her article entitled 'CPL Parameterized Equation of State of Cubic, Quadratic and Linear Terms of Λ CDM Models.'



Highlights of the best project works

PROJECT TITLE: Solar Cell Mobile Charger

Students name: *Debjit Deb (22IUT0050034), Sucharita Debnath (22IUT0050031), Anurag Nath (22IUT0050030), Rakesh Debbarma (22IUT0050042)*

Project supervisor: *Dr. Gobinda Pradhan*

This product harnesses the power of the sun to provide a sustainable, eco-friendly charging solution, addressing the increasing demand for portable and efficient energy sources in an ever-connected world. Despite the relatively modest charging speed, this charger serves as a practical tool for individuals who spend extended periods away from conventional power sources. Outdoor enthusiasts, travelers, and professionals working in remote locations can significantly benefit from this device, ensuring their mobile phones remain operational when traditional charging methods are unavailable.



Figure: Solar mobile charger

PROJECT TITLE: *Development of Solar Cooker*

Students name: Ranit Debnath (22IUT0050015), Manish Shil (22IUT0050038), Rimon Das (22IUT0050018)

Project supervisor: Dr. Gobinda Pradhan

The solar cookers use the energy from sunlight to cook food. It harnesses solar power, converting it into heat energy to prepare meals without the need for conventional fuel sources like gas or electricity. Solar cookers are an eco-friendly alternative that can significantly reduce reliance on non-renewable energy resources. The parabolic solar cooker reached a higher temperature more quickly compared to the box solar cooker, resulting in a significantly shorter cooking time. The box solar cooker took longer to reach its maximum temperature and required a longer duration to cook. The parabolic solar cooker demonstrated greater efficiency due to its higher concentration of sunlight. This experiment illustrates the differences in cooking efficiency between a box solar cooker and a parabolic solar cooker, highlighting the impact of design and heat concentration on cooking times.



Figure: (a) Parabolic solar cooker (b) Box solar cooker

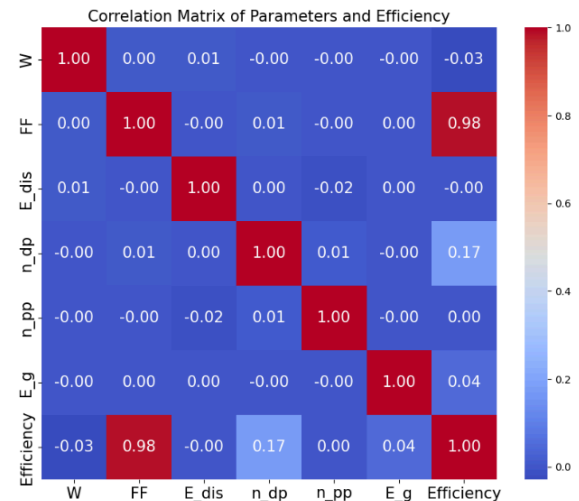
PROJECT TITLE: Data Analysis and Visualization using Python with special emphasis on Nuclear Battery simulations

Name of the Students: Gaurab Singha (23IUT0080008), Kishan Sinha (23IUT0080011), Bipradeep Majumder (23IUT0080012), Parishmita Guha (23IUT0080013), Rajdeep Sarkar (23IUT0080015), Tirtha De (23IUT0080016), Ambarish Sinha (23IUT0080018), Urbi Nath (23IUT0080019), Bodhisatwa Deb (23IUT0080022) and Anaydeep Ghosh (23IUT0080024)

Program and Year: M.Sc Physics 1st Year

Supervisor Name: Dr. Dipayan Chattopadhyay, Assistant Professor, Department of Physics, The ICFAI University Tripura

The study aimed to analyze and model key parameters related to nuclear batteries, including **radioactive decay**, **shelf life estimation**, and **efficiency calculations**. **Euler Integration** was employed to simulate the decay of radioactive isotopes, facilitating the prediction of power output and shelf life—crucial factors for long-term energy applications such as space exploration and remote sensing. Additionally, **Monte Carlo simulations** were implemented to estimate the efficiency of nuclear batteries under varying conditions, offering insights into complex processes like energy transport and material interactions. The efficiency analysis covered various semiconductor materials, including **Silicon**, **Germanium**, **Gallium Arsenide**, **Silicon Carbide**, and **Diamond**. The findings revealed that materials with a higher **bandgap-to-mean ionization energy ratio (E_g/W)**, such as Diamond, demonstrated superior efficiency (1.70%) compared to Silicon (0.35%). **Correlation analysis** identified the **Fano Factor (FF)** and **driving potential efficiency (η_{dp})** as the most influential parameters affecting semiconductor efficiency. Conversely, the **mean ionization energy (W)** exhibited a weak inverse correlation with efficiency, while **decay energy (E_{dis})** and the **bandgap-to-ionization energy ratio (η_{pp})** showed negligible effects.



