

ISSUE | MAY 2021

PHYONICS



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ABOUT LUMEN

PHYSICS UNPLUGGED

FEATURED : NATIONAL
SCIENCE WEEK 2021

ORIENTATION
2021 BATCH

"We are stardust brought to
life, then empowered by the
universe to figure itself out
we have only
just begun."

~ Neil deGrasse Tyson

PHYONICS 2020-21



THE ANNUAL MAGAZINE
DEPARTMENT OF PHYSICS AND ELECTRONICS
HANSRAJ COLLEGE
UNIVERSITY OF DELHI

EDITORIAL BOARD

Dr. Mamta Saini

Dr. Chetana Jain

Mr. Dibyajyoti Das

(Faculties of the Department of Physics and Electronics
Hansraj College, University of Delhi)

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ACKNOWLEDGEMENT



In the present times, where there is an abundance of opportunities, lies a laborious journey of hard work, dedication and discipline in which those who are willing to enact, succeed. At LUMEN, there is an everlasting zeal to bring about the change and bridge the gap between the theoretical and practical nature of the evolving world through the exquisite minds that desire to triumph.

The LUMEN Team wholeheartedly expresses its gratitude to our esteemed principal, Prof. Rama for her constant support. We would like to sincerely thank our mentors; the society convenors - Dr. Mamta Saini, Dr. Chetana Jain and Mr. Dibyajyoti Das for their constant assistance, our greatest supporters; the department teachers of Physics and Electronics and the staff members for their generous behaviour and friendly nature. We are thankful to Sreehari & Simrandeep for drawing such beautiful magazine covers. We also thank the Editorial Team for their excellent efforts and performance towards the LUMEN magazine. Finally, we are thankful to the entire LUMEN Team and the students of Physics and Electronics who have helped and encouraged us to keep doing our best throughout the year.

Harshita Agarwal
B.Sc. Physics
Year III



ABOUT LUMEN



LUMEN is the society of Department of Physics and Electronics, Hansraj College, Delhi University. For the academic year 2020-21, LUMEN worked under the mentorship of Dr. Mamta Saini, Dr. Chetana Jain and Mr. Dibyajyoti Das. LUMEN consists of 21 students.

Our vision and mission solely focuses on working together with extraordinary minds, giving life to the creative ideas and executing the possibilities we create. LUMEN mainly focuses at enhancing the practical significance of pure sciences.

This academic year we aimed at striking a balance between celebrating the beauty of pure science, exploring the various realms of Physics, appreciating the wide applications of electronics and at the same time keeping the students abreast with the advancements and demand of the recent times and making them aware of the various fields they could explore that could help them build a better career.

The pandemic hit our lives and made it monotonous, yet we firmly believed that the gleam of fresh ideas in our eyes was bright as ever. LUMEN strongly conforms to the belief of effective communication and greater interaction with the students is the key to realizing our goals.



LUMEN CORE TEAM

2020-21



PRESIDENT



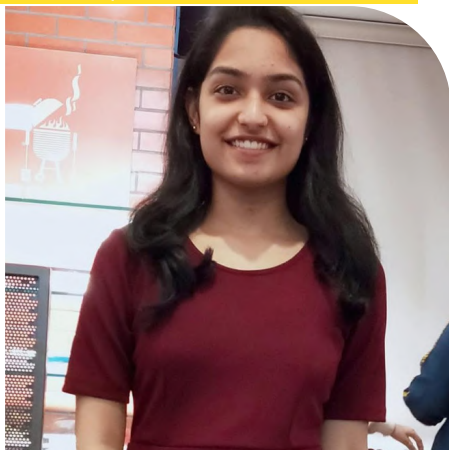
Harshita Agarwal
Bsc (H) Physics, III Year

