

2022, Issue No.1

Exploring the universe

MACROCOSM

**Department of Physics
Kalindi College
University of Delhi**

COVER PHOTO BY
ISHA VERMA ,B.Sc (H) Physics, 1st year

INDEX



Editor's Note	01
Flashbacks of Prof Pushpa Bindal	02
Space Infinite	05
Mechanics of a Swim	07



Universe at your Door	09
Science behind lightning of diya	11
Women In Science	12
Physithon-the physics society	13
Books (poem)	16

The virtual world (poem)	17
Distance between sun and earth	18
Current News in science	19
Art Gallery	24
Introduction to the macrocosm team	

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 February.

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**

A COLLOQUY WITH PROF. PUSHPA BINDAL

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 was always interested in academics from my childhood, and I was from a medical background (PCMB) and I thought of becoming a doctor in future but I realized that I cant able to see all that blood stuff. so one of my friend's taken admission to Hansraj college ..so I also took admission in physics Hons, it's not that I wanted to be a physicist but physics is a very interesting subject, and when I took physics I was very dedicated to learning the basics. then I did my physics Hons, and at that moment my mates were preparing for master's so I prepared too and cleared IIT JAM and took admission to IIT DELHI."



2. Why did you choose optics that you did specialize in M.tech in optics?

"so, it was circumstantial. I took the gate exam after Msc and depending because IIT offers Mtech in three different fields. One of them is applied optics and Optics is quite strong. Because I want to pursue M.tech in Physics only And I have extremely good teachers in optics, Professor Ghatak, My research Professor guide Professor Anurag Sharma, who has come to Kalindi College many times. If you like a subject you tend to learn it more, and you learn the concept very well and then you excel in your field. afterward, I also did projects in Optics. "



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

"Kalindi college is an off-campus college so we admitted students at a moderate percentage the best part is the students are interested in learning apart from few in the class, and also students of nowadays are become smarter both in positive and negative ways.

earlier there were no entrance examinations so, students concentrate on their classes, but now students focus on their carrier, particularly in the 6th semester they become a little non-serious about their academics. But we always get accomplished by students who are eager to learn more and that matters a lot. in other colleges, students are not willing to come to classes, they sit in the canteen having fun with friends. I believe ***there is a time for everything in life***, at young age students have that much energy to learn things for their life, they should ***prioritize their carrier, studies, goals as 80%of your time, rest 20% you can have fun*** and if they don't learn things here then the are harming yourself. "

4. What is your point about teaching a girl not for their marriage but for their future aspect also.? earlier and now era

"Earlier society wants minimal education for their girl child because they don't want to invest time and money in it, they just want to get her married off. I think that depends on the girl also whether she wanted to be independent or not, is motivated about her life, or has some goals. if she wants, then she can make space place, and time for everything, and I believe it should be extremely important to be financially independent. you should have something meaning full in your life. and looking after the house is not only handled by a housewife but an educated woman can handle it better also. and she will get respect in society also."

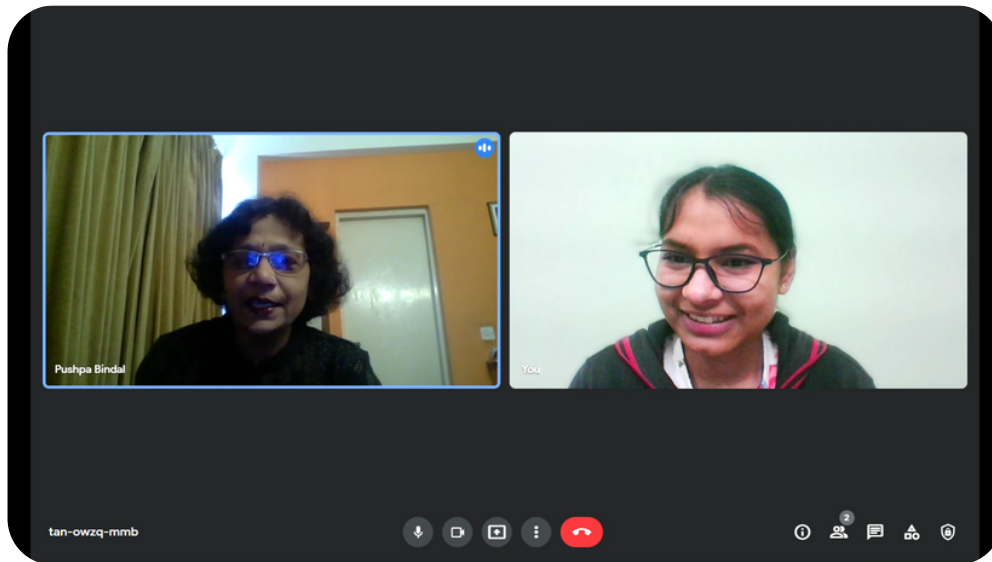
5. As we all know, the COVID scenario has changed the offline study mode to online. According to your observations, what are the changes in tuning with students while teaching or in any other interactions?

"I always enjoy teaching, when I was teaching physically in class I was able to see the expression of the students that they are learning, and understanding and this motivates me a lot. At the beginning of the online classes, we miss those faces those expressions as if we are talking to a wall. I don't have my students in front of me, to begin with, we even don't know how we will teach because our subject is not like that you keep on listening and you will understand its basically a practical subject, and if I don't interact with you or don't ask questions then I don't know you are getting it or not. in Online classes, I don't know how many are listening to me or not, but some students ask questions when they don't understand any concept.

FLASHBACKS OF DR.PUSHPA BINDAL

6. how did you manage the situation when the pandemic started and for online teaching, health, and everything?

" It was particularly bad for eyes, strained all the time, and we have to also attend online meetings that go for hours of discussion, apart from teaching we get lots of college work also. this is no longer simple as it used to be for teachers around 15 years back. we have to do all the things online and we have to do 50% of teaching and 50% of the administrative work."



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

"I think only a very small percentage chooses abroad for education, so many stays back here for their further studies huge percentage stays here and study here, our education system is pretty raw but its quite good also. Students have better opportunities here also apart from Delhi university or other central universities, there are IITs, NITs, ISERs, etc. but of course, you have to prepare for their entrances and exams. It's not a problem, if you want to go abroad then go for it, I think we should serve our country, we can choose abroad for experience but not to stay there to serve them."

