

# THE INFINITY

JULY-DECEMBER, 2024

VOLUME 1

BE

CREATIVE



## Department of Basic Sciences

UNIVERSITY OF ENGINEERING & MANAGEMENT, JAIPUR



UNIVERSITY OF ENGINEERING & MANAGEMENT  
Good Education, Good Jobs



# Editor's Note



**Dr. Praphull Chhabra**  
**Professor, Mathematics**  
*Chief Editor*

We are thrilled to introduce “The Infinity”, the inaugural edition of the official magazine of the Department of basic sciences at UEM Jaipur. This publication highlights the talent, innovation, and academic excellence that characterize our department. We hope “The Infinity” inspires, informs, and fuels your passion for learning and discovery. Thank you for your support, and we eagerly welcome your feedback as we strive to make “The Infinity” a truly enriching and impactful publication.



**Ms. Pallavi Malik**  
**Assistant Professor,**  
**Mathematics**  
*Chief Editor*

Explore a rich blend of articles on groundbreaking scientific and mathematical topics, including quantum mechanics, sustainable energy, advanced calculus, and applied mathematics. Paired with highlights from thought-provoking seminars, innovative research, and mathematical explorations led by our students and faculty.

## Student Editors



**Rakesh Bangra**  
**B.Tech [CSE] 2nd year**  
**12023002001100**



**Sohrit Kumawat**  
**BBA 2nd year**  
**12023003008007**



# **THE** **INFINITY**

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**July-December, 2024 | VOL.01**

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**UNIVERSITY OF ENGINEERING & MANAGEMENT**  
**Good Education, Good Jobs**

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# Message from the Vice-Chancellor



It is with immense pride and joy that I extend my heartfelt congratulations to the Department of Computer Applications on the launch of the first volume of their magazine, “The Infinity”. This milestone is a testament to the creativity, dedication, and collaborative efforts of students and faculty alike. In today’s rapidly evolving digital era, such initiatives play a pivotal role in shaping perspectives and inspiring innovation within the academic community.

The field of Computer Applications has been at the forefront of revolutionizing industries, creating transformative solutions, and connecting the world like never before. At the University of Engineering & Management, Jaipur, we believe in nurturing talents that not only excel academically but also push boundaries of what is possible. A platform like “The Infinity” serves as a beacon, reflecting the unique ideas and aspirations of its contributors and providing readers with a glimpse into the vibrant academic culture of the department.

I encourage all students and faculty members to continue their journey of exploration and learning with the same passion and zeal. Let “The Infinity” be a source of motivation and a repository of inspiration for future generations. Your work today lays the foundation for tomorrow’s breakthroughs and serves as a reminder of the incredible potential that resides within our institution.

May this magazine mark the beginning of many more achievements for the Department of basic sciences. As we move forward, let us remain committed to excellence and innovation, ensuring that UEM Jaipur continues to shine as a center of academic and intellectual brilliance. My best wishes to the entire team behind “The Infinity” and to all those who strive to make a difference in this ever-changing world.

With gratitude

**Prof. (Dr.) Biswajoy Chatterjee**

Vice-Chancellor, University of Engineering & Management (UEM), Jaipur



# Message from the Registrar



It is with immense pride and joy that I extend my heartfelt congratulations to the Department of Computer Applications on the release of the first edition of “The Infinity”. This magazine stands as a testament to the creativity, dedication, and collaborative spirit of the students, faculty, and staff who have worked tirelessly to make this vision a reality. In an institution like ours, where academic pursuits meet innovation, “The Infinity” provides a unique platform to highlight the diverse talents and groundbreaking ideas that emerge from the department. It reflects the vibrant intellectual culture of the University of Engineering & Management, Jaipur, and showcases how our community is shaping the future of technology and society through rigorous learning and impactful contributions.

I believe The Infinity goes beyond being just a magazine—it symbolizes the holistic development of our students. It captures their ability to think critically, communicate effectively, and innovate boldly. This initiative also celebrates the dedication of the faculty, who continuously guide and inspire young minds to push boundaries. My heartfelt congratulations to the editorial team and contributors for their efforts in bringing this vision to life. May “The Infinity” grow as a source of inspiration, motivating readers to embrace a culture of excellence and innovation.

With utmost regards

**Prof. (Dr.) Pradeep Kumar Sharma**

Registrar & HOD Physics ,

University of Engineering & Management

(UEM), Jaipur

A handwritten signature in blue ink, appearing to be 'Pradeep' followed by a stylized surname.



# Message from the Associate Dean

## (Academics & Foreign Relations)



It is a privilege to address the readers of “The Infinity”, the first edition of the Department of Computer Applications’ magazine. This initiative reflects the department's unwavering commitment to academic excellence and global engagement. In today’s fast-evolving world, where technology serves as the backbone of progress, nurturing intellectual curiosity and fostering international perspectives is essential. This magazine is a step toward achieving these goals, showcasing the talents, insights, and innovative ideas that drive

I have witnessed the dedication and diligence of the department in equipping students with not just knowledge but also the ability to adapt and excel in dynamic environments. The articles, projects, and creative expressions featured in “The Infinity” reflect this spirit of learning and growth. The magazine is not merely a collection of words but a celebration of academic accomplishments, collaborative efforts, and a shared vision for a brighter future.

At the same time, I am delighted to see how such initiatives can help connect our students and faculty to global audiences. Knowledge transcends borders, and I believe that “The Infinity” will act as a bridge, sharing the achievements of the Department of Computer Applications with the wider academic and professional community, fostering cross-cultural collaborations, and promoting our institution’s global outlook.

My heartfelt congratulations to the editorial team and contributors for their hard work and dedication in bringing this magazine to life. May “The Infinity” inspire, educate, and open doors to endless opportunities, encouraging its readers to dream big and strive for greatness.

Best regards

**Prof. (Dr.) Mukesh Yadav**  
Associate Dean (Academics & Foreign Relations),  
University of Engineering & Management (UEM),  
Jaipur

A handwritten signature in black ink, consisting of a stylized 'M' followed by a long horizontal stroke and a vertical line.



# Message from the HOD

## (Mathematics)



The Department of Mathematics is one among those that were established during the inception of the University of Engineering and Management. Over the years, we have established ourselves as leaders in Pure and Applied Mathematics, demonstrating excellence in a short span.

Our faculty members are renowned researchers, regularly publishing papers in international journals with good reputations. They impart strong theoretical foundations and practical skills to our students, equipping them with a deep understanding of mathematical concepts.

As Mathematics and Statistics form the bedrock of scientific and engineering knowledge, our primary focus is on producing engineers well-versed in modern mathematical tools and adept at tackling real-world problems. We strive to cultivate analytical and logical skills in our students through outcome-based teaching-learning practices, empowering them to excel as future engineers and researchers.

Best regards

**Dr. Rahul Sharma**

Associate Professor and Head

Department of Mathematics

A handwritten signature in black ink, appearing to be 'R. Sharma', written in a cursive style.



# Message from the HOD

(Chemistry)



It gives me immense pride and great pleasure to witness the Department of basic sciences taking this monumental step in launching the inaugural issue of their magazine. This initiative is truly commendable, as it opens up new horizons for our students to explore their creative potential, articulate their thoughts, and engage in the joy of intellectual expression.

This magazine will undoubtedly serve as a powerful platform to inspire young minds, encouraging them to think critically, write passionately, and share their innovative ideas. It reflects the department's commitment to fostering a culture of academic excellence and creative exploration, which is vital for the holistic development of our students.

I would like to extend my heartfelt congratulations to the Department of basic sciences for embarking on this inspiring journey. I am confident that this magazine will not only showcase the talent and intellect of our students but also motivate them to continuously learn, grow, and contribute meaningfully to the academic and scientific communities.

On behalf of the Chemistry Department, I offer my best wishes to the entire editorial team, contributors, and all those involved in this endeavor. May this magazine thrive as a beacon of knowledge and creativity, inspiring countless students for years to come.

Best regards

**Dr. Anamika Khaskel**

Associate Professor and Head

Department of Chemistry

A handwritten signature in black ink that reads "Anamika Khaskel". The signature is written in a cursive, flowing style.