VICE-PRESIDENT



Shiksha Sabharwal
Bsc (H) Electronics, III Year

SECRETARY



Ananya
Bsc (H) Physics, II Year

JOINT-SECRETARY



Naveen Vashistha
Bsc(H) Electronics, II Year

TECHNICAL HEAD



Md Saad
Bsc(H) Physics, II Year

EDITOR



Ananya Yadav
Bsc(H) Physics, II Year

CO-EDITOR



Shashwat Khattar
Bsc(H) Electronics, III Year

MESSAGE FROM TEACHER IN CHARGE



I hope you all are taking good care of yourself and your family in the present unprecedented situation. Although the pandemic caused us to move to remote learning and it had been a challenging year but team 'LUMEN' made constant efforts to organize various academic activities (seminars, quiz, debate etc.) on digital platform throughout the academic session 2020-21. The efforts made by the society conveners and all the members of the society are highly appreciated. Such activities keep students updated about the latest research and innovations and also enhance their vision to understand many scientific problems. The departmental magazine *Phyonics 2021* showcases the academic and literary achievements of the students. It also provides opportunity for students to express themselves and sharpen their creative skills. I would like to convey my congratulations and heartiest wishes to all the team members on the occasion of release of this issue of the departmental magazine. All the best for all the upcoming ventures in your life.



Dr. Maya Verma
Teacher- In- Charge



MESSAGE FROM SOCIETY CONVENORS



Dr. Mamta Saini



Dr. Chetana Jain



Mr. Dibyajyoti Das

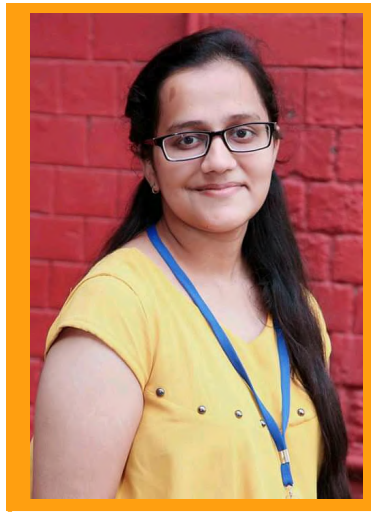
We are extremely glad to pen this message acknowledging the collective efforts of the students and faculty members of the Department of Physics and Electronics, in making this year extremely successful for LUMEN. We thank our esteemed Principal, Dr. Rama, for her encouragement and support for all the activities of LUMEN. The Covid-19 pandemic posed several challenges, but it could not dampen the scientific spirit and enthusiasm of our team. Everything changed this year. *We had a new normal!!* Microsoft Teams and Google meet turned into seminar rooms and meeting screen capture became valuable group pictures.

Phyonics 2021 is a platform to promote various creative and academic activities of the students. It is a reflection of the sincere efforts of all the students and faculty members which enabled LUMEN to organize a plethora of events including orientation day, webinars, workshop and the national science week. Participation of large number of students from various institutions made these events even more delightful. We look forward to many more similar events in the future and we are sure that our students will scale greater heights.

A special message for our graduating batch...

We all are proud of you. Wherever you go, whatever you do, always look at the positive side and keep doing your work with honesty and allegiance. In the words of William Shakespeare, "It is not in the stars to hold our destiny but in ourselves". You have infinite potential which you have to realize and explore. Prayers and Blessings.

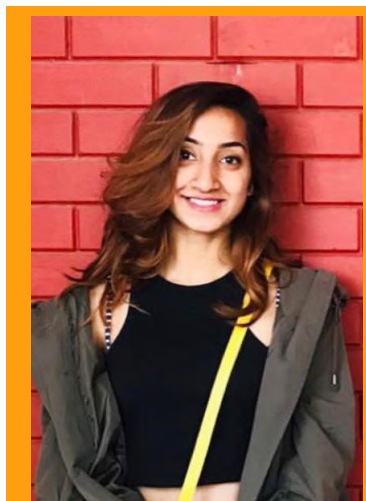
MESSAGE FROM PRESIDENT & VICE PRESIDENT



Harshita Agarwal

Being associated with LUMEN right from the beginning of my college journey and having seen seniors working, I always had a dream to get to work like them. First year was blissful. In the second year, the immense potential in LUMEN as a society made me choose the way to my department and I never looked back since then. Travelling on this road for a year, my dream came true, the dream to serve my department as the society President. One should always remember that 'to serve' or 'service' is above any other thing. Service might demand sacrifice, compulsorily ask for self belief, instant solutions for unprecedented circumstances and doing all of this with a broad smile on face. How an individual could have done all this, had there not been the convenors LUMEN had. They were always there to hear us, to talk to us and to guide us. I would be bidding goodbye to this academic session and hence my college life as an undergraduate student would be over anytime soon, but their guidance is superannuate, helping me in every sphere of my life. Coming to my team, which became a small family of mine.