8. Firstly, congratulation mam, so how do you feel like you started as a student at Delhi University and now after so many years teaching as an assistant professor now you are a professor. How is your experience?

Earlier there was no professorship in colleges, we could only go up to associate professor and I have been an associate professor since 2006, still, I enjoy teaching and it's always fulfilling for me. I really like physics, I may be biased but I think it is the best branch of science I never thought that I will become a professor although I want to become there was no option at that time. And this all started in 2020, and that was also a tough journey filling up the form, studying all our journals and my research and I achieved something really grateful at the end of my journey. And will complete in the next decade i.e., retiring. So, this way I am satisfied and happy that I could make up to the professor level. after this you can apply for administration, but I am not interested in administration I am a teacher and I became a professor in physics and I am very happy.

FLASHBACKS OF DR.PUSHPA BINDAL

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

" Firstly you all are young, healthy, give half an hour to yourself in the whole day, when you can relax or can have a bit of exercise that will generate happy hormones in you and you will be able to deal with your stress.

Secondly, all of you are preparing for entrances, divide your time into slots. In that slots refresh or polish your concepts of different branches of physics this will make you confident, instead of that you give all your time without any planning to one particular topic or branch, this will be difficult for you to crack your exam so, it's important to clear your concept cleared.

In entrances, they don't ask you for derivation, but it's important to brush up on your basic concepts, don't go too much into details. It's also important to be relaxed about the whole thing, otherwise, even if you study well you may not be able to do that. If you study well then you can do it. You have to devote your time and energy to it. "



Hey buddy

I want to tell you something about myself



Doesn't it look like a marvelous piece of art?

Guess who I am?

I am not a single object, I am a pair of white dwarf stars and Mira, a red giant orbit.

Yeah, you guessed me right, I am R Aquarii, a symbiotic star.

Are you thinking that why I am a symbiotic star?

In biology, "symbiosis" means when two organisms interact with each other. So here white dwarf star and Mira interact with each other to form me.

COURTESY:

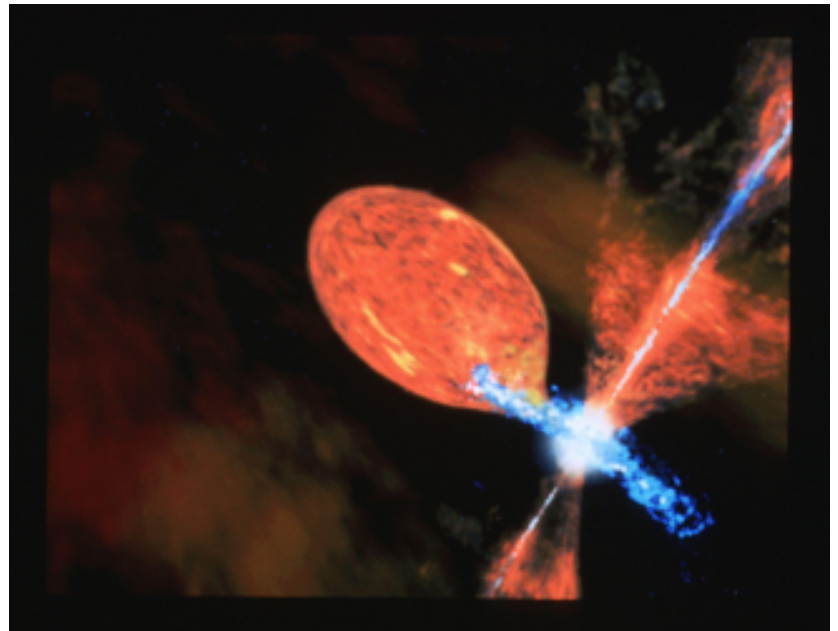
https://upload.wikimedia.org/wikipedia/commons/thumb/af/Symbiotic_System_R_Aquarii.png/1024px-Symbiotic_System_R_Aquarii.png

Artist's impression of R Aquarii, during an active phase:

As we all said that nothing can pull me down besides gravity, so here gravity is also the reason for pulling material from the red giant onto the surface of a white dwarf star. As time passes, this material accumulates and finally triggers an explosion.

Are you thinking that why I appear to be red, why not green or violet, so the reason behind that is that it is situated in a very dusty region of space, and as we all know that red color has more wavelength than blue color.

So blue light gets absorbed before reaching the earth and only red light reaches to our eyes. Doesn't this question strike continuously in your mind that what distance do you have to travel to reach me? It's only 710 light-years.

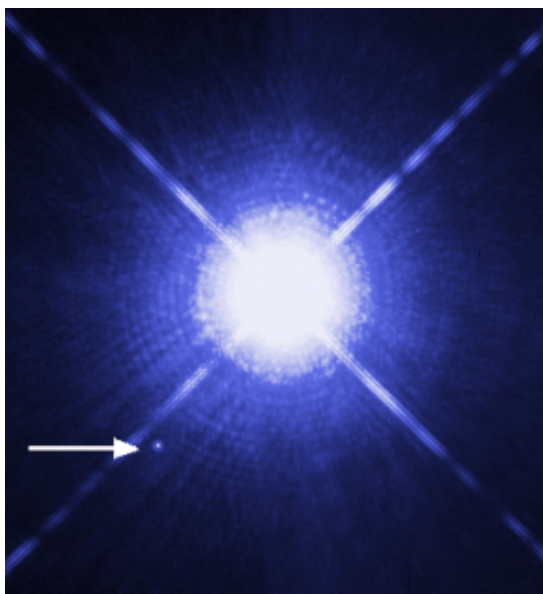


COURTESY:

https://en.wikipedia.org/wiki/Symbiotic_binary#/media/File:Artists_Impression_of_R_Aquarii,_A_Symbiotic_Star.jpg

I want to give you a brief knowledge about the White dwarf star and Mira:

White dwarf star:



COURTESY:

<http://www.spacetelescope.org/images/heic0516a/> - File:Sirius A and B Hubble photo.jpg, Public Domain, <https://commons.wikimedia.org/w/index.php?curid=1271789>

The above picture shows the image of Sirius A and Sirius B and this image is taken by the Hubble Space Telescope. Sirius B, the white dwarf, seems like a faint point of light which is situated to the lower left region of the much brighter Sirius A.