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THE INFINITY



# **1st International Conference on Computational Applied Sciences & it's Applications (ICCASA-2022)**

**28-29th April, 2022**



*First International Conference on “Computational Applied Sciences and it’s Applications” (ICCASA 2022) was organized at the University of Engineering and Management, Jaipur, on 28 and 29 April 2022, on virtual mode.*

The vision behind organizing this conference is to provide an excellent forum for researchers, scientist and industrialist from interdisciplinary areas to showcase their current contribution in the recent area of Physical Sciences. The objectives of International Conference on Computational Applied Sciences and it’s Applications (ICCASA-2022) are to abreast the young minds from Institutes, Universities, Colleges and Industries across the country, with the latest advancements in the field of this area, and providing them an opportunity to share their recent researches and views in various fields of Physical Sciences and their

applications for the ultimate benefit of the Society and Industry. The broad aim of the conference is to groom the young scientists’ minds to face the challenges of future for effective and efficient professional responsibilities. The conference will cover a wide range of topics in the form of plenary speakers, keynote speakers, invited talks & contributory papers presentations.







## Objectives of ICCASA 2022:

To provide an opportunity for sharing recent research and perspectives in various fields of physical sciences and their applications for societal and industrial benefit.

To prepare young scientists to face future challenges effectively and responsibly.

**Non-linear Dynamics:** Bifurcation theory, control of chaos, non-linear phenomena in medical and biological sciences, non-linear optics, time series analysis.

**Chemistry:** Synthetic organic chemistry, sustainable and green chemistry, atmospheric chemistry, environmental chemistry, catalysis, spectroscopy and its applications, organometallic chemistry, X-ray crystallography, biofuels, medicinal chemistry and drug designing, natural product chemistry.

**Mathematics and Statistics:** Fluid dynamics, mathematical modeling and simulation, fuzzy sets and logic, ring theory, operations research, differential geometry, financial mathematics, advanced analysis, applied statistics, differential equations, relativity and cosmology, complex theory, real analysis, discrete mathematics, group theory, mathematical biology, numerical analysis, biostatistics, business and computational statistics, sampling theory.

### Convener

**Dr. Praphull Chhabra & Ms. Pallavi Malik**



**One week International FDP (Faculty Development Program)**

# **Advanced Tools and Techniques for Scientific Research Writing and Publication**

## **(ATTSRWP-2022)**

**12-18 September 2022 (Online Mode)**

**Global Rankings**

**Approvals & Accreditation**

**UNIVERSITY OF ENGINEERING & MANAGEMENT**

**ONE WEEK INTERNATIONAL FDP (FACULTY DEVELOPMENT PROGRAMME)**

**ON**

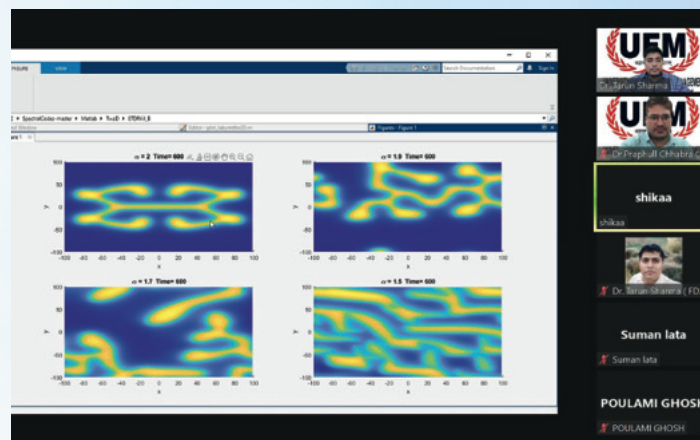
**Advanced Tools & Techniques for Scientific Research Writing and Publication (ATTSRWP-2022)**

**12<sup>th</sup> -18<sup>th</sup> September, 2022 | Virtual Mode**

**Organized by: Department of Mathematics & Statistics**  
University of Engineering & Management (UEM), Jaipur

**About FDP:**  
Advanced Tools and Techniques for Scientific Research Writing and Publication is a one-week International Faculty Development Programme designed for PG students, Research Scholars, Academicians and Industrialists. It is designed for the up gradation of academic and research skills, especially in terms of Scientific Research Writing and Publications. This faculty development programme focuses on areas like Research Paper writing and publication in SCI/Scopus Indexed Journals, Project and Patent writing process and enforcement, Advanced Writing Skills through Latex, and Numerical Computations through MATLAB software and so on. This faculty development programme cum training programme is beneficial for the faculty members/Students who want to make their career in Research & Development Field.

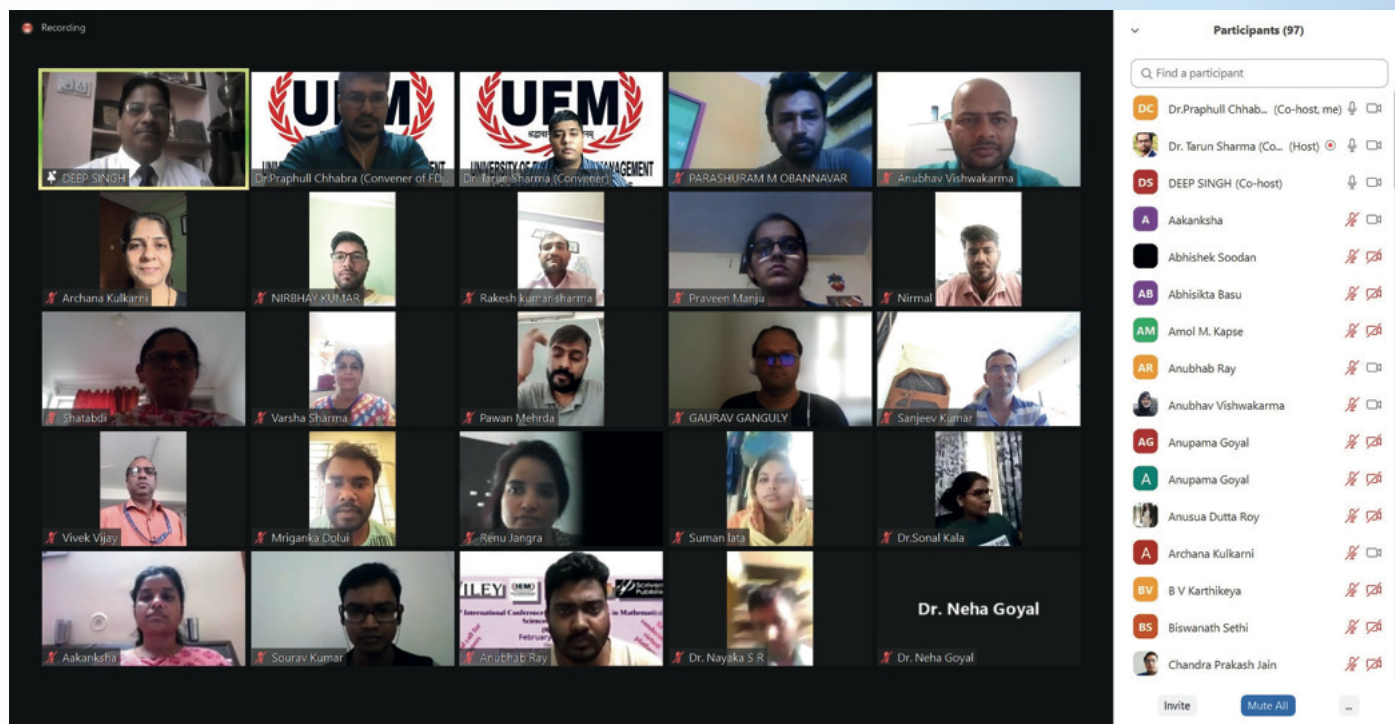
In this enrichment cum training program, more than 240 participants were registered across the globe including research scholars, academicians and industry personnel. It was inaugurated in the presence of Prof. Dr. Biswajoy Chatterjee (Vice-Chancellor, UEM Jaipur), Prof. Dr. Pradeep Kumar Sharma (Registrar, UEM Jaipur) and Prof. Dr. Anirudhha Mukherjee (Dean Academics, UEM Jaipur).



