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Exploring the universe



macrocosm

Department of Physics
Kalindi College
University of Delhi



Cover Photo By

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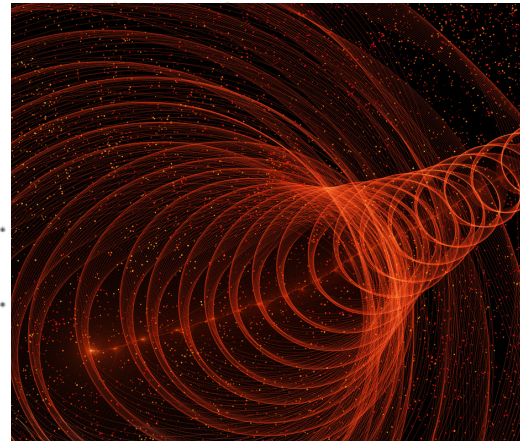
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FROM THE EDITOR

If you are a dreamer coming in for each new day is an invitation to an adventure of your own thinking

With the same thought, it gives me an immense pleasure and a great deal of satisfaction that we are releasing "The Magazine of Physics Department: Macrocosm" for the month of April.

Innovation and research helps one to explore different aspects of physics. Our Scientists play a crucial role in the advancement of technology and women in Science are making their identity felt in diverse fields of physics. Further, we can proudly say that our ancient Scriptures and Vedas are enriched with every bit of detail of our surroundings.

Through this magazine, students are allowed to hone their different skills, whether it is poem writing, content writing, photography or observing facts. Macrocosm gives an opportunity to all the students to showcase their skills to a larger audience. We motivate and cherish every effort made by each and every student to dig out their strength and weaknesses.

Macrocosm deals with different aspects of physics, from basic elements of the earth to the vast universe. Its aim is to enrich the knowledge of students related to every aspect of physics that they observe and analyze.



**CHIEF TEACHER EDITOR
Prof. PUNITA VERMA**

WHAT IF SUN DOESN'T EXIST?

Sun?

Sun is the center of our solar system, every planet, star, meteoroid, asteroids revolve around the sun, and if the day comes when the sun doesn't exist then the destruction of all planets takes place because every planet, star, meteoroid, asteroid revolving around the sun, lost the sun gravitational pull and distracts from its usual path and may collide with each other and lead to the destruction of the solar system. Sun is itself called the sun because it is hot and not every object can reach the surface of the sun. (the sun is like a big boss of all the solar system).

Sunlight is one of the most necessary sources of energy for the earth. A tree needs sunlight for its growth, making food, and oxygen. While small organisms, animals, birds, etc. also require sunlight for their development and growth. Now, let's think about what will happen if the sun disappears from our life-then all the photosynthesis plants and organisms would die, and then the animals who depend upon plants for their food also start dying, including humans too because some humans also depend upon the plants and trees for their food. Without the sun's energy earth, like the planet " Pluto", sunlight will never be able to reach the planet Pluto because of that it is called a "cold planet", "ice mountains". Like this earth without sun will freeze.

Without the sun, within a few days earth temperature would fall down and in the one-month oceans or sea would freeze, and then there would be no water left in a liquid state and no rainfall.

Humans may live without sun for one week or maybe 3 months but not far from this because till then, humans have nothing left to eat and drink. And in that freezing environment our body will give up and all will die.

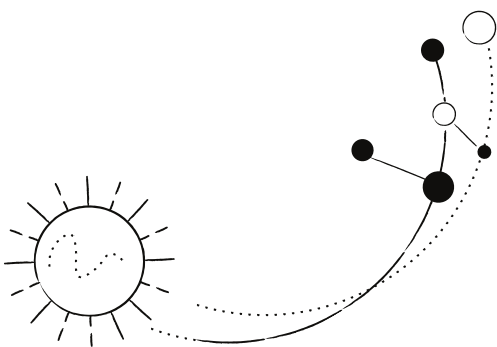
Priyanka

B.Sc. (H) Physics 2nd year

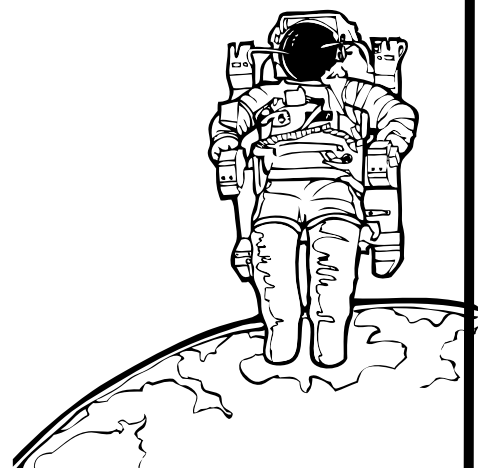
SCIENCE MAKES IT BEAUTIFUL

In everyday life work, energy, the power I need. The motion of the system of particles goes on in on with me as our life is full of push and pulls. At night “I look up in the sky the beautiful stars shine, and the moon shines like shining from its own light. In the morning I wake up feeling the heatwave from the sun. But the sun's rays can't affect me as we are protected by the ozone layer.

What makes one feel safe”. But people can't understand making the beautiful earth polluted. And keep on going on in on. So, come you got it right let's focus, and if it's hard for you to focus or to get the clear vision get lenses. So that we can protect the creativity and beauty of our environment, world. So, everyone gets attracted to the magnetic effect of nature and the science involved in it. Let's get oscillation and resonance in our work so that we don't need to get stressed. And follow the motion of your life. As you can see everything is related to science so build your potential and notice everything around you and how life would be without science which makes it understandable and reasonable to us.



Tanu Bhati
B.Sc. (H) Physics 2nd year



SCIENCE AND FASHION



Fashion could be a special combination of commerce, science, art, and technology. Science plays a big part in the development of fashion apparel and accessories, as seen by historical examples. It's not a disorganized business of clothing and colors thrown together haphazardly, but a well-organized industry driven by science, from marketing research to weaving, printing, dyeing, pattern creating, branding, and labeling, scientific invention supports artists' continuity.

When we dress daily, we generally don't give much thought to how our clothes and shoes are created. However, physics-based technology is applied within the fabrication of the many mass-produced clothes. There are numerous intrinsic design concepts within the garment industry that demand a singular technical skillset to provide for the body. The creation of 3D shapes surrounding the body necessitates an excellent deal of math and engineering. Technical knowledge is required for specific varieties of clothing supported functional requirements. So Science plays a very important role within the rag trade.

Let's discuss what occurs when science and fashion collide. Descience, an initiative that mixes the worlds of science and fashion, was one of all the foremost promising ventures of 2014. It cleverly intertwined two creative fields to administer birth to de science: a trial that unites the worlds of science and fashion.

Descience brings research to the runway and fosters collaboration between designers and scientists, providing a forum for both young designers and advanced research. Fashion will aid science by giving a brand new vocabulary for public outreach, while science will provide fashion with a brand new source of inspiration.

This is a hotly debated topic within the scientific community. There are numerous perspectives from which to debate fashion science and the way it's affecting the style industry's makeup. With the acknowledgment of the discipline required in integrating clothing and subject, the fragile line between fashion tech and fashion science becomes increasingly apparent.