This project effectively demonstrates the power of Python in data-driven nuclear battery research, highlighting the significance of numerical techniques like Euler Integration and Monte Carlo simulations. The results contribute to optimizing semiconductor materials and improving the design and efficiency of nuclear batteries for critical applications in **space missions**, **medical devices**, and **remote sensing technologies**.

Student's Speak

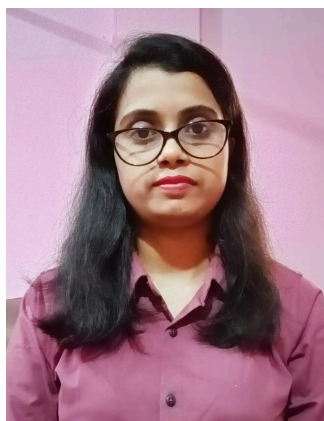


Looking back through the glass, I realize it was one of the most enjoyable days at ICFAI University. We were taught by highly qualified teachers who guided us with great care, even beyond the classroom. The journey through the course was not always smooth, with many ups and downs, but the motivation and encouragement from our teachers helped us overcome every challenge. Where I am today is because of the support and motivation from the Physics department at ICFAI University, Tripura. Thanks to all my teachers for their selfless help.

Sankarsan Datta

MSc Physics, ICFAI University Tripura

PhD (Pursuing), Institute of Mathematical Science, Chennai [HBNI, Mumbai]



A Beacon of Excellence - Dpt. Of Physics, IUT

My Name is Sanchita Karmakar. I'm an alumnus of the Department of Physics, ICFAI University Tripura. I have completed my postgraduate degree in physics from IUT, 2020-2022. In the campus placement drive, I got onboarded in BYJUs in the post of Academic Specialist. Currently, I'm working as a Guest Faculty of Physics at Government Degree College Kamalpur.

Being a part of this Department, we've had the privilege of experiencing the best of academic rigor, higher-order thinking skills, and analytical expertise. From thought-provoking lectures to hands-on experiments, our professors have inspired us to excel through. Our professors are not only teachers but also mentors, guides, and advocates of our queries.

The 2 years of post-graduation will always hold a special place in our memories.

Sanchita Karmakar

M.Sc Physics

Batch 2020-2022



My journey as a student at ICFAI University has been both transformative and enriching for me. I am currently in my second year of graduation from the BSc Physics course. Among all my other experiences, the one I would love to highlight is the institution's ideology to teach students life lessons that we would need in order to excel in our lives. I would also like to mention how the university provides a stress-free environment for students with faculty who are very well acquainted and always eager to help students in need.

Rima Roy

B.Sc Physics (Hons.), Second Year



I am Shaheb Choudhury, and I am a proud alumnus of the B.Sc. Physics program (2019-22) and M.Sc. Physics program (2022-24) and a current research scholar in the department, I am grateful for the exceptional academic and research environment provided by the university. The Department of Physics offers a dynamic learning experience with highly qualified faculty members who bring expertise from various branches of physics, ensuring a well-rounded education. Their guidance and willingness to support students beyond the classroom have been invaluable in my academic journey.

During my MSc, I had the privilege of attending an international conference where I presented my research work. This experience allowed me to gain practical exposure and

deepen my understanding of my field.

The department actively promotes hands-on learning through various engaging events, such as the Night Sky Observation Camp, which provides an incredible opportunity to explore celestial objects and deepen our understanding of astrophysics. Additionally, academic webinars on various areas of physics have

greatly enriched our knowledge and allowed us to interact with experts in different fields. The well-equipped laboratories and research facilities further enhance the learning experience.

Overall, the department fosters a culture of curiosity, innovation, and academic excellence, making it an ideal place for aspiring physicists to grow and excel.

Shaheb Choudhury

**Research Scholar, Department of Physics,
The ICFAI University Tripura**



My name is Priya Deb, and I am a proud alumna of the MSc Physics program (2022-2024) at the Department of Physics, The ICFAI University Tripura. I had an excellent academic and research experience during my time there. Over my two years in the program, my passion for physics only grew stronger. The university provided a strong research environment that significantly contributed to my growth as a researcher.

The faculty members were highly knowledgeable and supportive, always encouraging students to think critically and solve complex problems. During my MSc, I had the privilege of attending an international conference where I presented my research work. This experience allowed me to gain practical exposure and deepen my understanding of my field. The research culture of the department prepared me well for future academic and professional challenges.

This department offers an inspiring environment where students can immerse themselves in the subject and grow as researchers. It is the perfect place for those passionate about understanding the universe through Physics.

Priya Deb

**Research Scholar, Department of Physics,
The ICFAI University Tripura**