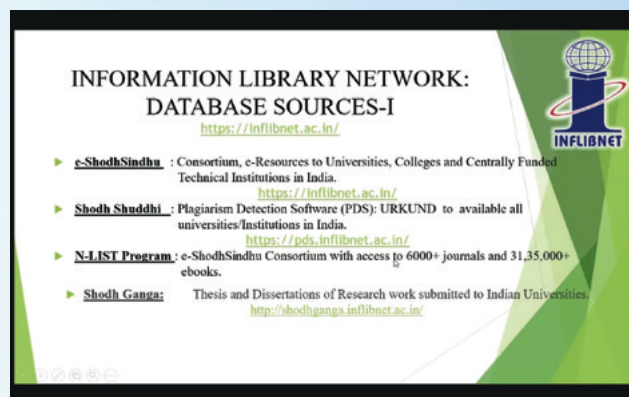
The seven-day International Faculty Development Program (FDP) proved to be an enriching and transformative journey, offering an incredible lineup of talks and sessions on key areas of scientific research and academic development. Renowned experts and keynote speakers from prestigious national and international institutions such as IIT-Bombay, Vasile Goldiş Western University of Arad, Romania, and Taraba State University, Jalingo, Nigeria, shared their invaluable knowledge and insights throughout the program.

- Scientific Research Writing: Techniques and best practices for composing impactful research papers.
- Project Writing: Comprehensive guidance on drafting compelling project proposals to secure funding and support.
- Patent Filing Process: Detailed insights into the legal and procedural aspects of patenting innovations and inventions.
- Numerical Computation with MATLAB: Hands-on sessions showcasing the application of MATLAB software for solving complex numerical problems.





The program featured a mix of lectures, interactive workshops, and engaging discussions, fostering a collaborative environment where participants could learn and network with peers and experts alike. Each session was meticulously planned to address the evolving demands of the academic and research communities, ensuring that attendees were well-prepared to meet global standards in their work.



The valedictory session, held on the date 18th September 2022, marked the culmination of this highly successful FDP. During the session, the conveners, Dr. Praphull Chhabra and Dr. Tarun Sharma, presented a detailed concluding report summarizing all the activities and outcomes of ATTSRWP-2022. The report highlighted the achievements of the program, the enthusiasm of the participants, and the significant contributions made by the esteemed speakers.

The program concluded with a heartfelt vote of thanks, expressing gratitude to the speakers, participants, organizers, and supporting institutions for their dedication and efforts in making the event a resounding success. The session underscored the FDP's impact, emphasizing how it had empowered educators and researchers with the knowledge and tools to excel in their fields and contribute meaningfully to the global academic community.

#### Convener

**Dr. Praphull Chhabra & Dr. Tarun Sharma**



# **2nd International Conference on Computational Applied Sciences & it's Applications (ICCASA-2023)**

**July 13th - 14th, 2023**



*Second International Conference on “Computational Applied Sciences and it’s Applications” (ICCASA 2023) was organized at the University of Engineering and Management, Jaipur, on 13 and 14 July 2023, on hybrid mode.*

*The vision behind organizing this conference is to provide an excellent forum for researchers, scientists and industrialists from interdisciplinary areas to showcase their current contributions in the recent area of Physical Sciences. The objectives of the International Conference on Computational Applied Sciences and it’s Applications (ICCASA-2023) are to abreast the young minds from institutes, universities, colleges and industries across the country, with the latest advancement in the field of this area and provide an opportunity to share their recent researches and views in various fields of physical sciences and their applications for the ultimate benefit of the society and industry. The broad aim of the conference is to groom young scientists’ minds to face the challenges of the future for effective and efficient professional responsibilities. The conference will cover a wide range of topics in the form of plenary speakers, keynote speakers, invited talks & contributory papers presentations.*





Academia, industry experts, and students/research scholars are cordially invited by the organizers to submit their original and unpublished research articles. These submissions will provide an opportunity to present their work orally and through posters in a diverse range of topics, encompassing the following areas: Topics include, but are not limited to: • Bifurcation Theory • Control of Chaos • Non-linear phenomena in Medical and Biological Sciences • Time Series Analysis • Synthetic Organic Chemistry • Sustainable and Green Chemistry • Catalysis • Spectroscopy and its applications • Organometallic Chemistry • X-ray Crystallography • Natural Product Chemistry • Fluid Dynamics • Bio-Fluid Dynamics • Mathematical Modelling and Simulation • Special Function • Fractional Calculus • Fuzzy sets and logic • Advanced Analysis



In this conference, More than 175 participants from various countries were registered including research scholars, faculties and researchers from various industries. It was inaugurated in the presence of Prof. Dr. Satyajit Chakrabarti (Chancellor, UEM Jaipur), Prof. Dr. Biswajoy Chatterjee (Vice-Chancellor, UEM Jaipur), Prof. Dr. Satyajit Chakrabarti (Pro Vice-Chancellor, UEM Jaipur), Prof. Dr. Pradeep Kumar Sharma (Registrar, UEM Jaipur), Prof. Dr. Anirudhha Mukherjee (Dean, UEM Jaipur), Dr. Anamika Khaskel (Head, Department of Chemistry) and Prof. Rahul Sharma (Head, Department of Mathematics).

#### Convener

**Ms. Pallavi Malik & Dr. Priyanka Chhapparwal**



# Science Olympiad

18th October 2024



On 18th October 2024, the Science Olympiad was conducted successfully in the University of Engineering & Management, Jaipur for the students of Class 11th and 12th of this region. Activities like Science Olympiad Quiz, Poster Making Competition, etc were conducted during the event. More than 300 students along with their teacher/parent visited and participated in various activities and seen innovative projects of Artificial Intelligence, Internet of Things, AR-VR and mechanical projects. All participants will be given certificate and Winners will be awarded with certificate of excellence and prize money.



**Coordinator**  
**Dr. Rahul Sharma**



# Our Esteemed Faculty

| SR. | Name                      | Designation                             | Experience | Area of Research                                                                                                                                                                                                                                           |
|-----|---------------------------|-----------------------------------------|------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.  | Dr. Rahul Sharma          | Associate Professor and HOD Mathematics | 12 years   | Investigation on Generalized Hypergeometric Function of Scalar and Matrix Argument                                                                                                                                                                         |
| 2.  | Dr. Anamika Khaskel       | Associate Professor and HOD Chemistry   | 7.5 years  | Synthetic organic Chemistry, Catalysis, Multicomponent Reactions                                                                                                                                                                                           |
| 3.  | Dr. Tarun Sharma          | Associate Professor Mathematics         | 10 years   | <b>Major area :</b> Fluid Dynamics<br><b>Subfields :</b><br>1. Analysis of Heat and Mass Transfer in different industrial and engineering domains.<br>2. Mathematical Modeling of Nanofluids flows in the diverse engineering and industrial fields.       |
| 4.  | Dr. Praphull Chhabra      | Professor Mathematics                   | 14 years   | Information Measures, Inequalities and Fuzzy Divergence                                                                                                                                                                                                    |
| 5.  | Ms. Pallavi Malik         | Assistant Professor Mathematics         | 10 years   | Fluid Dynamics, Conducting Fluids, Plasma Dynamics, Computational Fluid Dynamics, Electrical Systems                                                                                                                                                       |
| 6.  | Dr. Priyanka Chhaparwal   | Associate Professor Mathematics         | 06 years   | Theory of estimation and statistical inference                                                                                                                                                                                                             |
| 7.  | Dr. Arnab Palui           | Associate Professor Physics             | 10 years   | <b>Major Area:</b> Condensed Matter Physics<br><b>Subfield:</b><br>1. Investigation of ion dynamics in mixed network former glasses.<br>2. Structural, thermal and electrical characterization of amorphous materials and structure-transport correlation. |
| 8.  | Mr. Manish Jangir         | Lab Technician Physics                  | 06 years   |                                                                                                                                                                                                                                                            |
| 9.  | Mr. Kamal Kishore Kumawat | Lab Assistant Chemistry                 | 03 years   |                                                                                                                                                                                                                                                            |



# Faculty Publication

## Dr. Rahul Sharma

- **Paper Publication:**

Analysis of Some Unified Integral Equations of Fredholm Type Associated with Multivariable Incomplete H and I-Functions, Applications and Applied Mathematics: An International Journal (AAM), Vol. 19, Iss. 4, Article 3.