Ashu

B.Sc. (H) Physics 2nd year

A COLLOQUY WITH

D R . S E E M A G U P T A

1. You have so many years experience of teaching in the physics field. What was that first moment when you realise that you want to go forward with this career? Is it like a childhood dream or the situations and opportunities are the one that ends you in this profession?

I wanted to be a doctor but as the circumstances happen I choose physics for my further studies. I like physics always. I liked teaching from the very first so after my medical studies were over I wanted to be a lecturer only.

2. In this long journey, you are coming across different students from different backgrounds, and understanding levels. Where are your observations regarding the transformation graph in the behavior and attitude?

In the past, students were not confident they had limited sources, knowledge, and opportunity and were not able to think about their carrier but now there is a dramatic change in students for their carrier participation and they know what they wanted to do in their life and cleared about their goals.

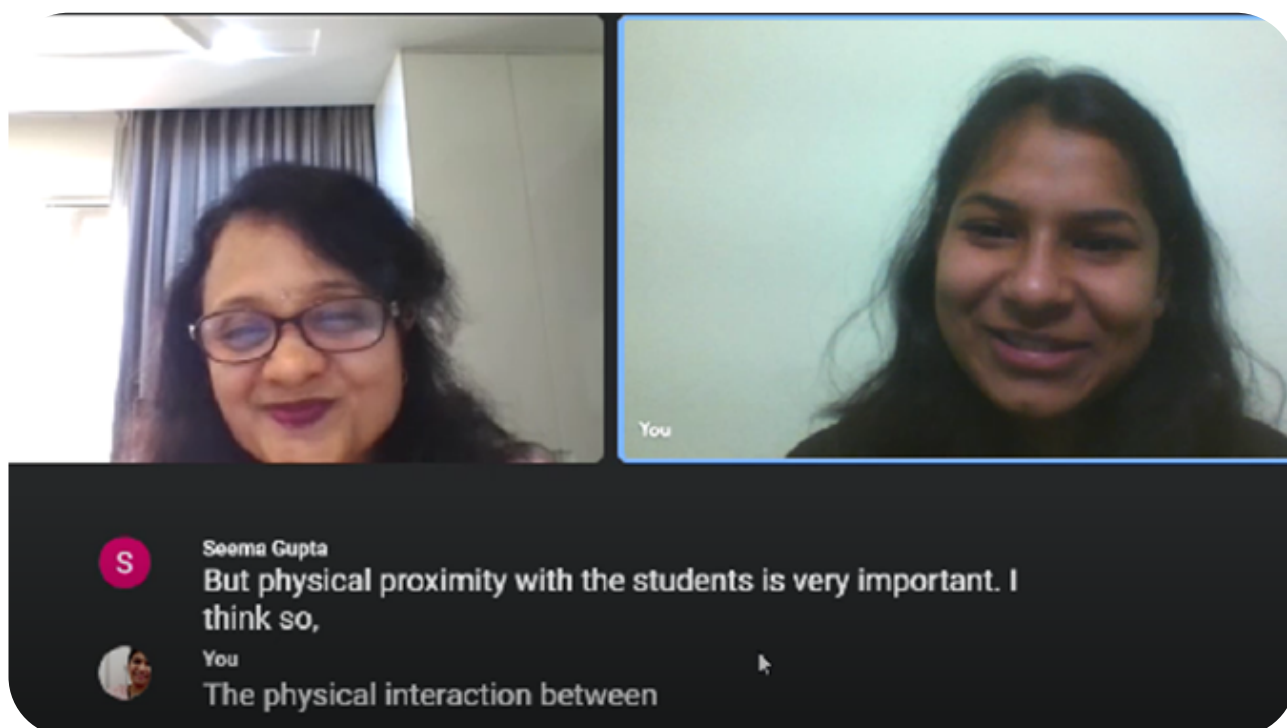
3. Students are more attracted to abroad universities rather than Indian universities. What is your take on it? What facilities do India lack w.r.t. abroad curriculum pattern?

Higher education outside India is indeed looked at privilege by many of us. I feel like our education system is a little stereotyped. And like the flexibility to choose the subject to the carrier to new advance, so that why students go more towards the abroad. But I think now when a new education policy is coming so things are expected to get improved. Now the students will find more flexibility in choosing the subjects they want to study like earlier when we choose physics for us, we only study physics all the years. But with a new education policy, there may be a change in physics, you can also study music, economics and more, this open new opportunity and different ways or carrier opportunity for you. Now, this is not the thing that if you choose physics then you will be a physicist only. So I think that attracts the students. We cant say that they have more facilities than us but, the number of students for higher studies is more in India than in other countries so we somewhere lack facilities. higher studies are cheaper here so they can avail to everyone. So this is the advantage of studying higher education in India.

FLASHBACKS OF DR. SEEMA GUPTA

4. As we all know, the COVID scenario has changed the offline study mode to online. According to your observations, what are the changes in tuning with students while teaching or in any other interactions?

The pandemic situation is a drastic side effect of teaching and learning although we might have tried our best to cope with the situations by introducing online teaching on different online modes or applications for me nothing can replace classroom teaching or the offline teaching, physical mode of teaching is best for me. Physical proximity is very important because seeing their faces and making eye contact tell us they are getting the concept or not. In teaching online I don't know whether the students are listening or not but I also was not sure because they were not in front of me and only one or two students responds. So when I came back to the physical mode of teaching for the first time after 2 years, I enjoyed teaching. I don't say to do blackboard teaching all the time, teaching methods in a class can be different but the interaction between student and teacher is very important. But at the pandemic time, it was a boon for the students to study online. First of all, I bought an iPad for teaching because the first when pandemic started in 2020. We were asked to take online classes, give a presentation, e material to the students. So I prepared ppt for students and at that time I learned so many things, I works one note, we were not used to these things in starting so I took help from family member and colleagues. I like the ppt so I another one on other topics this was the beginning of the pandemic. we didn't know that this pandemic lasted for this long so in the next semester we were asked to teach online, so I bought a whiteboard and then an iPad for teaching but used to teach them as I was used to teaching in physical mode.

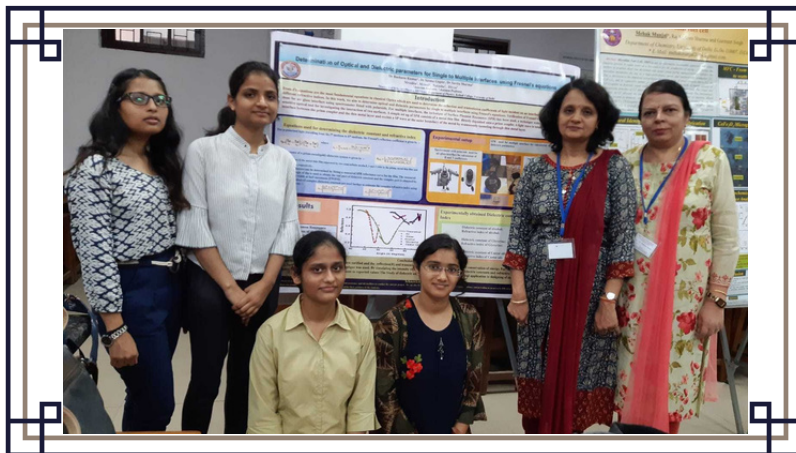


FLASHBACKS OF DR. SEEMA GUPTA

5. There are more changes is introduced in the physics subjects, like sec paper dse and much more for the students for more opportunities how you describe this. Is it a good way for the students .?