By NASA, ESA, H. Bond (STScI), and M. Barstow (University of Leicester); modified by Bokus -

It is so dense that its mass is comparable to the sun while its volume is comparable to earth only.

The name white dwarf was coined by Willem Luyten in 1922.

This includes over 97% of the other stars in the Milky Way.

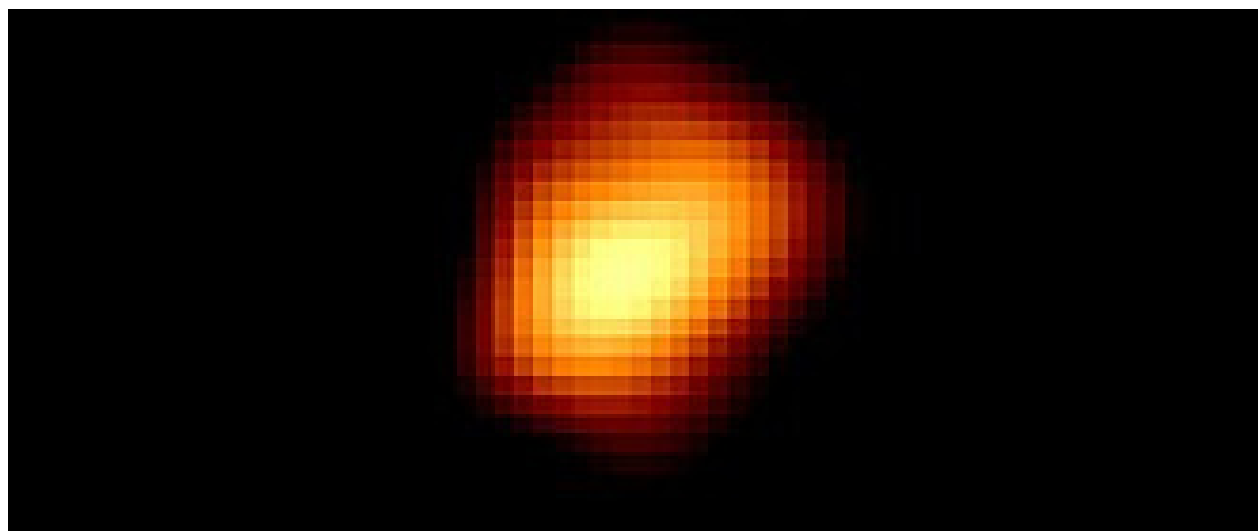
You feel so surprised when you get to know that it has no source of energy.

A white dwarf is very hot when it forms, but as I mentioned earlier that it has no

source of energy, so it will gradually cool.

Are you thinking that why it cools down?

It cools down because a body at high temperature will radiate till its temperature is not equal to the surrounding temperature (Law of Thermodynamics)



COURTESY:

https://en.wikipedia.org/wiki/Mira#/media/File:Mira_1997.jpg



If you love science but swimming scares you, you'll find it very helpful - as I did when I was learning to swim- to think about Newton's three laws of motion.

Among the most fundamental rules of physics, these three basic principles are enough to explain completely the movement of almost every single object you are ever likely to come across.

The first law outlines the concept of inertia. It says that things stay still or move steadily (at the same speed) unless something pushes or pulls them (unless some kind of a force is applied). The second and third laws are of more interest.

The second law explains the connection between force and acceleration: if you push or pull something, it starts moving (if it was still to begin with) or goes faster (if it was moving already); the bigger the force you apply, the more acceleration you get; the longer you apply the force, the bigger the change in momentum you can achieve.

Where swimming is concerned, the third law is perhaps the most important. It says that when you apply a force to an object, the object returns the favor and applies an equal force to you - in the opposite direction. This law is often called action and reaction and it's the simplest way for a scientific non-swimmer to make sense of the water. You probably know already that if you kick back against the wall of a swimming pool, you street forward through the water. The same applies to actual swimming strokes. Simply speaking, if you want to swim forward through the water, you have to pull the water backward with your hands. If you want your body to stay up, floating on the surface, you need to kick down with your legs. If you are swimming along and you want to stop suddenly and stand up,

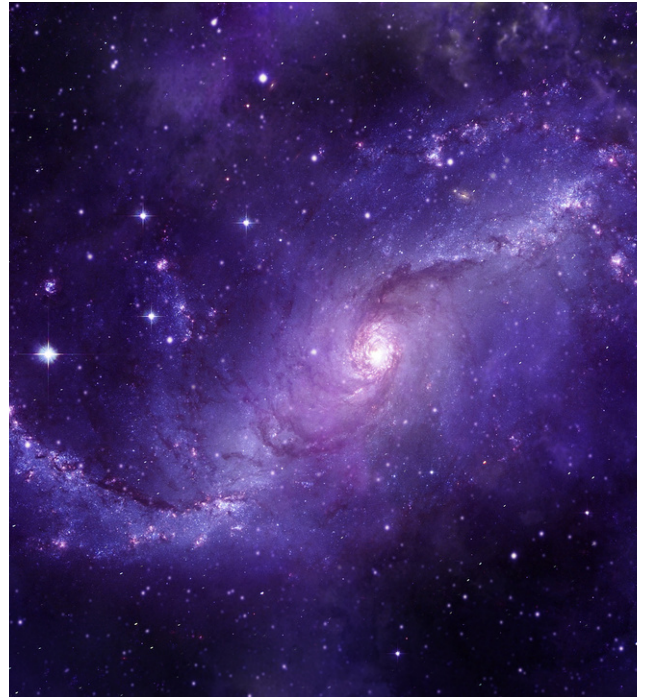


ISHIKA KUMARI
B.SC.(H) PHYSICS



We have been reading since our childhood that the universe is endless with no boundary. Sometimes we wonder about the birth of the early universe, celestial bodies, stars, and sun. The universe is the source of energy that is emitting numerous microwave radiations per second and is experienced by us. The radiations used to heat our leftover are heating our whole universe. For the very first-time humans saw cosmic rays through their channel surfing on early televisions but they didn't know that they were watching through the oldest radiations from the universe which consist of their history. The oldest radiation among them describes the history and condition of the early universe. Also, it gives evidence of the hottest Big bang model. Beginning of the cosmos around 14 billion years ago, Universe went under huge inflation and it expanded by approx. 10^{27} times. The universe became a dense soup of particles with an extremely high temperature of about a billion degrees Celsius which is generally a million times hotter than the sun, fluid consists of the photon, baryon, and electron. Photon is a light particle that carries energy in the form of waves. Photon has the quality to retain information from its source from where it has been discharged, for example, its chemical composition, inference, temperature, etc. Photons that are detected today provide us with a history of their origin. They carry all the information about its source. Detection of any of the photons reveals their source and this way photons from the early universe open up the history of the birth of the universe. We have been reading since our childhood that the universe is endless with no boundary.