Available at: <https://digitalcommons.pvamu.edu/aam/vol19/iss4/3>

## Dr. Tarun Sharma

- **Paper Publication:**

Radiative heat transfer and thermo-diffusion effects in chemically reactive magnetized mixed convective flow of gold nanofluid

Journal: Nano (SCI-E, and Scopus Indexed)

Status: Accepted (In press)

- **Patent Publication:**

Utilizing Gold Nanofluid for Improved Heat Transfer in Engineering and Industrial Applications.

Patent No. : 202411057791

- **Award and Appreciation:**

Invited Lecture Titel : Career Opportunities after Graduation and Post Graduation

Institute : Brightmoon Girls P.G. College, Govindgarh.

## Dr. Praphull Chhabra

- **Paper Publication:**

1.A New Inequality on Jain-Saraswat's Divergence for S-Convex Functions, Contemporary Mathematics, Volume 5 Issue 1|2024| 465- 477, <https://doi.org/10.37256/cm.5120243095>.

2.S-Convex Functions and Jain-Saraswat's Functional Divergence. In: Proceedings of the Fifth International Conference on Emerging Trends in Mathematical Sciences & Computing (IEMSC-24). IEMSC 2024. Information Systems Engineering and Management, vol 10. Springer, Cham. [https://doi.org/10.1007/978-3-031-71125-1\\_35](https://doi.org/10.1007/978-3-031-71125-1_35).

3.Application of New Fuzzy Measure in Multi-Attribute Decision-Making. Inquietud Empresarial, 24(2), 1-12. <https://doi.org/10.19053/uptc.01211048.17901>.

- **Book publication:**

Title: Information Theory and Coding: A Fundamental Approach

Publisher Name: Eliva Press, Europe

Date of publication: 04/07/2024 ISBN: 9789999319723

Online links: <https://elivabooks.com/en/book/book-7009222954>

<https://www.amazon.com/dp/999931872X>

## Dr. Arnab Palui

- **Paper Publication:**

Exploration of an Organic Mixed-Ion Electronic Conductor by a Peptide-Appended Naphthalene Diimide-Based Photoresponsive Hydrogel

Journal: ACS Applied Polymer Materials

Status: Accepted



# Research Visibility

| SR. | Supervisor           | Scholar                   | Title                                                                                                     |
|-----|----------------------|---------------------------|-----------------------------------------------------------------------------------------------------------|
| 1.  | Dr. Rahul Sharma     | Mr. Mukesh Kumar Mahla    | Generalized hypergeometric functions and it's application in various disciplines                          |
| 2.  | Dr. Anamika Khaskel  | Ms. Santosh Kumari Bajiya | Synthesis of Substituted 1,4 - dihydropyridines                                                           |
|     |                      | Mr. Rakesh Kumar Sharma   | Synthesis of seleno-substituted heterocycles                                                              |
|     |                      | Ms. Afsana Fazal          | Yet to be finalised                                                                                       |
|     |                      | Ms. Rachna Kumawat        |                                                                                                           |
| 3.  | Dr. Praphull Chhabra | Ms. Sonam Chhabra         | Information Divergence Measures And its Applications                                                      |
|     |                      | Mr. Devendar Kumar        | Development of Sustainable Inventory Policies for Deteriorating Items under Controllable Carbon Emissions |



A decorative border surrounds the central text, featuring various science and engineering icons. At the top left is a magnifying glass. Next to it is a molecular model with a central blue sphere and six surrounding yellow spheres. To the right is a battery with a '+' sign. Further right is a conical flask containing blue liquid. Below the battery is another battery, this one pink and yellow. To its right is a lightbulb. At the bottom left is a microscope. Next to it is another molecular model. To the right is a graduated cylinder with blue liquid. Further right is a lightbulb. At the bottom right is a test tube with pink liquid. To its right is another molecular model. The background is a light gray grid.

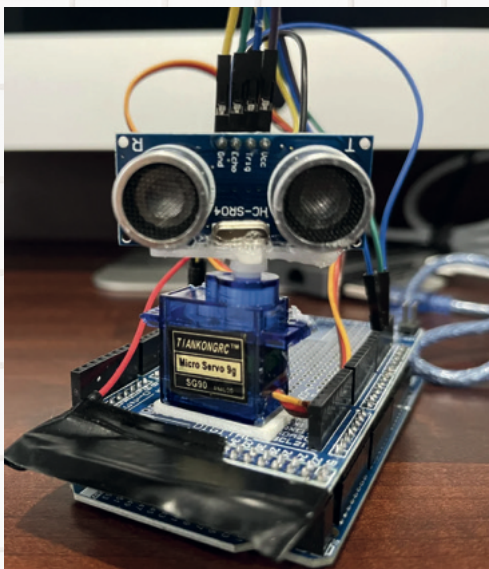
# STUDENT PROJECTS

Hands-on physics projects are vital for first-year engineering students, connecting theory with real-world applications and fostering teamwork, creativity, and technical skills. Students showcased innovative projects like a solar car, magnetic pendulum, maglev train, cymatic visualizer, telescope, and perpetual motion machine. These projects demonstrated their enthusiasm for learning, problem-solving, and applying physics principles to practical challenges.



# Radar System

This project demonstrates an Arduino-based radar system to detect objects using ultrasonic sensors. The system measures object distance and position, providing a visual representation on a screen for educational purposes.



## Working Principle:

1. The system consists of an ultrasonic sensor mounted on a servo motor connected to an Arduino board.
2. The servo motor rotates to scan the surroundings, while the sensor measures distances by emitting and receiving sound waves.
3. The Arduino processes the data and sends it to a computer for visualization on a radar-like interface.

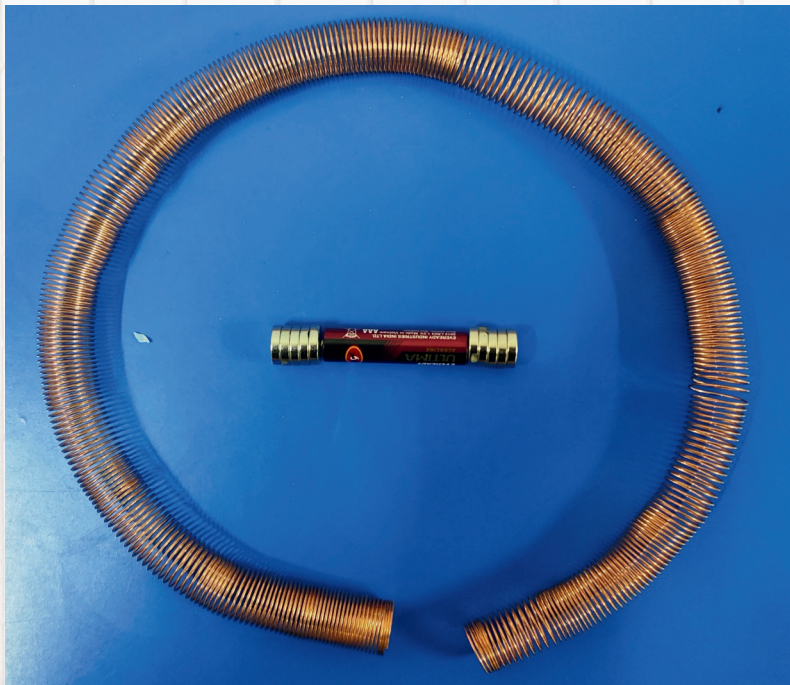
Applications include educational tools, object detection prototypes, and robotics. Future improvements could involve 360-degree coverage, advanced sensors like LiDAR, wireless communication, and machine learning integration.

**Rakesh Bangra**  
**B.Tech [CSE] 2nd year**  
**12023002001100**



# Maglev Train

A magnetic train using a magnet, battery, and copper coil is a simple demonstration of electromagnetic propulsion. The setup typically consists of a cylindrical battery with strong magnets attached at both ends and a coiled copper wire acting as a track.