It's better to increase the boundary of knowledge, at that time when I used to study physics there was only typical subject was there like optics, solid physics electronics, mechanics, quantum physics, etc. three subjects we used to study every year, but now the more subjects are introduced you are studying nanotechnology which is hot a topic in this era and intro used so many dse papers to increase their practical knowledge and can do better in their carrier along with all the conventional subjects.





6. How did you manage the things when the pandemic came up, both the house and work, the stress, and the mental health.?

In the starting I felt it is very difficult to do all the things online, We suffer from headaches eye pain back pain sitting the whole day in front of the camera but my colleagues helped me. We organized so many activities. Teacher workshop, lab staff workshop, and everyone participated and we all are started enjoying also, but sitting at home you have to manage both home and work, the traveling time was save but we missed the physical interaction with each other. But we did more activities in the online mode because there was less work, the poster can be created online and shared and everything was manageable at some point. Also, the physithon society of our department managed organized so many activities. but staying at home at that time was necessary for us. now when I am coming to the college I am enjoying doing my work.

7. After breaking apart of the system society into cs sattva the computer science society and physithon the physics society, we never organized any event online or never get the chance to organize anything in the physical mode because the pandemic came up. But the society manages somehow to manage the decorame of the de department is the society stand on the expectation of the department.?

I think they can do both online and offline events very well, you all organized all the activities and decoration in a short duration of time. The only thing that is lacking here is participation in the events.

as the office bearers, I will appreciate their work in both modes online as well offline modes they can do anything wonderfully.

8. Before ending, what are the suggestions or advice you would like to give to present students?

As a guide and mentor, my advice to students would be to always true to yourself, be passionate in whatever you do, and always believe in yourself, your capabilities, and uniqueness, and then nothing can stop you from achieving your goal.

KAVACH

Kavach is India's very own automatic indigenous train collision avoidance system(TCAS) also known as the train protection system is launched for helping railways to attain the goal of zero accidents.

In 2012, under the train collision advance system India's automatic train protection system started to avoid collisions and provide protection by preventing trains from passing the signal danger.

It is a system that activates the train braking system automatically if the driver fails to control the train as per the speed restrictions. It is a set of electronic devices and radio frequency identification devices installed in locomotives, on the tracks as well as signaling systems. based on logic programming in it they connect to each other using ultra-high radio frequencies to control the brakes of the train and also alert the loco pilot.

Aspects of kavach-

To make it useful for loco pilots the devices also continuously relay the signals ahead to the locomotive, especially during dense fog.

It includes the key elements from already existing, tried, and tested systems like the European train protection and warning system and the indigenous anti-collision device.

safety integrity level 4: the current form of kavach adheres to the highest level of safety and reliability standards.

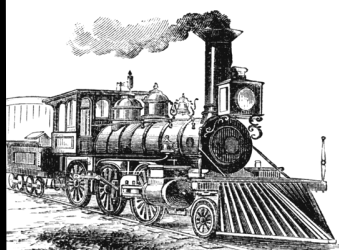
What is all new about kavach?

In the new avatar, India wants to make “armor” an exportable system.

India wants to position kavach as a cheaper alternative to the European systems in vogue across the world.

As now kavach or armour uses ultra high frequency, work is on to make it compatible with 4g long term evolution (lte) technology and make the product for global markets.

India wants to make it compatible with other already installed systems globally.



Kanak

B.Sc. Physical Science 1st year

Ancient Footprints About Gravitational force

Around 1665 or 1666 Isaac Newton was sitting under an apple tree, then suddenly an apple fall on his head and he realized something and proposed a theory name “ gravitational force” theory.

(A) Rig Veda 1.6.5, Rig Veda 8.12.30

“O God, You have created this Sun. You possess infinite power. You’re holding the sun and other planets and render them steadfast by the power of attraction.

(A) Yugur Veda 33.43

“The sun revolves in its own orbit in the space and taking along with itself the celestial bodies like earth and other planets through force of attraction”.

(B) Rig Veda 1.35.9

“The sun moves in its own orbit however holding earth and the other heavenly bodies in a manner that they do not run into one another through force of attraction.

(C) Rig Veda 1.164.13

“Sun moves in its orbit that itself is moving. Earth and other planets move around the sun due to the force of attraction between sun and the other planets, this is because sun is heavier than those planets”.

(d) Atharva Veda 4.11.1

“The sun has hold the earth and other planets”.

Kanak

B.Sc. Physical Science 1st year

VIKRAM SARABHAI

“....my friend Vikram Sarabhai who often said to me: When you stand above the crowd, you must be ready to have stones thrown at you.”



Dr. Vikram Ambalal Sarabhai was born in Ahmedabad on August 12, 1911. He is known around the world as the "Father of India's Space Program." He just received his primary schooling in Ahmedabad. He went to England in 1938. He only completed his studies at Gujarat College in Ahmedabad. He moved to England in 1938. He graduated from Cambridge University with a degree in physics and passed the Tripos exams. Because of the outbreak of World War I, they were unable to stay and study further, and they returned to India.

Dr. Sarabhai began his career at Bangalore's Indian Institute of Science. He got along with Dr. Chandrasekhar Venkataraman and Dr. Homi Jahangir Bhabha, two well-known scientists. Vikram was working with them on a research project. These three renowned scientists astounded foreign scientists with their own discoveries in this way.

Dr. Vikram Ambalal Sarabhai conducted extensive research on cosmic rays. This was their significant discovery: what are the changes in cosmic rays, in what situations, and why they are.

They have to conduct the study at the weather forecasting center for this. The Himalayan highlands were also visited in order to examine these rays.

Cosmic rays are sometimes known as space rays or cosmic rays. It's important to note that these rays are extremely fine and sharp. Is it tough to comprehend these rays? Dr. Sarabhai, on the other hand, was acutely aware of the rays.

They returned to England after World War II ended and peace had been achieved around the world. He graduated from Cambridge University with a D.C. I took on the title. He returned to India after that.

Dr. Vikram Sarabhai founded the Physical Research Center in Ahmedabad, where he later became Director and Professor.

He received the Shanti Swarup Bhatnagar Award in 1962, the Padma Bhushan in 1966, and the posthumous Padma Vibhushan for his great efforts and achievements.

His contribution to the realm of space exploration is significant. Mr. Harikota rocket thrust centre was founded by him.

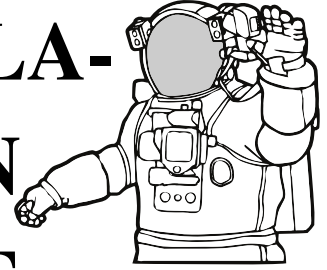
On December 20, 1971, this brilliant scientist passed away.