sometimes we wonder about the birth of the early universe, celestial bodies, stars, and sun. The universe is the source of energy that is emitting numerous microwave radiations per second and is experienced by us. The radiations used to heat our leftover are heating our whole universe. For the very first-time humans saw cosmic rays through their channel surfing on early televisions but they didn't know that they were watching through the oldest radiations from the universe which consist of their history. The oldest radiation among them describes the history and condition of the early universe. Also, it gives evidence of the hottest Big bang model. Beginning of the cosmos around 14 billion years ago, Universe went under huge inflation and it expanded by approx. 10^{27} times. The universe became a dense soup of particles with an extremely high temperature of about a billion degrees Celsius which is generally a million times hotter than the sun, fluid consists of the photon, baryon, and electron. Photon is a light particle that carries energy in the form of waves. Photon has the quality to retain information from its source from where it has been discharged, for example, its chemical composition, inference, temperature, etc. Photons that are detected today provide us with a history of their origin.



They carry all the information about its source. Detection of any of the photons reveals their source and this way photons from the early universe open up the history of the birth of the universe. The baby picture of the universe is called CMB, Cosmic microwave radiation. CMB is the heat radiation from the evaporation from the cosmic soup, which is the evidence that the Universe was once intense hot and dense, and this way we are provided with information about the condition of the early universe. The most widely accepted theory proven is the hot big bang theory. Simply universe is endless and boundaries are beyond our imagination and it always has something new to wonder about which encourages our researchers and cosmologist to know more and more

LAVANYA SOROUT
B.SC. (H) PHYSICS, II YEAR



The cotton wick we dip in the groundnut oil in the lamp absorbs the oil due to the force of adhesion. The oil molecules stay together in the lamp because of the forces of cohesion. When we light the oil lamp, the oil is continuously supplied to the wick by the action of capillarity.

A ghee lamp is simply made of pure cotton rolled into a wick, and immersed in lots of ghee, creating a candle when lit. The ghee lamp can be placed in a little earthen bowl made of clay or in an elaborately decorated brass holder. Hindus will light a “Diya” or ghee lamp daily to purify their homes and their hearts.

The five elements are also represented in the Diya. Telang said, “Earth element is represented by the diya, oil and cotton wick. Fire is the light itself. The sky element is light around the flame, which is space around the earth. Air is the oxygen diffused from air to wick and water is the H_2O molecules formed at the combustion of oil. So, when we light the oil lamp on Diwali, we symbolically represent the universe at our doorstep. “

“O women! These mantras are given to you equally as to men. May your thoughts be harmonious.” - Rigveda

Women have always been glorified as gentle, caring, and the happiness of a household. Many philosophers have spoken their views about the beauty of a woman. We are taught that women must be honored and adored.

Then why are women still prejudiced?

We have come so far in civilization but the stereotypes against women remain the same. Women once in their life experience doubt, criticism from society for their choices. Needless to say, women have shown great achievements in every field. Whether it be sports, business, or science.

Many great females have proved this point that a woman is no less than a man. History is full of women who made enormous contributions to the world of science like Marie Curie. Marie Curie was a polish-french physicist who is known for her discovery of radium and polonium. She made herself shine and the world knows her. But such chances were not given to everyone, Kamala Sohonie was the first Indian woman to have a Ph.D. degree in a scientific discipline. She applied for IISC for a research fellowship but was rejected because she was a woman. But luckily enough C.V Raman encouraged her to research further. She discovered the enzyme called 'cytochrome' that helps in the oxidation of plants.

If given a chance women are the ones who can bring great outcomes for the betterment of the world. And if not, then they will fight for it. As it's their basic right.

Macrocosm

Women's have fought for the rights they deserve for generations and are still fighting.

QUEEN'S OF SCIENCE

"I didn't succumb to the stereotype that science wasn't for girls."
-Sally Ride
Astronaut

Women represent 17% of researchers in mathematics, 18% in physics, 19% in engineering sciences and 31% in chemistry .

**WE ARE FIGHTING.
WHAT ABOUT YOU?**

@macrocosm

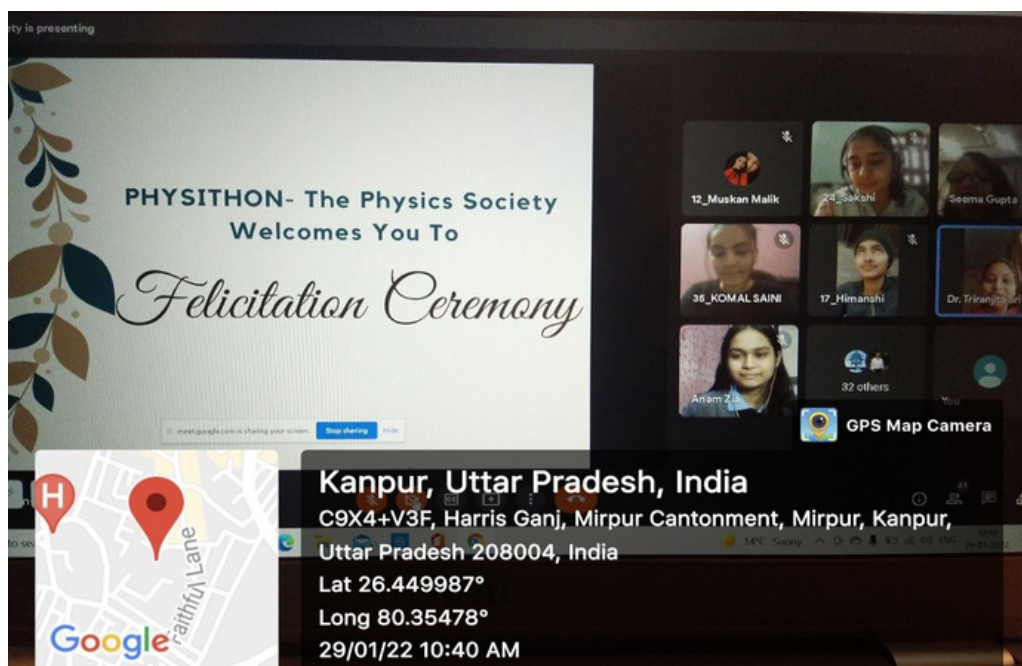
GINNI DHYANI
B.SC. PHYSICAL SCIENCE , II YEAR