When the train is placed inside the copper coil, the following occurs:

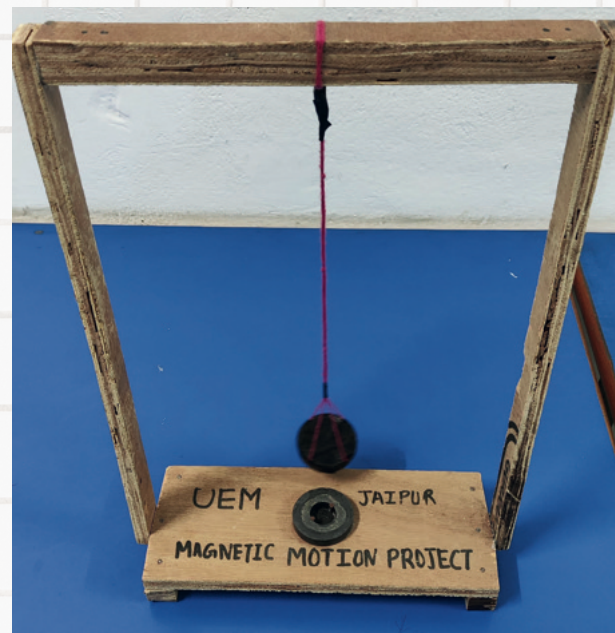
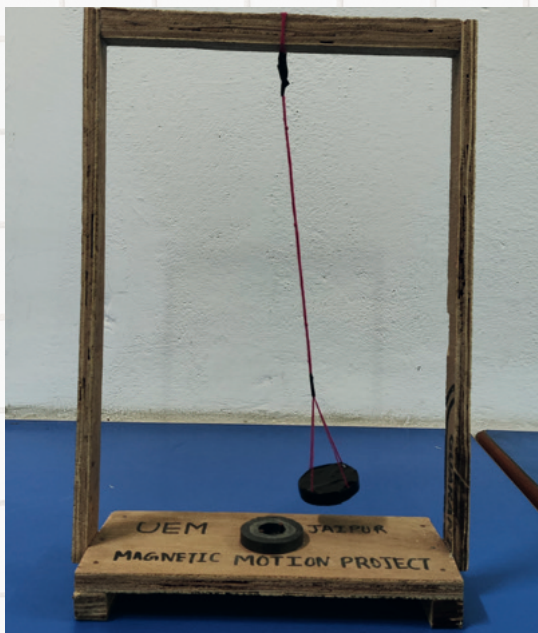
- 1. Working Principle:** The combination of the magnets and the electric current flowing through the copper coil creates an electromagnetic force. This is governed by Lorentz force, where the interaction between the magnetic field of the magnets and the current in the copper wire produces a force that propels the train forward.
- 2. Operation:** When the battery touches the copper coil, it completes a circuit, allowing current to flow through the coil. The magnets create a magnetic field that interacts with the current, generating thrust and causing the train to move through the coil.

Ashis Kumar Jha  
B.Tech [CSE] 2nd year  
12023002001065



# Magnetic pendulum

A magnetic pendulum is a pendulum with a magnet attached to its bob, swinging over a base containing one or more magnets. The interaction between the pendulum's magnet and the magnets on the base creates a fascinating and unpredictable motion, especially when multiple magnets are positioned asymmetrically.



## Working Principle:

The motion of the magnetic pendulum is governed by the combination of gravitational force, magnetic forces, and damping (like air resistance). When the pendulum swings:

1. **Gravitational Force** pulls the pendulum bob downward, creating a restoring force to maintain oscillation.
2. **Magnetic Forces** between the pendulum's magnet and the magnets on the base either attract or repel, altering the trajectory and causing chaotic or non-linear motion.
3. **Damping** gradually reduces the energy of the system, eventually bringing the pendulum to rest at a stable equilibrium point, determined by the interplay of forces.

Saurabh Kumar  
B.Tech [CSE] 2nd year  
12023002001067



# ARTICLES





# "SPECIAL FUNCTIONS: ORIGINS, PROPERTIES, AND APPLICATIONS"



Dr. Rahul Sharma  
Associate Professor, Mathematics

Special functions are a class of mathematical functions that play a crucial role in various fields, including physics, engineering, and computer science. These functions have unique properties and behaviours that make them indispensable tools for modelling and solving complex problems. In this article, we will delve into the world of special functions, exploring their definitions, properties, and applications.

Special functions, like Gamma, Bessel, Legendre, and Hypergeometric functions, are transcendental mathematical functions defined by specific formulas or equations.

Special functions have a long history, dating back to the early 17th century. In 1656, Oxford Professor John Wallis developed a theory related to the mathematical gamma function that extends the scope of the factorial function to include numbers other than integers. The gamma function was systematically investigated by Euler in the 18th century. James Bernoulli obtained a series representation of the Bessel function as a solution to a differential equation in 1703. The Bessel function, also known as the cylindrical function, was further established by German astronomer Friedrich Wilhelm Bessel around 1817 when solving one of Kepler's equations of planetary motion. Jacques Binet gave the function its name in the 19th century. The Beta function is a special case of the Gamma function when the two arguments are equal. Special functions saw significant development in Germany and France during the 18th century.

Special functions possess specific notations and properties. After Tricomi's systematic investigation of incomplete gamma functions (1950), several scientists recognized the importance of providing interesting generalizations and applications in applied sciences. Mathematicians have recently shown increased interest in these functions from both analytical and numerical perspectives due to their connection with fractional calculus.

In 1978, Mathai introduced the concept of generalized matrix transformation, which reveals various special functions when the argument is a symmetric positive definite matrix. This development has had a significant impact on the field, and the study of classical special functions with matrix arguments is expanding rapidly. Therefore, this thesis also explores incomplete forms of special functions with scalar or matrix arguments, finite sum representations of special functions, and their applications in diverse fields of mathematics and sciences.



# HOW TO GET MAXIMUM MARKS IN MATHEMATICS?



**Dr. Tarun Sharma**  
**Associate Professor, Mathematics**

Mathematics is the beauty of the sciences. It is seen that mathematics plays an important role in the field of Basic Science and technology and even in our daily life too. We can't imagine our life without mathematics. The importance of mathematics can be observed from early morning to late night activities in our daily life. Mathematics plays an important role in understanding the concept of building designing, aircraft modeling, designing of different objects and apparatus in the field of engineering and technology. Mathematics has divided into two categories such as pure mathematics and applied mathematics. Applied mathematics deals with a real-world problem, including engineering problems, innovation and development in the field of automobile industries space technology etc., whereas pure mathematics deals with the fundamentals of mathematics from ancient times to the present time. Although, pure mathematics is the foundation of all branches of mathematics. Mathematics is also considered a scoring subject in science; one can get full marks in this subject by using the following tips.

## **Tips for Scoring High Marks in Mathematics**

### **1. Preparation:**

- Revise the syllabus 2-3 times and practice regularly.
- Use standard books, teacher's notes, and focus on understanding concepts.

### **2. During the Exam:**

- Read the question paper carefully and start with comfortable questions.
- Write stepwise answers with clarity using formulas, charts, and graphs.
- Keep the answer sheet neat, highlight key steps, and avoid overwriting.

### **3. Strategies:**

- Use a pencil or multicolor pen for important points.
- Be familiar with the calculator (if allowed) and attempt tricky questions last.
- Write concise, to-the-point answers.

### **4. Smart Learning:**

- Use online resources and adopt a structured approach for better understanding.

Consistent practice and proper resources will ensure success in mathematics.



# OPERATIONAL RESEARCH: DURING WORLD WAR- II

Dr. Praphull Chhabra  
Professor, Mathematics



In order to achieve better decision-making and efficiency, a wide range of problem-solving techniques and methods are developed and used in operational research (OR). These include mathematical optimization, simulation, data envelopment analysis, expert systems, data queuing theory, Markov decision processes, econometric methods, and other stochastic-process models. Almost all of these methods entail creating mathematical models in an effort to characterize the system.

OR has close linkages to computer science and analytics because to the computational and statistical aspects of most of these subjects. When presented with a novel problem, operational researchers must decide which of these approaches best fits the system's characteristics, the improvement objectives, and time and computational power constraints. Alternatively, they must devise a brand-new approach tailored to the particular situation at hand.