The continuum of their love and care kept me going through this tough year. Shiksha, Shashwat, Ananya, Naveen, Ananya Yadav, Md. Saad- all are gems, indeed. I would also love to acknowledge the blessings and support I received from my department teachers, family and friends who helped me and hence helped LUMEN to achieve the noteworthy milestones that you would see as you go through the magazine. Thank you, everyone. ~President



Shiksha Sabharwal

As another eventful, reverberating year has sped by and before we know it, the year is already over. 2020 was an unusual year for all of us which began tediously but ended quite differently. A year full of challenges, hard work, team work, leadership, love and growth, I owe it all to my Team, my sweetest Team LUMEN. Any journey in life is not always easy and serene, but a hassle which becomes easier when you have besides you a team full of persevering souls. With the help of our magnificent team and their commendable performance, we were able to accomplish plenty of our deliverables which evolved us in many ways. I would like to express my love towards my team which is strong and an army in itself that went beyond their ease to do the needful. LUMEN is home. I am forever grateful to my society convenors who chose a team like ours, supported us and allowed us to create evergreen memories that I will cherish for life. I would also like to acknowledge the ceaseless support of my teachers who believed in us. We wouldn't be here without them. Now that this journey has come to an end, it is painful yet beautiful to realize that another journey is about to commence. On this note, I wish my current team and the upcoming members all the best in their future endeavors and responsibility to maintain the bequest of LUMEN. God Bless LUMEN! ~Vice President

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- Zeno Paradox

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- खुद की खोज में
- जब-जब रब से राबता तोड़ेगा
- Emergence

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EVENTS **GLIMPSES**



Timeline of Events During The Academic Year 2020-21

LUMEN
The Physics and Electronics Society

Is glad to announce

DRAWING CONTEST

Drawing must be inspired by Physics and Electronics

The last date to submit entries is FEBRUARY 22, 2021

For any queries contact
Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

Mail us at:
lumen.hansrajcollege@gmail.com

LUMEN
The Physics and Electronics Society

Is glad to announce

BRAIN IT ON!

QUIZ COMPETITION

On Physics and Electronics

Register at:
<https://bit.ly/3rdsuap>

Day: Sunday, February 7, 2021
Time: 10 AM Onwards
Platform: MSTeams

Teacher Incharge
Dr. Maya Verma

Society Convenors
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

LUMEN | THE PHYSICS AND ELECTRONICS SOCIETY
HANSRAJ COLLEGE

Is glad to announce

SCIENCE WEEK 2021 : to celebrate the national science day!

#Event 1: February 25, 2021
Talk by Prof. Pankaj Tyagi on Innovation & Research at undergraduate level

#Event 2: February 26, 2021
Breaking Bounds: An open theme Project Presentation competition.

#Event 3: February 27, 2021
Tark Vitark: The Debate competition

#Event 4: February 28, 2021
Fit in Physicist: A presentation competition to become the physicist of your choice.

For any queries contact
Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

Teacher Incharge
Dr. Maya Verma

Society Convenors
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

Pankaj Tyagi is presenting

Playing with Numbers

321-123=198	4321-1234=3087
654-456=198	6543-3456=3087
987-789=198	9876-6789=3087
98-89=9	54321-12345=41976
65-56=9	98765-56789=41976
87-78=9	76543-34567=41976
76-67=9	
32-23=9	
21-12=9	

Do you see any pattern here?

Meeting details

People (44)

IN CALL

- Shiksha Sabharwal (You)
- A.K.J. jadhav
- Abdullah Inshad
- Abhishek Kaulthar
- aditya gauram
- Ajay Yadav
- Akshat Vishwas

LUMEN | THE PHYSICS AND ELECTRONICS SOCIETY
HANSRAJ COLLEGE

We are glad to announce an online workshop

PHYSICS UNPLUGGED

Let us understand some aspects of radio astronomy, mechanics, electromagnetism through fun activities.