**INTER-COLLEGE FEST
COSMATRIX**

An inter-college fest, "COSMATRIX'22" was organized by Physithon, the Physics Society of Kalindi College on 29th January 2022. Due to the pandemic, the fest was held on a virtual platform which was a new and great learning experience for many of the participants. The event started with the felicitation ceremony which was organized to give recognition to the office bearers and volunteers of the Physithon Society of session 2020-21. The Convener, Dr. Seema Gupta, Co-conveners Dr. Triranjita Srivastava, and Dr. Rashmi Menon started the ceremony with a warm and welcoming speech and admirable introduction of our office bearers of 2020-21.

Then, Anam Zia, last year's president of Physithon Society said a few words where she briefly described her journey as the President of the society and the importance of societies along with the academics which was followed by the last year's vice president of the society, Ananya Aggarwal. After that, the certificates were presented to the President, Vice President, and rest of the office bearers and volunteers of session 2020-21. Students from the Department of Physics and Physical Sciences attended the felicitation ceremony as well.

It was a nostalgic moment for both the students and the teachers as we concluded the ceremony with a vote of thanks. The ceremony culminated with the hope that the coming years will see more dedicated and passionate students towards society and take it to greater heights.



**ALANKRITA
B.SC. (H) PHYSICS, I YEAR**

WHAT IF?

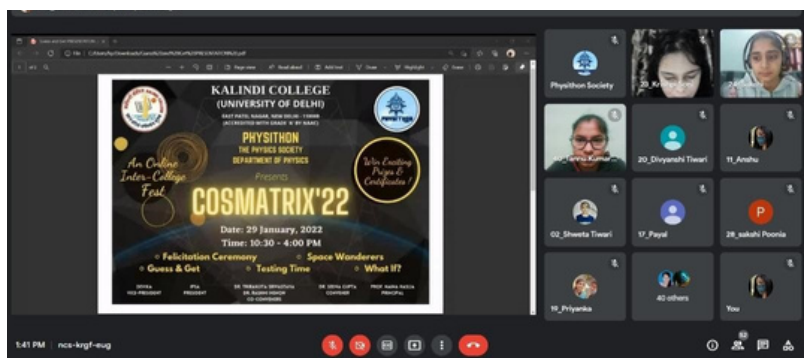
An Inter-college online essay writing competition was organized on 29th January 2022, by Physithon Society, Physics society of Kalindi college. It was coordinated by Dr. Mazhar Ali. Students from Kalindi college and other colleges participated in the event. Topics for the event were provided in the meeting itself and participants had to select only one topic from the given ten topics and write an essay on it. Students participated with great enthusiasm. The topics were very interesting and allowed the participants to use their imagination to the fullest.



SPACE WANDERERS

On 29 January 2022, the space wanderers activity was conducted by Physithon -The Physics Society of Kalindi college. A total of 52 students were present along with Mrs. Varsha ma'am and the members of Physithon society. The students of Kalindi college and outside Kalindi college participated in the same.

The quiz comprised of 2 rounds. The top 10 from the first round competed in the second round and the final winners were announced.



ALANKRITA
B.SC. (H) PHYSICS, I YEAR

GUESS AND GET

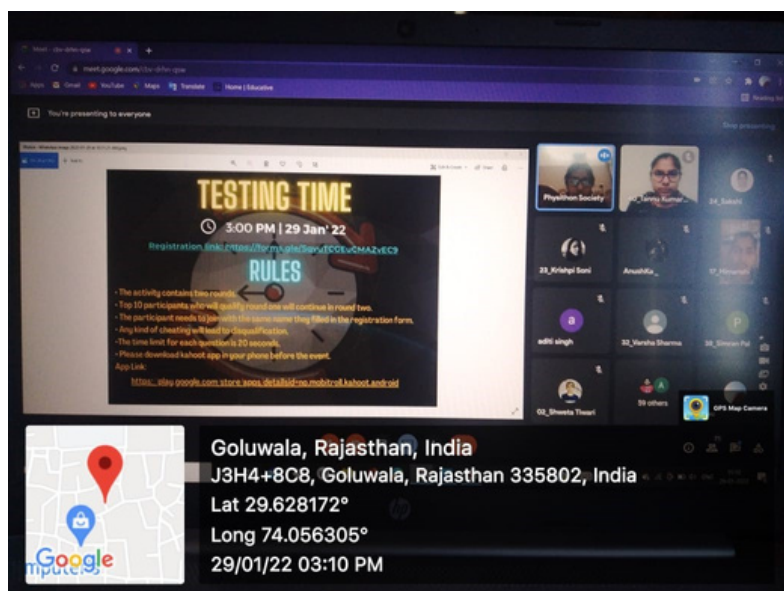
'GUESS AND GET' event was organized on 29th January 2022, by Physithon- The Physics Society of Kalindi College, Delhi University. The event started with giving instructions to the participants by the Discipline head - Sakshi Sheoran. The questions were sent via mail to each participant. Dr. Aravind Kumar, professor of the Physics department of Kalindi college was also present throughout the event to encourage students.

Feedback from the participants was full of their enthusiasm and how much they enjoyed it.