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Web series on Life of Vikram Sarabhai

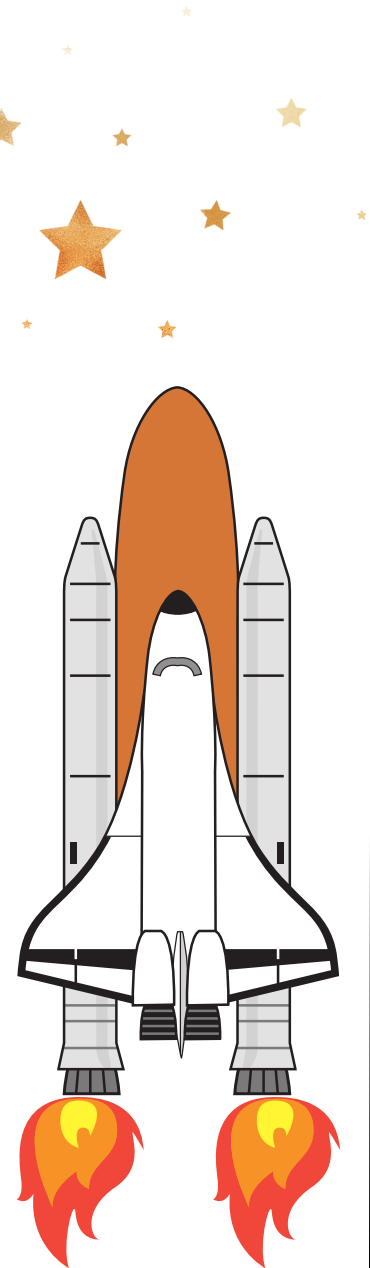
DR. KALPANA CHAWLA- THE GREAT INDIAN WOMAN SCIENTIST



"The path from dreams to success does exist. May you have the vision to find it, the courage to get on to it, and the perseverance to follow it." -Kalpana Chawla

Kalpana Chawla was born in Karnal, India, within the farming state of Haryana, 75 miles from the Indian capital, India's capital city, on July 1, 1961. Banarsi Lal Chawla, her father, laboured at a range of weird jobs until starting his own box manufacturing company. Kalpana was born in Karnal, a tiny low town within the state of Haryana. additionally, she completed her primary education at a close-by school. Kalpana has always been a hard-working student. Furthermore, she excelled in her studies. Kalpana visited the college for graduation after finishing her schooling. She was accepted to Punjab University. She was accepted into the Aeronautical Engineering program. Dr. Kalpana Chawla was India's first spacewoman. It had been a dream shared by many Indians, but only Kalpana was able to realize it. She had many objectives in mind when she was a baby. Furthermore, she has always been fascinated by airplanes, and as a result, she majored in aviation engineering. In addition, Kalpana was a patient and hardworking woman. and she or he proved that if you set your heart and soul into your profession, nothing is impossible. Kalpana , in keeping with her tutors, has always been fascinated by science. She also aspired to travel into space. As a result, she has only ever wanted to be an astronaut. despite the actual fact that it's an awfully challenging field. Chawla began working for NASA in 1988, shortly after receiving her Ph.D. Her study focused on vertical and/or short-take-off (V/STOL) concepts using computational fluid dynamics. She became VP and Research Scientist at Overset Methods, Inc. in 1993, specialising in computational simulations of moving multiple-body difficulties. Chawla was chosen as an astronaut candidate in 1994. She worked with Robotic Situational Awareness Displays and evaluated software for the space shuttles after a year of coaching as a crew representative for the Astronaut Office EVA/Robotics and Computer Branches. She formally joined NASA's "Astronaut Corps" in March 1995, something she could only do after becoming a naturalised US citizen in April 1991; systemic racism reared its ugly head within the undeniable fact that it took her three years to become a US citizen after relocating to the US.

Kalpana was chosen for her first space journey in 1996, and her mission began on November 17th, 1997, as a part of the six-astronaut crew of the ballistic capsule Columbia STS-87. She was the primary Indian woman to fly in space as a result of her participation in the mission. Kalpana spent nearly 372 hours in space on her maiden mission, covering a distance of over 10.4 million miles. Following the successful completion of the trip, Kalpana was assigned to technical posts within the astronaut office to figure aboard the orbiter. Kalpana was chosen for her second space vehicle mission in 2000, as a part of the crew of STS-107, the 113th and final flight of space vehicle Columbia. STS-107 initiated orbit around spacecraft Columbia on January 16, 2003, where the crew conducted approximately 80 experiments in earth and space science and advanced technology development, with Kalpana serving jointly of the Mission Specialists. Because of a bit of froth insulation coming far away from the external tank during the launch, ballistic capsule Columbia was destroyed over Texas on February 1st, 2003, killing all seven crew members just twelve minutes from the touchdown. The damage caused by the re-entry of Columbia into Earth's atmosphere allowed heated atmospheric gases to infiltrate the warmth shield and destroy the inside wing structure, causing the spacecraft to become unstable and break apart. Chawla had been in space for 30 days, 14 hours, and 54 minutes. Her body was cremated and her ashes were spread at a park in Utah, in accordance with her desires and Hindu origin. Asteroid 51826 Kalpana Chawla, one of seven named after Columbia's crew, was named after her. On February 5, 2003, India's Prime Minister stated that the MetSat satellite series would be renamed "Kalpana." The primary satellite within the series, "MetSat-1," was renamed "Kalpana-1" after India launched it on September 12, 2002.





In her honour, 74th Street in Jackson Heights, Queens, has been renamed "Kalpana Chawla Way." She was posthumously awarded the Congressional Space Medal of Honour, which is given to "any astronaut who has distinguished themselves by extraordinarily meritorious efforts and services to the welfare of the state and mankind while performing their duties." it's the very best honour that NASA bestows. The National Aeronautics and Orbit Administration (NASA) has named a spaceship after Kalpana Chawla, an Indian-American astronaut who died in space. The death of Kalpana Chawla caused anguish in Indians' hearts. Nonetheless, she is going to still be a source of inspiration for all Indian women. She became a job model for all kids. The youth who have always aspired to attain greatness in their lives. Furthermore, it sends a message that we must always not be limited by our surroundings.

Tannu Rani
B.Sc. (H) Physics 3rd year

PSLV-C52/EOS-04 MISSION

The primary launch of 2022 passed on 14 February at 06:17 hours IST India's Polar Satellite Launch Vehicle PSLV-C52 launched Earth Observation Satellite EOS-04 into an intended sun-synchronous polar orbit of 529 km altitude from SDSC (Satish Dhawan space center), SHAR, Sriharikota. PSLV took faraway from SHAR's first launch pad at 05:59 IST. This was the 80th launch vehicle mission from Sriharikota's SDSC SHAR; the 54th PSLV flight; and also, the 23rd PSLV flight within the XL version. The EOS-04 satellite is constructed at the U R Rao Satellite Centre in Bengaluru. It is a Radar Imaging Satellite that's aimed to deliver high-quality photos in all weather conditions for applications including agriculture, forestry, and plantations, additionally as soil moisture and hydrology and flood mapping. It generates 1710 kg of power. It has a mission lifetime of ten years and generates 2280 W of power. EOS-04 shared the ride with two small satellites a student satellite (INSPIREsat-1) from the Indian Institute of Space Science & Technology (IIST) in association with the Laboratory of Atmospheric & Space Physics at the University of Colorado, Boulder, and a technology demonstrator satellite (INS-2TD) from ISRO, which might be a precursor to India-Bhutan Joint Satellite (INS-2B). Co-passenger satellites were successfully separated from the PSLV as per their precalculated order.