During World War II, the field of operational research as we know it today emerged. "A scientific method of providing executive departments with a quantitative basis for decisions regarding the operations under their control" was the definition of operational research during World War II. Nearly a thousand men and women worked in operational research in Britain during the Second World War.

The British Army employed about 200 scientists in operational research. Throughout the war, Patrick Blackett worked for a number of different companies. He founded a squad referred to by the name "Circus" shortly before the war while working for the Royal Aircraft Establishment, which assisted in reducing in the usual amount of anti-aircraft artillery shots necessary to bring apart a hostile aircraft from over 20,000 at the outset of the siege of Britain to 4,000 in 1941.

After having interned with RAF Coastal Command in 1941 and subsequently the Admiralty shortly before 1942, Blackett headed the RAE in 1941 to sign up the Navy. Along with numerous others who became pioneers in their respective domains, Blackett's team at Coastal Command's Operational Research Section included two future Nobel prize winners.

They carried out several important assessments that benefited the military effort. Convoys were first established by Britain as a way to lessen shipping losses, but while the idea of escorting merchant ships with warships was widely acknowledged, it was not certain if smaller or larger convoys were preferable. Smaller convoys can move more quickly since they follow the slowest convoy member's speed. It was also believed that German U-boats would find it more difficult to locate small convoys.



# INFLUENCE OF COVID-19 ON INDIA'S EDUCATION SYSTEM



**Ms. Pallavi Malik**  
**Assistant Professor, Mathematics**

To counteract the loss of schooling during the epidemic, centralization and digitization were the main focuses of India's new education policy. India saw a more than threefold increase in its dropout rate—from 1.8 percent in 2018 to a startling 5.3 percent in 2020—when schools closed nationwide due to the Covid-19 outbreak. Following the epidemic, there was a sharp schooling drop in standard ok nationwide.

92% to 82% of students in all classes lost at least one specific language and arithmetic ability, respectively. For kids in grade 10, the situation was even worse: only 13% of them achieved a math score of greater than 50%. When schools shifted to using digital media, only about 27.5% of students are thought to have had access to digital devices.

Merely 15.8% of participants in virtual classes expressed satisfaction with their online learning environment. Teachers were also unprepared for interactions in a virtual marginalized groups were not able to participate in online education due to poor internet connections and a lack of access to digital equipment. Governments at the federal and state levels devised measures to enhance foundational learning through teacher training, remedial centers, bridge courses, updated textbooks and work sheets, and other means in order to make up for the losses suffered during the pandemic. The overarching theme of all these endeavors was digitization.

However, the need for digitization has resulted in a noticeable change in the role of teachers and professors. There's a growing emphasis on e-learning at a time when it should be prioritizing open communication with students, understanding their individual obstacles, and enabling them to learn at their own pace.

This change has resulted in the standardization of pedagogical content, defining not only what needs to be taught but also how quickly it has to be taught and how the progress of each student should be face-to-face interaction between the teacher and the student and undercuts the importance of discourse and involvement.



# THE ART OF DATA VISUALIZATION IN STATISTICS

**Dr. Priyanka Chhaparwal**  
Associate Professor, Mathematics



In today's data-driven world, the ability to visualize data effectively has become a crucial skill. Data visualization in statistics isn't just about making numbers look appealing; it's about telling a clear, compelling story that allows us to draw meaningful insights from complex data sets.

Data visualization helps to simplify large volumes of information into visual formats such as graphs, charts, and maps. These visual tools are not only easier to understand than raw numbers, but they also highlight trends, patterns, and relationships that may be hidden in tables of data. For instance, a line graph can reveal a trend over time, while a scatter plot can show the relationship between two variables.

The importance of data visualization goes beyond just making information accessible. In business, healthcare, economics, and various other fields, visualizations help decision-makers spot problems, opportunities, or trends quickly. Imagine reviewing an annual sales report: a simple bar chart could instantly highlight which regions or products are underperforming, making it easier to devise a strategy.

However, creating effective visualizations requires skill. The primary goal should always be clarity. A good visualization conveys its message at a glance without overwhelming the viewer. Choosing the right type of chart is also essential. For instance, bar charts work well for comparing categories, while pie charts are ideal for showing proportions.

There are several tools available to help in creating these visualizations. Software like Tableau and Excel makes it easy to generate charts, while programming languages like Python (with libraries such as Matplotlib and Seaborn) and R offer more flexibility and customization. These tools allow data scientists and statisticians to create professional, accurate visual representations that can be shared and interpreted with ease.

That said, creating a good visualization isn't without its challenges. The most significant risk is misleading or confusing the audience. For example, distorting axes or scales can misrepresent the data and lead to incorrect conclusions. It's also important to remember that while visualizations are powerful, they should focus on the insights, not just the data.

In conclusion, data visualization is both a Basic Science and an art. When done correctly, it transforms raw data into an easily digestible, insightful story. As the world becomes more data-centric, mastering the art of data visualization will continue to be an invaluable skill for anyone working with statistics.



# WORMHOLES AND BLACK HOLES: PORTALS TO THE UNKNOWN COSMOS



Dr. Arnab Palui  
Associate Professor, Physics

Black holes and wormholes are among the most intriguing and mysterious phenomena in the enormous cosmos that Einstein's theory of general relativity predicts. Wormholes are still a theoretical idea that arouses interest and conjecture, whereas black holes are well-researched astronomical phenomenon with observational data.

## **Black Holes: The Abyss of the Cosmos**

When a huge star falls due to its own gravity, a black hole is created in space where gravity is so great that light cannot escape. The event horizon, the line beyond which escape is impossible, encircles the singularity, a point of infinite density at its center. These enigmatic objects have been visually confirmed by recent discoveries, such as the Event Horizon Telescope's capture of the black hole at the center of the M87 galaxy. Galaxies are shaped by black holes, which are also responsible for high-energy events like quasars.

## **Wormholes: Space Time Shortcuts?**

Einstein-Rosen bridges, also known as wormholes, are fictitious tunnels that link far-flung areas of spacetime. Wormholes might theoretically offer shortcuts like folding a piece of paper to connect two far-off locations, enabling time travel or perhaps faster-than-light travel. Wormholes are only theoretical, though, and maintaining their stability is a major problem. A wormhole would require exotic stuff with negative energy, which has not yet been seen in nature, according to theoretical models.

## **The Point Where Fiction and Reality Collide**

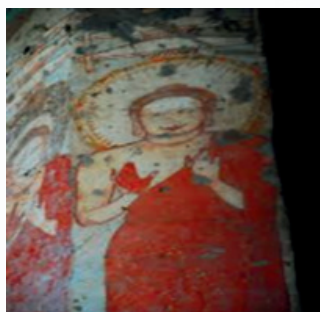
Wormholes exist in the realm of possibility, whereas black holes are based on empirical data. Both remind us of the limitless secrets of the cosmos and stimulate both scientific research and public imagination. One day, when technology develops, we might learn more about these remarkable occurrences, which could revolutionize how we perceive space-time and the universe. We are fascinated by black holes and wormholes because they challenge our understanding and entice us to imagine what might be. They are evidence humanity's never-ending pursuit of understanding cosmos, not merely theories or celestial objects.



# ORIGIN OF THE COLOUR



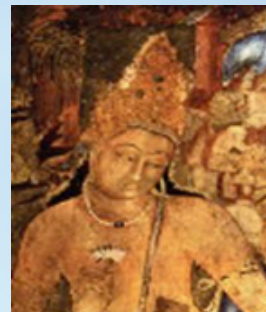
Dr. Anamika Khaskel  
Associate Professor, Chemistry



A Pitalkhora Cave Mural



Rock art at Bhimbetka



Ajanta Mural

## Synthetic Chemistry and painting

Paleolithic paintings are a type of cave art that are some of the most basic known cases of human art. Palaeolithic artists seem to have used mainly two colours although others have been found in some cave painting. One is red (which tends to be iron oxide: natural hematite or heated goethite) and another is black (charcoal or manganese oxides). These colours were natural and are known as 'pigments'. In India, Bhimbetka paintings were made from natural pigments. In 1700 first American paint mill was established by Bostonian Thomas Child.