Date: 13th February 2021
Time: 10:00 A.M.
Platform: MSTeams

Dr. MAMTA SAINI
Associate Professor | Department of Electronics

Dr. CHETANA JAIN
Assistant Professor | Department of Physics

Mr. DIBYAJYOTI DAS
Assistant Professor | Department of Physics

REGISTER NOW!

Society Convenors
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

Teacher Incharge
Dr. Maya Verma

For any queries contact
Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

Microsoft Teams meeting

Mohammad Saad is presenting

Meeting details

People (44)

Chat

IN CALL

- Ritu Raha
- Sachin Solanki
- Shashwat Khattar
- Shiksha Sabharwal
- Shreyash Dubey
- shrishri nayak334
- SK Sunil Kumar
- Sourabh kumar

Microsoft Teams meeting

Meeting details

People (44)

Chat

IN CALL

- Leelika Singh
- Smriti Gupta
- Anur Khurana
- ananya baga
- Pallavi Gupta
- phayya verma
- Ritu Raha
- Mohammad Saad
- Mohit Meena
- Sourabh kumar
- aditya singh
- Dibor Pathana
- Umesh Jangra
- Shashwat Khattar
- Shiksha Sabharwal
- Harshita Agarwal
- aditya singh

LUMEN
The Physics and Electronics Society

Welcomes all the New Members to the Hansraj Family

Orientation Day and Freshers Welcome Academic Session 2020-21

<https://bit.ly/2IPq1CD>

Day: Saturday, 21st November 2020
Time: 9:30 AM Onwards
Platform: MSTeams

Student Coordinators
Harshita Agarwal - President

Teacher Incharge
Dr. Maya Verma

Society Incharge
Dr. Mamta Saini

Principal Ma'am
Prof. Rama

WEBINAR

OBSERVING THE WONDER WORLD USING FLUORESCENCE SPECTROSCOPY & MICROSCOPY

11th MAY, 2020



DEPARTMENT OF PHYSICS AND ELECTRONICS
&
INTERNAL QUALITY ASSURANCE CELL
HANSRAJ COLLEGE
(NAAC A++ and NIRF #9)
UNIVERSITY OF DELHI
is organising a Webinar
On
National Technology Day



OBSERVING THE WONDER WORLD USING FLUORESCENCE SPECTROSCOPY AND MICROSCOPY



Speaker : Dr. Sobhan Sen
Associate Professor
Jawaharlal Nehru University

Organizers
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

Teacher Incharge
Dr Maya Verma

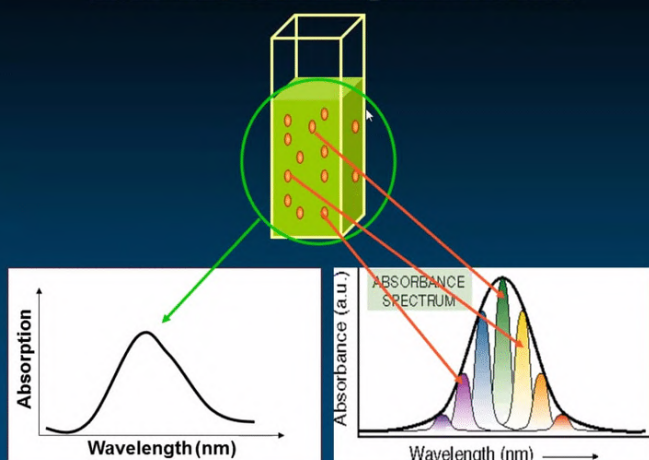
Date 11 May 2020
Time 11:00 am-12:30pm

IQAC Director
Dr. Mona Bhatnagar

Patron
Prof (Dr) Rama
Principal
Hans Raj College

LUMEN, the student's society of the Department of Physics and Electronics, Hansraj College organized a webinar on "Observing the Wonder World using Fluorescence Spectroscopy and Microscopy" on the National Technology Day on 11th May 2020, at 11:00 a.m. on the zoom platform. The speaker for the webinar was Dr Sobhan Sen who is Associate Professor in the School of Physical Sciences, at Jawaharlal Nehru University. The webinar was coordinated by Dr Mamta Saini, Dr Maya Verma, Dr Chetana Jain and Mr Dibyajyoti Das. This webinar was organized under the aegis of Internal Quality Assurance Cell (IQAC) of the college. The webinar focused on various topics such as the light-matter interaction, the single molecule fluorescence spectroscopy techniques, applications and experimental monitoring of single molecule dynamics; super-resolved fluorescence microscopy techniques and applications and fluorescence correlation spectroscopy. There were about 80 participants which included faculty members and students.