Lavanya Sorout
B.Sc. (H.) Physics 2nd year



MAGNETIC RECONNECTION

The study of magnetic reconnection has made progress thanks to a West Virginia University postdoctoral fellow in the Department of Physics and Astronomy. In this way, Protection is provided to Earth's satellites and power grids from space storms.

A laser diagnostic is used by Shi for his experiment to probe plasma. Electrons scatter the light from laser beams aimed at the inside of the diagnostic. We can gain insight into how electrons move by observing the scattering of light. And due to the fact, the plasma is more than 10,000 degrees Fahrenheit, the lasers permit measuring debris without using a probe or a thermometer which could melt at such high temperatures.

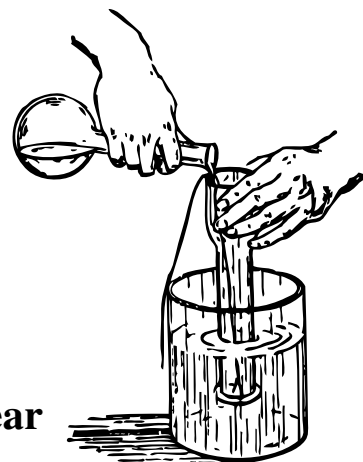
Space weather predictions have been greatly impacted by this research. Plasma eruptions in the sun are mainly triggered by magnetic reconnection. These eruptions can generate harmful X-rays and ultraviolet emissions, posing a threat to astronauts aboard the International Space Station. Large masses of plasma can also be generated by these eruptions, which travel through space and strike the magnetosphere of the Earth. These space storms can wreak havoc on satellite and power grid systems on Earth.

Lavanya Sorout
B.Sc. (H) Physics 2nd year

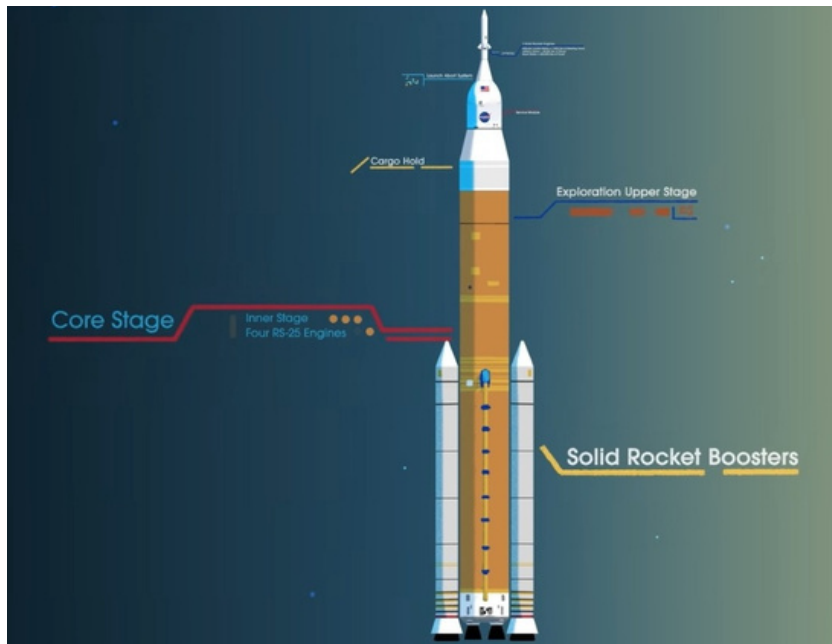
Hyper crosslinked porous organic polymers' (HPOPs)

IISER Bhopal has developed such kinds of polymers which will remove highly polar organic micropollutants (POMs) from water, making it safe for consumption, named 'Hyper-cross linked Porous Organic Polymers' (HPOPs). The research was done by Abhijit Patra (Associate professor, Dept. of Chemistry, IISER Bhopal) within the functional material laboratory of the Institute. And therefore the project was funded under the 'Centre for Sustainable Treatment, Reuse and Management for Efficient, Affordable and Synergistic solutions for Water' (WATER-IC for SUTRAM of EASY WATER) first blown by the Department of Science and Technology, Government of India. These organic polymers are tested for polar organic micropollutants removal at a laboratory scale. A teaspoon of the powder of those polymers will cover an interior extent of 1,000-2,000 m²/g, which is near 10 tennis courts. And if these polymers are developed on an outsized scale unitedly with industrial partners, it'll open up avenues for real-time.

Lavanya Sorout
B.Sc. (H.) Physics 2nd year



NASA's ARTEMIS



After 6 out of 9, successful missions allowed 12 men to walk on the lunar surface. NASA is all set to open its new chapter of lunar exploration, ARTEMIS in 2024. It has been tested for the task of not only going to the moon or creating a long-term human presence on and around it but also preparing for even more complex human missions to Mars. To give a launch to Mars, they need to first calculate each and everything for the moon.

If we talk about the structure of ARTEMIS, the design is totally approved by keeping in mind the astronauts. Their deep spaced human-rated spacecraft called ORION, was built-in 3 parts:

The crew module, where 4 astronauts will live and work throughout.

The service module, with a life support system for that crew and its own engine and fuel reserves.

Launch abort system, with engines capable of pulling the crew module to safety during launch and to accomplish the task of launching our crew and heavy payloads.

A space launch system consists of a cargo hold, an exploration upper stage, a massive core stage, and 2 extended solid rocket boosters. Altogether, this is the world's most powerful rocket exceeding the legendary Saturn V of the Apollo era. Its fuel only weighs 5.2M pounds out of 6M pounds of the entire rocket.

With each successful mission, ARTEMIS will assure the next wave of men and women to explore our moon and proves that TOGETHER we are ready to go beyond.

Lavanya Sorout

B.Sc. (H.) Physics 2nd year

Nanomaterials And Applications

Nanomaterials and Applications is a new DSE paper that has been added to the B.Sc (H) Physics 3 year syllabus for the class of 2019-2022 in Kalindi College, University of Delhi. This stage is being performed in order to gain a fundamental concept and knowledge of the rapidly growing topic of Nanotechnology.

Nanoscience and nanotechnology are revolutionizing our understanding of nearly all natural phenomena. It is the most promising area of future research. It necessitates a thorough understanding of all features of the things to which it has access.

Students will learn about nanomaterials, their numerous synthesis techniques, structures, and surface morphologies, diverse properties of nanomaterials such as optical, electric, and magnetic properties, and different ways of electron transport, as well as many applications in the field.

Nanoscience is the study of processes and manipulations of materials at the atomic scale, with a minimum size of 1nm. The scale of a nanometer is 1nm to 100nm. Furthermore, a nanometer is one billionth of a meter. "Nanoscale designing, characterizing, and producing structures, devices, and systems by controlling shape and size for their applications in various fields" is defined as "nanoscale designing, characterizing, and producing structures, devices, and systems by controlling shape and size for their applications in various fields." Nanomaterials' physical, chemical, and mechanical properties, such as huge surface area, small size, and so on, have a wide range of applications in domains such as electronics, optoelectronics, and molecular electronics. Even after witnessing the revolutionary shift in the usage of nanomaterials in many aspects of life to make life easier in terms of technology, it wouldn't be incorrect to conclude that future generation electronics are projected to be driven by nanotechnology.