### Origin of the colour

They developed a chemical reaction in which yellow ochre produces a new red compounds different from the natural haematite ochre or red earth. They changed hydrated iron (III) oxide to anhydrous iron (III) oxide. They were not chemists but they were conscious of chemical change and implemented it as a device.

The pigments were ground delicately. These grounds were kept into water and the heavier quartz granules sank to the bottom leaving the clay and coloured oxides in suspension. The liquid evaporated either through being left or heated leaving a deposit; the ochre pigment. Commercially, the finer the pigment grain the more expensive it would be. They are demonstrated they understood the need for controlling particle size.



# MATHS IN EVERYDAY LIFE



Mr. Manish Jangir  
Lab Technician, Physics

Mathematics is an integral part of our daily lives, influencing nearly every activity we undertake, often without us even realizing it. From the moment we wake up in the morning to the time we go to bed, math serves as an invisible yet powerful tool that helps us navigate the complexities of life with ease and precision.

When we set an alarm, we rely on math to calculate the hours of sleep we'll get and plan our day efficiently. As we move through our routines, math continues to guide us—whether we're managing time, organizing schedules, or balancing priorities.

Consider shopping, for instance. Every decision, from comparing prices to calculating discounts and adhering to a budget, is powered by math. In the kitchen, math is our trusted companion as we measure ingredients, convert units, and adjust recipes, deftly working with fractions, ratios, and proportions. Even something as simple as splitting a bill with friends requires mathematical reasoning to ensure fairness.

But math extends far beyond these everyday tasks. It is the backbone of innovation and progress in countless fields. Navigation apps that guide us to our destinations, transportation systems that keep the world connected, and banking systems that safeguard and manage our finances all operate on the principles of mathematics. Technology, science, and engineering thrive because of its precision and logic, enabling groundbreaking advancements that shape our modern world.

Mathematics is everywhere, seamlessly woven into the fabric of our lives. It empowers us to solve problems, make informed decisions, and create a better future. Often quiet and unassuming, math is the unsung hero that simplifies complexities and enhances our daily existence, making life not only easier but profoundly better.



# THE ROLE OF CATALYSTS IN CHEMICAL REACTIONS



**Mr. Kamal Kishore Kumawat**  
Lab Assistant, Chemistry

Catalysts play a vital role in chemistry by accelerating chemical reactions without undergoing permanent changes themselves. These substances lower the activation energy required for a reaction, enabling it to proceed more quickly and efficiently. Catalysts are widely used in both industrial and biological processes, making them indispensable in modern science and technology.

In industry, catalysts are key to producing essential chemicals, fuels, and materials. For example, the Haber-Bosch process uses an iron-based catalyst to synthesize ammonia, a critical component of fertilizers. Similarly, catalytic converters in automobiles use platinum or palladium to reduce harmful emissions by converting toxic gases into less harmful substances.

In biological systems, enzymes act as natural catalysts, facilitating complex biochemical reactions essential for life. For instance, amylase helps break down starch into simpler sugars, while DNA polymerase assists in DNA replication. The specificity and efficiency of enzymes have inspired research into designing synthetic catalysts that mimic their behavior.

Catalysis also plays a pivotal role in green chemistry, promoting environmentally friendly processes. By enabling reactions to occur under milder conditions, catalysts help reduce energy consumption and minimize waste production.

In conclusion, catalysts are crucial in advancing chemical research, improving industrial efficiency, and addressing environmental challenges. Their ongoing development promises significant contributions to Basic Science and sustainability.

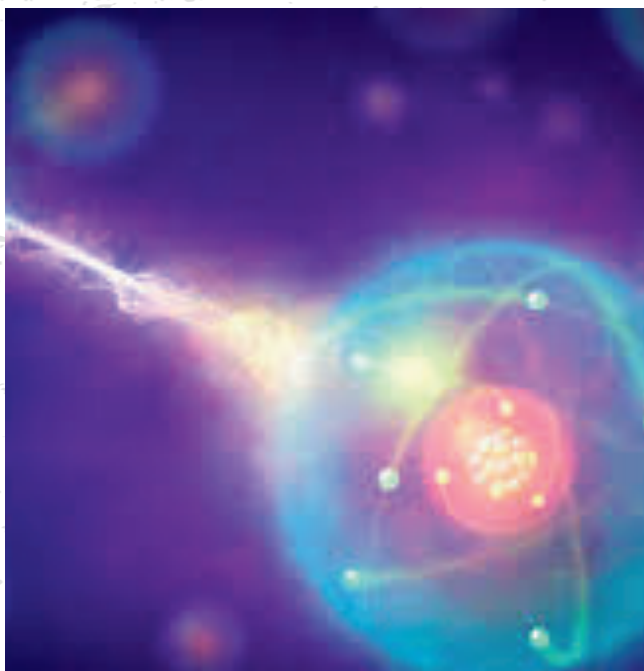


# Articles by Students

The Infinity

## THE QUANTUM REALM: A WORLD BEYOND OUR IMAGINATION”

The Ant-Man movies introduced us to the mind-blowing concept of the Quantum Realm, a mysterious subatomic world that can only be reached by shrinking to an unimaginably small size. This idea might seem like pure fantasy, but it's actually inspired by real science—quantum mechanics. As a first-year student fascinated by physics, I find this mix of Basic Science and imagination both thrilling and thought-provoking. In the films, the Quantum Realm is shown as a strange, colorful dimension where the usual rules of physics no longer apply. This ties loosely to quantum mechanics, which studies how particles behave at the atomic and subatomic levels.



The random, unpredictable movements of particles in the Quantum Realm reflect principles like quantum superposition and entanglement. However, the extreme shrinking technology shown in the movies is far beyond what scientists can achieve today. What makes the Quantum Realm even cooler is how it's used in Avengers: Endgame. The heroes use it to travel through time and space for their “time heist.” While time travel is a fascinating topic in physics, it's still mostly theoretical. Scientists have explored ideas about bending spacetime or using wormholes, but nothing like the Quantum Realm exists yet. Even though it's mostly fiction, the Quantum Realm sparks curiosity about the real-world mysteries of quantum physics. It's amazing how movies like Ant-Man can make us think about the incredible possibilities Basic Science holds for the future. Who knows? Maybe one day, the boundaries between Basic Science fiction and reality won't seem so far apart.

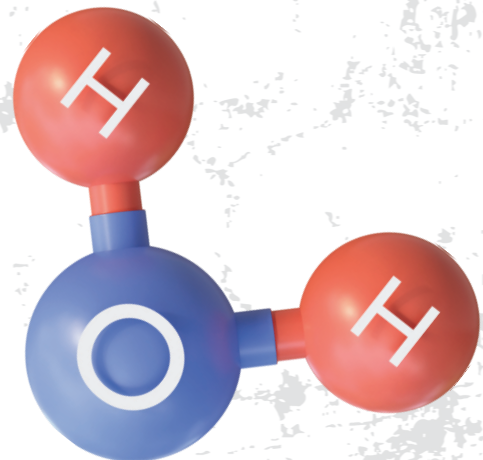
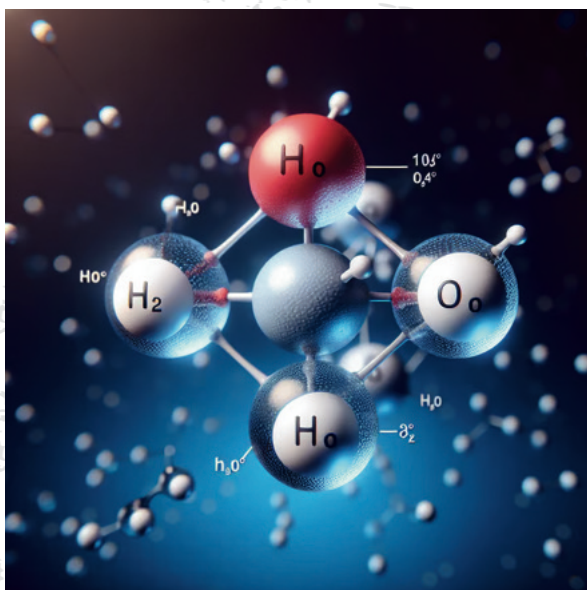
Rakesh Bangra  
B.Tech [CSE] 2nd year  
12023002001100



## THE JOURNEY OF A WATER MOLECULE

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Imagine being a tiny water molecule, drifting through the vast expanse of Earth's water cycle. Your journey is never-ending, taking you through some of the most fascinating processes on our planet. Let's follow the adventures of one such molecule, whom we'll call "Aqua," as it travels through this incredible cycle. Aqua begins its journey high in the sky, condensed in a fluffy cloud. After floating aimlessly for days, gravity pulls Aqua down as a raindrop. Splash! Aqua lands on a leaf in the middle of a dense forest. Here, it gets absorbed by the leaf and travels through the plant's veins, helping it photosynthesize by carrying essential nutrients. Eventually, sunlight warms the leaf, and Aqua evaporates back into the air, turning into water vapor.