Ensemble Vs. Single Molecule



So What is Spectroscopy?

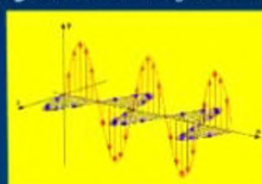
Spectroscopy is the study of the interaction between **Radiation (Light)** and **Matter**.

What is Light?

Light is wave, as well as particle!
Dual nature of Light!

$$p = h / \lambda$$

Light is Electromagnetic wave,



Light is also Photon Particle



LUMEN | THE PHYSICS AND ELECTRONICS SOCIETY
HANSA RAJ COLLEGE

presents a webinar on
**AERIAL ROBOTICS
AND UNMANNED
SYSTEMS**

Saturday, 10th October 2020
3:00 p.m. to 4:00 p.m.
Platform: Microsoft Teams

Lt. Cdr. John Livingstone
Founder, CEO & Product Architect, Johnnette Technologies Pvt. Ltd.
Founder & Executive Director, Indian Institute of Drones
Former UAV External Pilot, Indian Navy.

Register at <https://bit.ly/34CLMw9>

Student Coordinators
Shiksha Sabharwal : 9811194870
Mohammad Saad : 7270871800

Teacher Incharge
Dr. Maya Verma

Faculty Coordinators
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

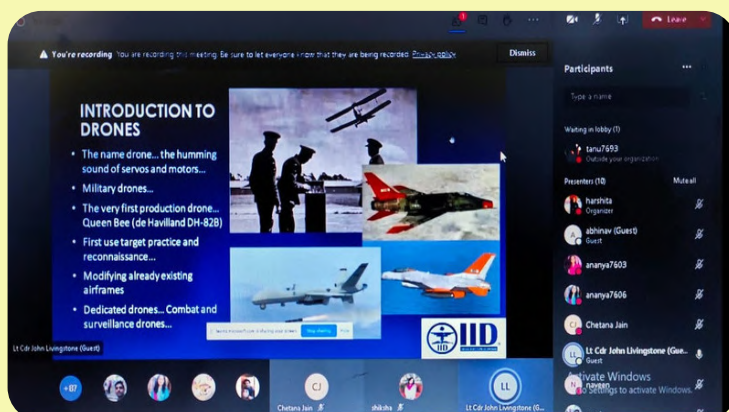
WEBINAR

AERIAL ROBOTICS AND UNMANNED SYSTEMS

10th OCTOBER, 2020

In its inaugural event, LUMEN brought an amazing opportunity for students to learn about drones and how they'll be a significant part of our lives in the near future. Event began with a warm welcome of our speaker Lt. Cdr. John Livingstone, former UAV external pilot in the Indian Navy. He is the Founder CEO & Product Architect at Johnnette Technologies Pvt. Ltd. as well as the Founder and Executive Director at the Indian Institute of Drones. His expertise in the subject of drones is unparalleled and we were extremely fortunate to have him as our speaker.

He started off by introducing himself, how he got into the world of drones. He explained how when he was in college (just like us), he took part in a robotics competition and that's where he got to know about aerial robotics. From there on, his world got completely wrapped around drones and robotics. He elucidated about how drones first came into being, what are the different types of UAVs, what are the different applications a drone can be used for and how one can become involved in this industry. He answered all the queries put forward by the students about his presentation.