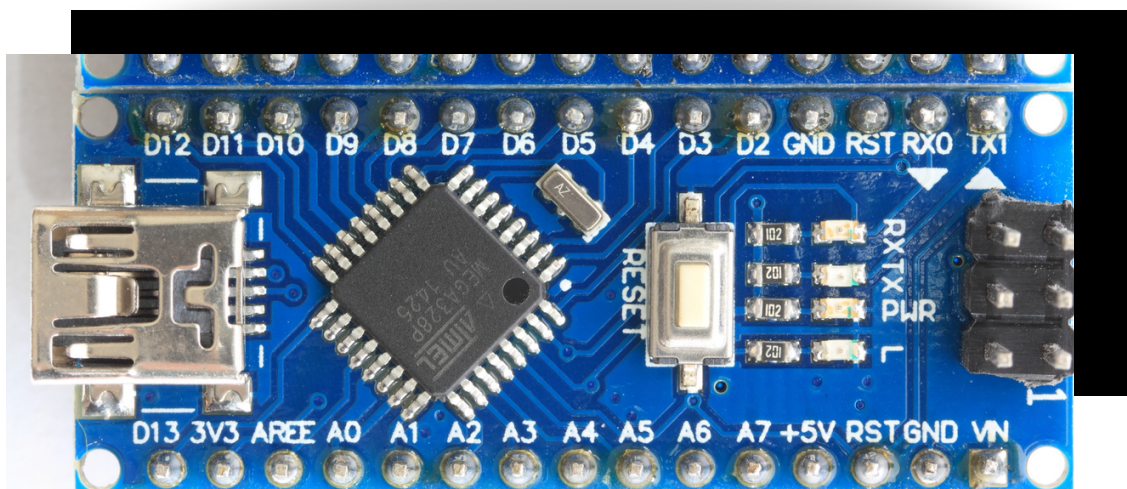
Nanomaterials are objects with at least one nanometer-scale dimension. Nanomaterials are divided into two categories. One is "non-intentionally created nanomaterials," which are naturally present in the environment in nanoscales, such as proteins, viruses, and other microorganisms. Another type of nanomaterial is "intentionally generated nanomaterials," which are made using particular synthesis procedures. We see matter at the bulk level, but as we progress to the nanoscale, the properties of materials change dramatically in many ways.

Nanoscience is "interdisciplinary" in that it incorporates concepts from a variety of fields, including chemistry, physics, biology, and others. It is "horizontal" in that it crosses various industries and "enabling" in that it provides a platform and means for specific devices and tools.

Although nanoscience is typically regarded as futuristic science, it is the foundation for the vast majority of systems in the living and mineral worlds. Nature offers good answers to a variety of nanostructures-related issues.

With the advancement of analytical instruments, all of these structures are being examined, resulting in a plethora of nanoscience and nanotechnology studies.

This paper is presented to students to help them grasp a few concepts of nanotechnology so that they can get new knowledge and broaden their perspectives in their future occupations.



Tannu Rani

B.Sc. (H) Physics 3rd year

WORD SEARCH

Search the words related to Nanomaterial and Nanotechnology. The words are only placed downwards or across.

I	D	F	G	A	T	R	E	S	D	G	J	M	L	M
H	Z	F	C	O	N	F	I	N	E	D	Q	Y	T	D
O	N	C	F	I	N	C	D	H	K	I	A	H	R	C
P	D	I	F	T	A	C	L	S	B	F	Z	F	A	G
Q	A	I	S	H	I	O	N	F	G	F	W	B	N	T
U	Q	O	Q	A	D	M	A	V	C	R	S	H	S	R
A	V	K	C	H	D	A	N	H	G	A	X	J	F	S
N	I	G	N	I	B	V	O	Y	D	C	R	U	E	E
T	O	Z	T	M	L	N	S	P	U	T	T	E	R	T
U	H	D	D	D	N	S	C	D	R	I	F	N	I	U
M	T	J	C	B	U	H	A	I	F	O	V	K	S	K
Q	F	Y	V	Y	P	U	L	S	A	N	T	I	P	N
U	D	X	G	C	V	U	E	U	F	H	G	K	S	O
M	I	C	R	O	S	C	O	P	Y	D	V	I	X	V
C	F	F	H	N	R	T	Y	O	P	T	I	C	A	L

Words Hidden:

1. NANOSCALE
2. CONFINED
3. SPUTTER
4. MICROSCOPY
5. DIFFRACTION
6. QUANTUM

1. OPTICAL
2. TRANSFER
3. CNT



Ipsa

B.Sc. (H) Physics 3rd year

NATIONAL SCIENCE DAY 'VIGYANOTSAV'



National Science Day (NSD) is celebrated every year on February 28 in India, to mark the remarkable work of Indian physicist CV Raman in the field of light scattering .The theme of National Science Day 2022 is ‘Integrated Approach in Science and Technology for a Sustainable Future’.

In view of this Physithon, the Physics Society of Kalindi College celebrated 'National science day ‘-VIGYANOTSAV on 28th February 2022 . Celebration includes various interdepartmental competitions and fun activities. It was the first offline event after 2 years of pandemic which was a new and great learning experience for many of the participants as well as for the society members. The event started with a Technical writing competition- ‘ Vigyan vichar' then some fun activities were organised . Then a paper presentation competition – ‘ Vigyan Manthan' was organised . Participants gave an outstanding performance. At last ‘Vigyan Chitran' – painting competition was held. Participants were full of enthusiasm throughout the event. Event ends with a prize distribution ceremony. Winners of each competition were announced and awarded by teachers. Physithon society office bearers and volunteers who organised the event were introduced . On this auspicious day of science, the magazine of physics department- 'Macrocosm' for the February month was launched.

VIGYAN VICHAR

An Intra-departmental technical essay writing competition- 'VIGYAN VICHAR' was organized on 28th February 2022, by the Physithon Society, Physics society of Kalindi college. It was coordinated by Dr. Mazhar Ali. All-year students of Bsc(H) physics and Bsc physical science participated in the event. Topics for the event were provided on the spot and participants had to select only one topic from the given ten topics and write a technical essay on it. Students participated with great enthusiasm. The topics were very interesting and allowed the participants to use their imagination to the fullest.



VIGYAN CHITRAN

An Intra-departmental paper presentation competition- 'VIGYAN CHITRAN' was organised on 28th February 2022, by Physithon Society, Physics society of Kalindi college. It was coordinated by Dr. Mazhar Ali. All year students of Bsc(H) physics and Bsc physical science participated in the event. Participants were given four topics from which they had to choose one and make a poster on it. All paintings were very beautiful, remarking on their art + scientific skills. Students participated with great enthusiasm. The topics were very interesting and allowed the participants to enhance their thinking and art skills.