The event culminated with the hope of spreading a spirit of competition and promotion of science among students.



TESTING TIME



On 29 Jan 2022, the testing time activity was conducted by Physithon- the physics society of Kalindi College. A total of 68 students were present along with Mr. Ankur Anand Sir and the members of physithon society. The students from Kalindi College and other colleges participated in the same.

The quiz comprised of 2 rounds. The top 10 winners of the 1st participated in the 2nd round and the final winners were announced. It was a fun event that received positive feedback from the participants.

ALANKRITA
B.SC. (H) PHYSICS, I YEAR

BOOKS

My books taught me, How to read

When I was just,

a little kid.

The word of knowledge,

The world of interest,

is nowhere else

but in the books which,

I have read and in fact I will read. My

books are treasure of,

All the wonders,

All the myths and,

All the pleasure.

They guide me at my every step, That's

why I give them,

A lot and a lot of respect.

The virtual world

The camera opens
The mic unmutes
The camera closes
the mic mutes
The physics starts
The physics goes on
The physics stops
The class stops
It says welcome to the virtual world
Keep staring into this virtual world
G and g
How are they different
Say they're same
No, they aren't
It's physics, not literature
Go ahead
You'll find physics more interesting
Because it is supposed to be interesting
If it isn't interesting, it ain't physics
But, it seems interesting and it seems
boring
Why the perplexity
Because
It says welcome to the virtual world
Keep staring into this virtual world.

SANJANA ARYA
B.SC. (H) PHYSICS, I YEAR

DISTANCE BETWEEN SUN AND EARTH

yuga-sahasra-yojana para bhanu leelyo tahi madhura phala janu
Hanuman jumped to consume the Sun, thinking of it as a pleasant fruit.

The yuga-sahasra-yojana refers to the distance he traveled. Let's see if we can figure it out.

What exactly is a yuga? According to the Bhagavad-gita, one day of Brahma is called Kalpa, and it lasts 1000 yugas, followed by a night of the same length.

sahasra-yuga-paryantamaharyadbhramanoviduh

'ho-ratra-vidojanah' ratri yuga-sahasrantamte

12000 heavenly years = 1 yuga = 4,320,000 years

According to human calculations, 1 divine year equals 360 years.

The Manu-Samhita confirms this: etad dvaadasha Sahara M devanam yugamuchyate

The distance between the Sun and the Earth, according to the preceding phrase from Hanuman Chalisa, is

12000 x 1000 yojanas = yuga-sahasra-yojana

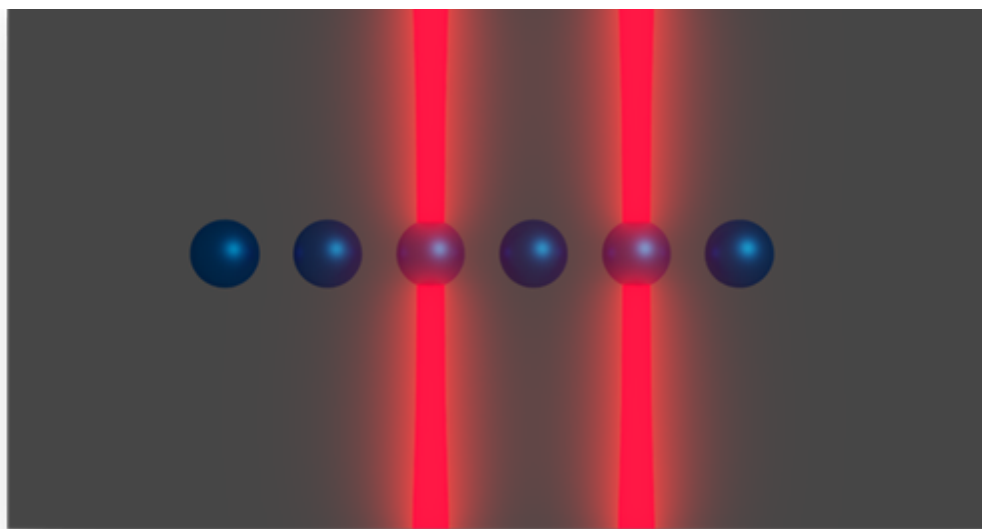
Yojana is a Vedic distance measurement system.



ASHU YADAV
B.SC.(H) PHYSICS, II YEAR

A NEW METHOD FOR QUANTUM COMPUTING

Physicists at the University of Amsterdam in the Netherlands have proposed a new scalable quantum computing architecture using trapped ions. The method employs a trapped-ion platform manipulated by optic tweezers and oscillating electric fields. The experimenters applied a uniform electric field to an entire crystal of trapped ions, in order to control interactions between two ions chosen via the operation of tweezer capabilities. These interactions aren't dependent on the distance between them, so the duration of a quantum gate's operation also is independent. This grants the armature essential scalability and can confer functional performance similar to other state-of-the-art quantum systems while presenting smaller specialized hurdles



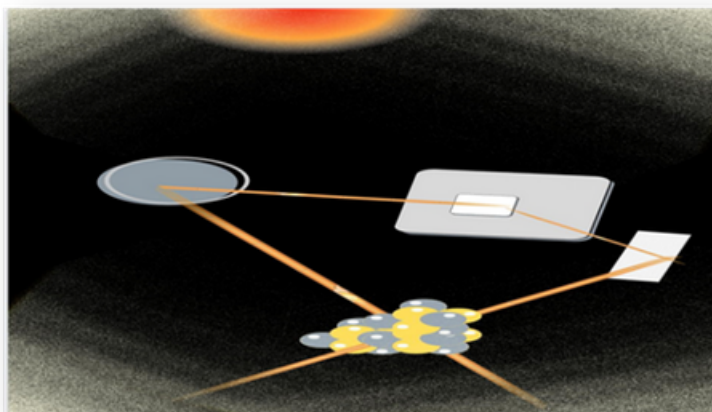
COURTESY:

<https://m-cacm.acm.org/news/258546-a-new-method-for-quantum-computing/fulltext#:~:text=Physicists%20at%20the%20University%20of,tweezers%20and%20oscillating%20electric%20fields>.