Rising high into the atmosphere, it joins millions of other molecules in forming another cloud. This time, Aqua's journey takes a different turn—it falls as snow atop a mighty glacier in a cold, mountainous region. For years, Aqua remains locked in ice, frozen in time. But as temperatures rise, the glacier begins to melt, and Aqua is released into a rushing stream. The stream joins a river, and Aqua flows through valleys and cities, eventually reaching the vast ocean. Here, Aqua mingles with countless other molecules, moving with the ocean currents and experiencing life in the deep blue sea. But Aqua's journey doesn't stop there. The sun's heat causes it to evaporate once again, and it rises into the sky as water vapor, beginning the cycle anew. This time, it might fall as dew on a field, seep into the soil to become groundwater, or end up in a reservoir, quenching the thirst of plants, animals, or humans. So next time you see rain falling, a stream flowing, or a glass of water in your hand, think of Aqua and its remarkable journey. This humble molecule's adventure is a story of resilience, purpose, and the beauty of Earth's natural systems.

Chetan Yadav  
B.Tech [CSE] 2nd year  
12023002001034



## OPPENHEIMER: THE FATHER OF THE ATOMIC BOMB

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J. Robert Oppenheimer, a name etched in history, was a brilliant physicist whose work changed the world forever. Known as the "Father of the Atomic Bomb," he led the Manhattan Project, a top-secret U.S. initiative during World War II that developed the first nuclear weapons. Oppenheimer's legacy is a mix of scientific genius, moral conflict, and an enduring impact on modern Basic Science and global politics. Born in 1904 in New York City, Oppenheimer showed early promise in Basic Science and mathematics. He pursued his studies at prestigious institutions like Harvard University and the University of Göttingen in Germany, where he made significant contributions to quantum mechanics.



His sharp intellect and passion for physics earned him respect among his peers. During World War II, Oppenheimer was appointed as the scientific director of the Manhattan Project, headquartered in Los Alamos, New Mexico. Oppenheimer's reaction to his creation was complex. He famously quoted the Bhagavad Gita, saying, "Now I am become Death, the destroyer of worlds," reflecting his deep moral dilemma. After the war, he became a vocal advocate for controlling nuclear weapons and opposed the development of the hydrogen bomb, leading to political conflicts that tarnished his career. Despite the controversies, Oppenheimer's contributions to Basic Science are undeniable. He revolutionized theoretical physics and laid the groundwork for modern nuclear energy and quantum mechanics. His story reminds us of the dual-edged nature of scientific progress—its ability to create and destroy—and the ethical responsibilities that come with discovery. Oppenheimer's life continues to inspire and provoke reflection, especially as the world grapples with the challenges of nuclear power and weaponry. His legacy is not just that of a physicist but also of a man who faced the profound consequences of his genius.

Rakesh Bangra  
B.Tech [CSE] 2nd year  
12023002001100



## MUSIC AND THE BRAIN

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Have you ever wondered why your favorite song can instantly lift your mood or bring back a flood of memories? The answer lies in the fascinating connection between music and the brain. Music isn't just entertainment—it's a powerful stimulus that influences our emotions, cognition, and even our physical responses. When we listen to music, multiple areas of the brain are activated. The auditory cortex processes the sound, while the limbic system, which governs emotions, interprets the mood and feel of the music. A favorite tune can trigger the release of dopamine, a "feel-good" chemical associated with pleasure and reward. This is why music can make us feel euphoric or give us chills during a particularly moving moment.

Music is also closely tied to memory. The hippocampus, the brain's memory center, helps us associate songs with specific moments in our lives. This is why a melody from years ago can instantly transport us back to a particular time or place. Beyond emotions, music affects cognition. It can improve focus, boost productivity, and even aid in learning. Studies show that certain types of music, like classical or instrumental tracks, can enhance concentration and creativity. Whether it's a catchy pop song or a soothing symphony, music has a profound impact on our brain, making it a universal language of emotion and connection.

Yashasvi Chhaliya  
B.Tech [CSE] 2nd year  
12023002001082



## SPACE TOURISM

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Space tourism, once a concept reserved for science fiction, is now becoming a reality. With private companies like SpaceX, Blue Origin, and Virgin Galactic leading the way, the idea of ordinary people traveling to space is within reach. These companies have already made significant strides, launching test flights and successfully sending civilians into space, though for brief suborbital trips. Space tourism promises an exciting future, offering the opportunity to experience weightlessness, see Earth from space, and even witness spectacular views of the stars and planets. However, commercial space travel still faces several challenges.



The cost is a major barrier, with tickets for a suborbital flight currently priced at hundreds of thousands of dollars. Additionally, space tourism requires advanced technology and safety measures to protect passengers from the risks of space travel, such as high radiation levels and the harsh environment of space. The environmental impact of frequent space travel is another concern. While the technology for reusable rockets is advancing, questions remain about the ecological footprint of space tourism. Despite these hurdles, the future of space tourism is promising. As technology advances and competition increases, the cost of space travel is likely to decrease, making it more accessible to a broader audience. In the coming decades, we might see space hotels, lunar vacations, and even trips to Mars. The dream of exploring the stars could soon be a reality for many, revolutionizing travel and expanding human exploration beyond Earth.



Tanisha Jangid  
B.Tech [CSE] 2nd year  
12023002001128



# ABOUT UEM JAIPUR

UEM Jaipur was established in the year 2011 by Ordinance 11 of 2011 and Act No 5 of 2012 of Govt of Rajasthan. UEM Jaipur has achieved the awards of "Best Private University in North India" and "Best Emerging University in North India".

UEM Jaipur has been established by the IEM group, Kolkata. The IEM UEM group is an acclaimed educational group amongst the industry-centred academic training organisations of today. IEM has set sublime standards in addressing the technical and managerial resource shortage in the new era of dynamic globalisation. The IEM UEM group has risen to fame for its strong foundation in teaching and R&D in multifaceted areas. It aims to serve the future generation as well as the Nation through its commitment towards self-sufficiency and unmatched excellence.

Since its inception, the IEM UEM group has surpassed innumerable benchmarks of achievements and accreditations. Today IEM flaunts a colossal network of expansive operations led by an awe-inspiring student force who are the torchbearers of a better tomorrow.

The IEM UEM Group has opened up the doors for young minds who dare to dream. It encourages the spirit of free enquiry and imagination. In this temple of learning dreams take shape. The educational group attempts to inculcate the sense of human values and discipline students to make them respectable human beings. It encourages learners to learn, to realize their potential and inculcate the best practices.







### About Us

The Department of basic sciences at UEM Jaipur stands as a center of innovation, learning, and academic excellence. We are committed to empowering students with the foundational skills and knowledge required to excel in the rapidly evolving technological landscape. Through advanced research, experiential learning, and strong industry partnerships, we nurture curiosity, creativity, and a problem-solving mindset. Together, we are shaping the future of technology and its profound influence on society.

### About the Magazine

"The Infinity" is the official magazine of the Department of basic sciences at UEM Jaipur, dedicated to celebrating innovation, creativity, and academic excellence. Its inaugural edition, "The Infinity", serves as a dynamic platform to highlight the achievements, ideas, and aspirations of our students, faculty, and collaborators. Featuring thought-provoking articles and groundbreaking projects, the magazine embodies the spirit of curiosity and the relentless pursuit of knowledge that defines our department.