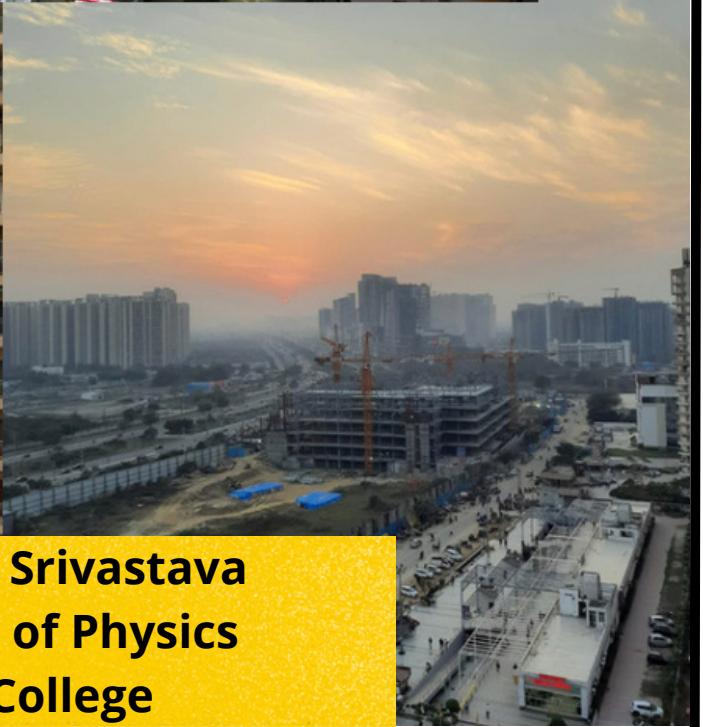
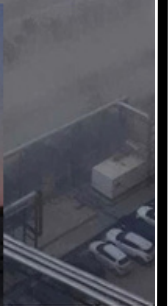
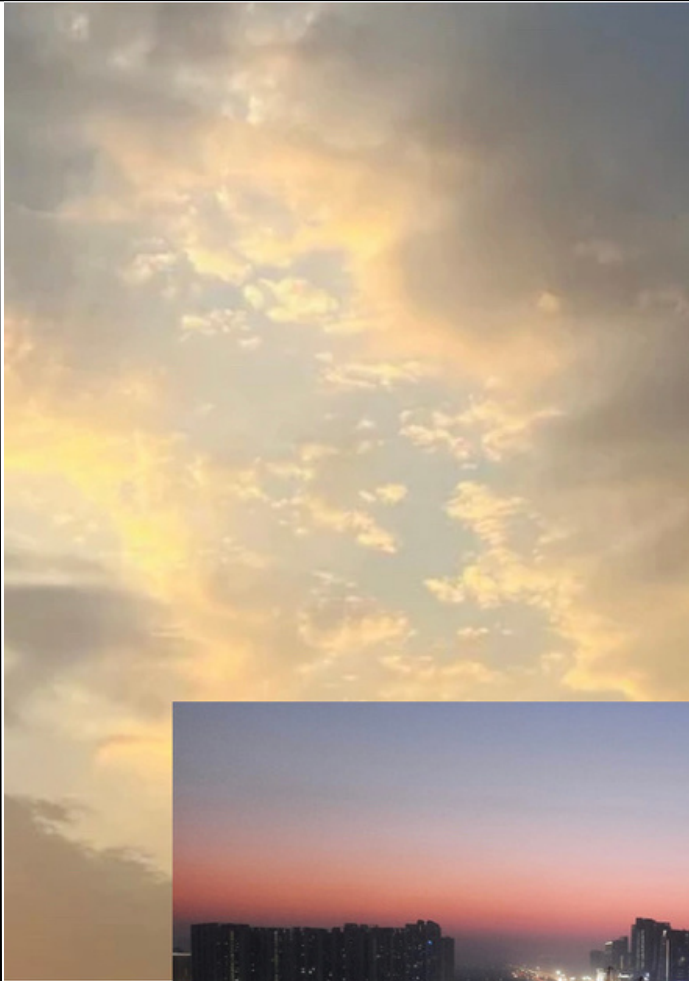
VIGYAN MANTHAN

An Intra-departmental paper presentation competition- 'VIGYAN MANTHAN' was organized on 28th February 2022, by the Physithon Society, Physics society of Kalindi college. It was coordinated by Dr. Mazhar Ali. All-year students of Bsc(H) physics and Bsc physical science participated in the event. Participants were given topics prior and asked to make a presentation on the topic related to science and present on the day of the event. Every participant presented their topic beautifully and answered the questions raised by teachers and the audience. Students participated with great enthusiasm. The topics were very interesting and allowed the participants to enhance their presentation skills.