VRINDA MITTAL
B.SC. PHYSICAL SCIENCE, II YEAR

COOLING MATTER FROM DISTANCE

A team of researchers from the University of Basel led by Professor Philipp Treutlein from the department of physics and the Swiss Nanoscience Institute of the University of Basel has developed a technique for cooling matter close to absolute zero from a distance. The method is based on the principle of coherent feedback- when two quantum systems, one is a control unit for the other, interact with one another then the control system is configured to bring the target system into the desired state. This situation is known as coherent feedback. Researchers have made a control loop that consists of two quantum systems- one is an atom specifically as a control system and another is a very thin vibrating membrane, separated by a distance of 1m. The cooling process involves first aligning the spin of atoms in a well-defined direction which corresponds to a very cold state close to absolute zero while the membrane at high temperature starts vibrating due to the exchange of heat between atoms and membrane. The systems soon exchange their state. The atom is brought to its initial state using laser light to allow a further exchange of energy between the two. In this way, the temperature of the vibrating membrane reduces to 200millikelvins (-272.95°C) from room temperature. The only limitation of this method is tiny delays due to the large distance between two quantum systems, thus slightly less cooling of the oscillating membrane.



COURTESY:

<https://vervetimes.com/cooling-matter-from-a-distance-sciencedaily/>

SHWETA TIWARI
B.SC.(H) PHYSICS, II YEAR

SPACEX, NASA LOOKING INTO SLUGGISH CHUTES ON LAST 2 FLIGHTS



This image provided by NASA shows three of the four parachutes deploying on a cargo ship returning on Jan. 24, 2022.

One of the four main parachutes was slow to inflate during the return of four astronauts to Earth last November. The same thing occurred last week as a Dragon cargo capsule was bringing back science trials from the International Space Station. In both cases, the sluggish parachute ultimately opened and inflated – although the capsules splashed down safely off the Florida coast. Officials said Friday they are looking at photos and examining the parachutes for clues, taking “extra caution with this real critical system,” said Steve Stich, manager of NASA’s commercial crew program. SpaceX’s first private flight to the space station, with three ticket-buying businessmen and their retired astronaut companion, is set to blast off from NASA’s Kennedy Space Center on March 30. NASA’s coming astronaut ferry flight would follow on April 15. Officials said the lagging parachutes also passed during development and in previous cargo operations and could just be a natural feature of the multiple-chute design. Despite the slow opening of one of the four large chutes, the capsules still descended at a safe rate, they noted. The descent data was near normal, Gerstenmaier said. Out of four only three parachutes are demanded a safe splashdown off the Florida coast according to officials

COURTESY:

https://www.washingtonpost.com/health/spacex-nasa-looking-into-sluggish-chutes-on-last-2-flights/2022/02/04/3c2b0198-85f4-11ec-951c-1e0cc3723e53_story.html

VRINDA MITTAL
B.SC. PHYSICAL SCIENCE, II YEAR

A LIFE-SAVING APPLICATION OF RADAR- MONITORING BURNT VICTIMS AND BABIES

Till now, we all have seen radar used to detect hidden submarines or military fighter jets but now scientists from the University of Sydney have developed a technology named 'advanced photonic radar' for monitoring burn victims and babies using radar-published in the journal 'Laser and Photonics Review'.

It is a very sensitive ultra-high-resolution device that can detect patients' vital signs like breathing rate by monitoring their chest rising and falling and heart rate.

Professor Benjamin Egglenton, director of the University of Sydney Nano Institute, was the principal investigator for this research, and Mr. Ziquian Zhang, Ph. D. candidate was research co-lead.

The device uses photonics to handle a much wider range of frequencies than conventional radar. Due to this, it produces high-resolution images in a very simple format and at a much lower cost.



COURTESY:

<https://phys.org/news/2022-02-radar-victims-babies.html>

**SHWETA TIWARI
B.SC.(H) PHYSICS, II YEAR**

ISRO TARGETS AN AUGUST LAUNCH FOR CHANDRAYAAN 3

The third mission will carry only a modified lander and rover and will use the orbiter of the Chandrayaan 2 mission to communicate with the earth. (Representative Photo)

The Indian Space Research Organisation (Isro) will target the launch of its third lunar mission, Chandrayaan-3, for August this year, according to a response given by the Union Minister of State for the Department of Space Dr. Jitendra Singh. “ Based on the learnings from Chandrayaan-2 and suggestions made by the national position experts, the realization of Chandrayaan-3 is in progress. Numerous related hardware and their special tests are successfully completed. The launch is scheduled for August 2022,” Singh said in the reply read.

The space agency planned for a third lunar mission after its lander rover failed to soft-land on the face of the moon in 2019. The same year the Israeli Beresheet had also crashed on the face of the moon. A soft- landing will make India the fourth country to do so and the first country to do near the lunar South Pole. India had preliminarily crashed a probe at what’s now called the Jawahar point on the moon.

To make up for the detainments, the space agency is likely to have a busy year ahead, beginning with the pending launches from February onwards. “ Several ongoing missions were impacted due to the coronavirus epidemic



COURTESY:

https://indianexpress-com.cdn.ampproject.org/v/s/indianexpress.com/article/cities/delhi/isro-august-launch-chandrayaan-3-7754271/lite/?amp_js_v=a6&_gsa=1&usqp=mq331AQKKAFQArABIIACAw%3D%3D#aoh=16442552678353&referrer=https%3A%2F%2Fwww.google.com&_tf=From%20%251%24s&share=https%3A%2F%2Findianexpress.com%2Farticle%2Fcities%2Fdelhi%2Fisro-august-launch-chandrayaan-3-7754271%2F