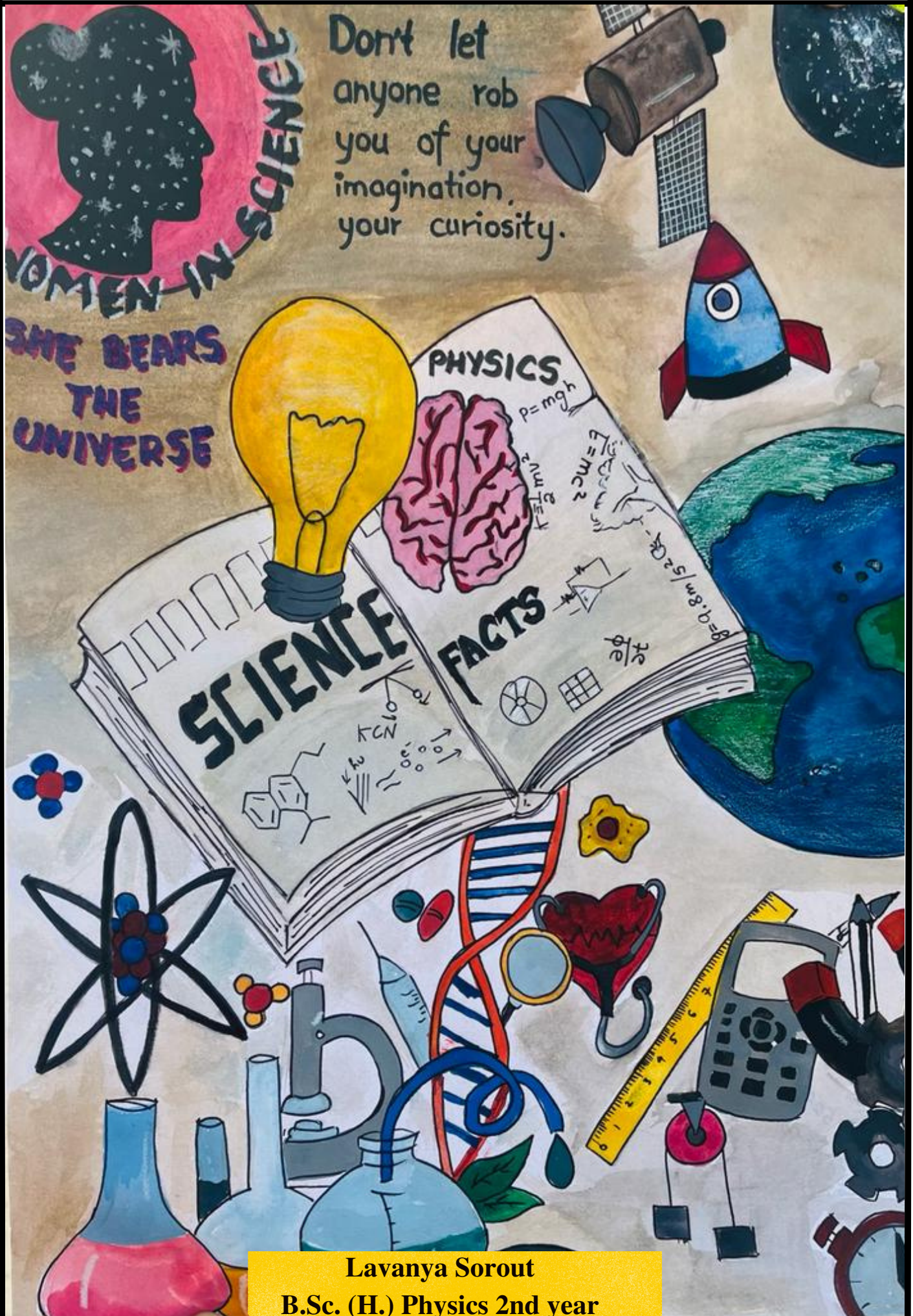


FUN ACTIVITIES

Fun activities were organised in between the other activities in VIGYANOTSAV on 28th February 2022 . The activities were Science Cross Word, Science quiz , science word search. Many students participated in these activities and enjoyed . The winners of cross word were Ruchi Yadav from B.Sc. H Physics, 2nd year , Priya Sharma from B.Sc. H Physics, 1st year and Riya Pal from B.Sc. H Physics, 1st year . The winners of word search were Priya Sharma from B.Sc. H Physics, 1st year and Charul from Bsc. Physical science, 3rd year . And the winner of science quiz was Charul from Bsc. Physical science, 3rd year. Students participated with great enthusiasm.



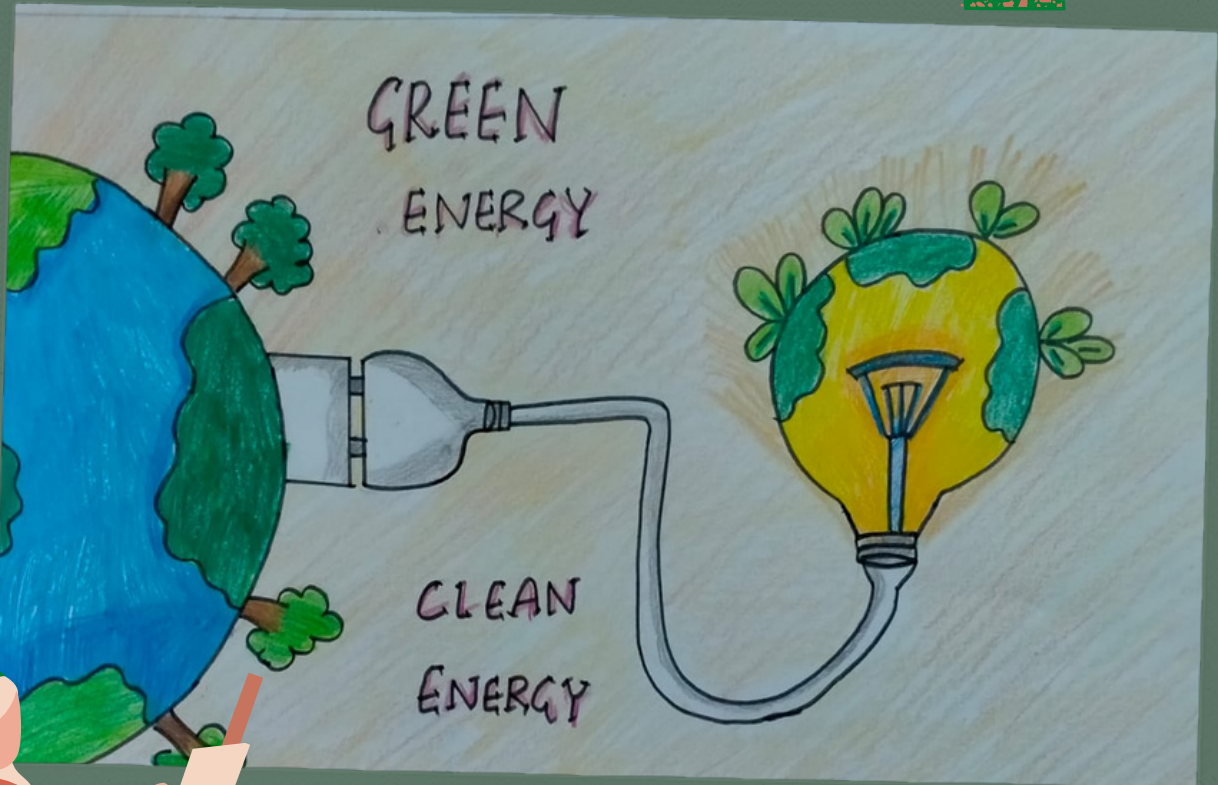
Dr. Trianjita Srivastava
Department of Physics
Kalindi College



Lavanya Sorout
B.Sc. (H.) Physics 2nd year



Sanjana
B.Sc. Physical Science 3rd year



Tanushree Kaushik
B.Sc. Physical Science with C. S. 2nd year



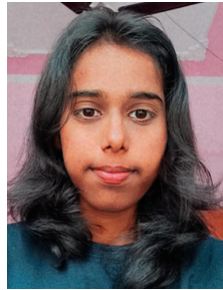
INTRODUCTION TO THE TEAM



Dr.Punita Verma
CHIEF TEACHER EDITOR



Tannu Rani
CHIEF EDITOR



Ginni Dhyani
CO- EDITOR



Sakshi
CO- EDITOR



Tannu K Gupta
GRAPHIC HEAD



Shweta Tiwari
**GRAPHIC
CO-HEAD**



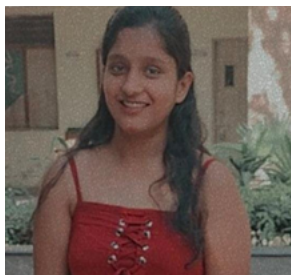
Tanya Manchanda
**SOCIAL MEDIA
MANAGER**



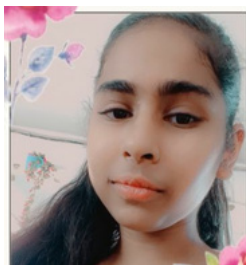
Priyanka
**GRAMMAR
CHECKER**



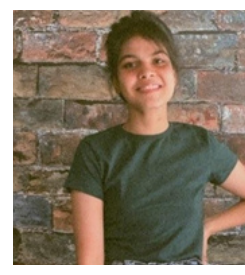
Ashu Yadav
**PLAGIARISM
CHECKER**



Vrinda Mittal
**ARTICLE
MANAGER**



Kanak Gupta
**ARTICLE
MANAGER**



Lavanya Sorout
**ARTICLE
MANAGER**

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