VRINDA MITTAL
B.SC. PHYSICAL SCIENCE, II YEAR



Satyendra Nath Bose

Aakansha
Gupta
BSc Phy (Hons.)
1 Year

ART GALLERY



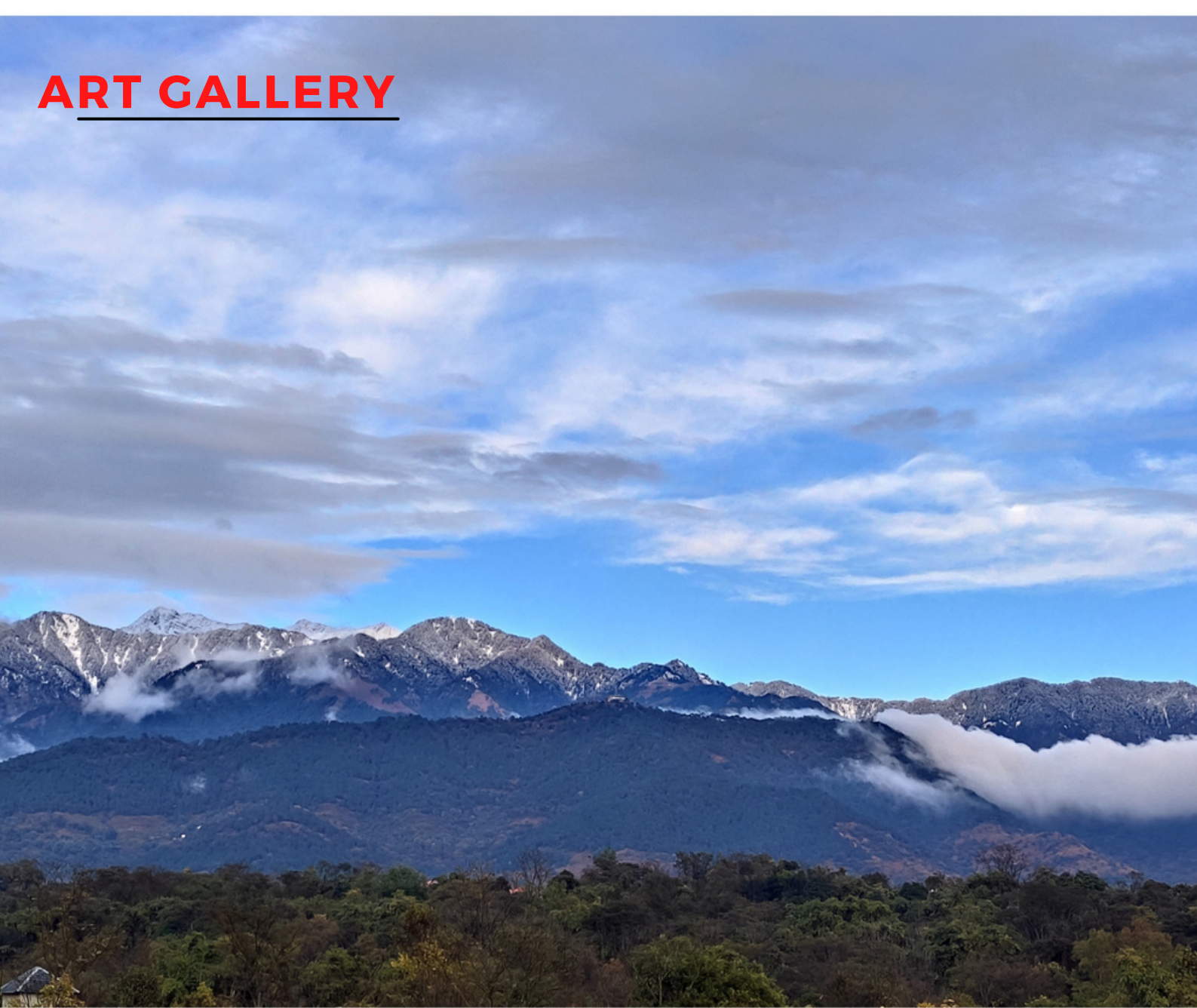
SHOTS BY JUHI SAHANI
B.Sc. CS (H), II YEAR

ART GALLERY



SHOTS BY MANNAT RANA

ART GALLERY



SHOTS BY MANNAT RANA

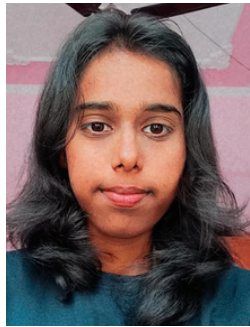
Introduction to the team



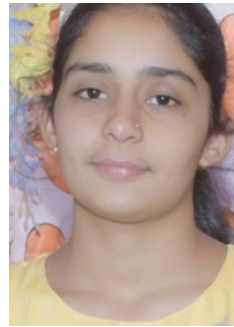
Prof. Punita Verma
CHIEF TEACHER EDITOR



Tannu Rani
CHIEF EDITOR



Ginni Dhyani
CO- EDITOR



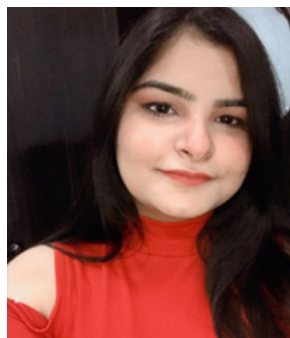
Sakshi
CO- EDITOR



Tannu K Gupta
GRAPHIC HEAD



Shweta Tiwari
**GRAPHIC
CO-HEAD**



Tanya Manchanda
**SOCIAL MEDIA
MANAGER**



Juhi
**SOCIAL MEDIA
MANAGER**



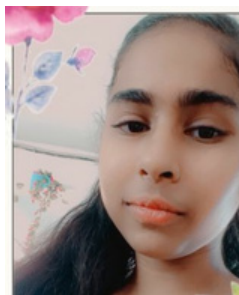
Priyanka
**GRAMMAR
CHECKER**



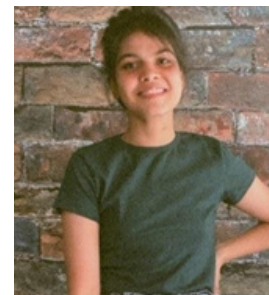
Ashu Yadav
**PLAGIARISM
CHECKER**



Vrinda Mittal
**ARTICLE
MANAGER**



Kanak Gupta
**ARTICLE
MANAGER**



Lavanya Sorout
**ARTICLE
MANAGER**

**FOR MORE INFORMATION
CONTACT US AT
macrocosm.kalindi@gmail.
com**

**FOLLOW US ON SOCIAL MEDIA
/MACROCOSM.ZINE**