LUMEN
The Physics and Electronics Society

Welcomes all the New Members to the Hansraj Family

**Orientation Day and
Freshers Welcome
Academic Session 2020-21**

<https://bit.ly/2IPq1CD>

Day: Saturday, 21st November 2020
Time: 9:30 AM Onwards
Platform: MSTeams

Student Coordinators
Harshita Agarwal - President
Shiksha Sabharwal - Vice President

Teacher Incharge
Dr. Maya Verma

Society Incharge
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

Principal Ma'am
Prof. Rama

ORIENTATION PROGRAMME

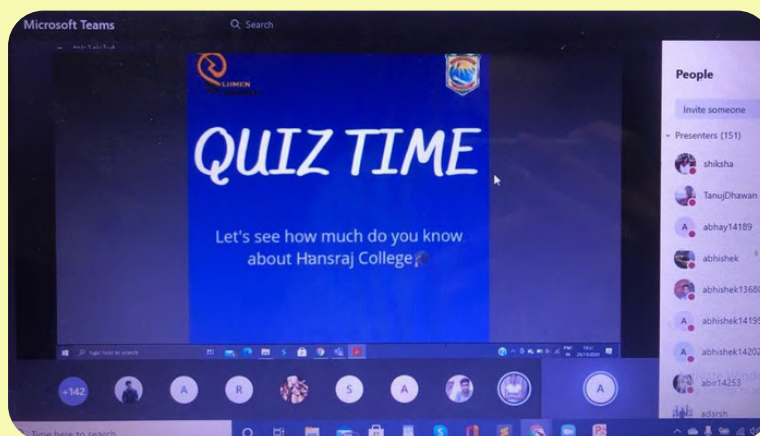
ACADEMIC SESSION 2020-21

21st NOVEMBER, 2020

On November 21, 2020, LUMEN organized a momentous Orientation programme to welcome the newly admitted first year batch. The event was conducted virtually on MS Teams at 9:30 am in the presence of the honourable teachers of the Department. It commenced with a warm welcome of new members of the Physics and Electronics family followed by melodious Saraswati Vandana, hailing the Goddess of Knowledge and Wisdom. The department teachers wished them good luck for their upcoming academic journey.

A brief introduction about the college and the department, course, syllabus and CBCS system followed by the university was given to the students. An overview about different societies in the college and their enrollment process, beneficial information regarding scholarships and competitive exams was also given to the students.

After this informative session, ice- breaking activities were there in the row. A general quiz session about Hansraj College, made them know interesting and intriguing facts about their college. Pictionary activity brought about many cheerful responses from the freshers. A brainstorming treasure hunt was given as a group activity to the students with the purpose of enhancing their interaction among one another. Everyone participated in these fun activities with great zeal, making it one of the most memorable parts of the programme. The event came to an end with the vote of thanks and group pictures having beautiful smiles.



LUMEN
The Physics and Electronics Society

Is glad to announce

BRAIN IT ON!

QUIZ COMPETITION
On Physics and Electronics

Register at:
<https://bit.ly/3rdsuap>

Day: Sunday, February 7, 2021
Time: 10 AM Onwards
Platform: MSTEams

For any queries contact
Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

Teacher Incharge
Dr. Maya Verma

Society Convenors
Dr. Mantta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

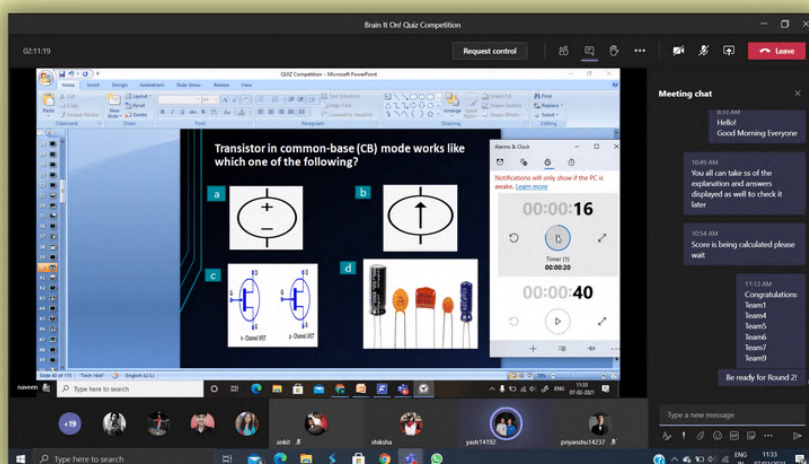
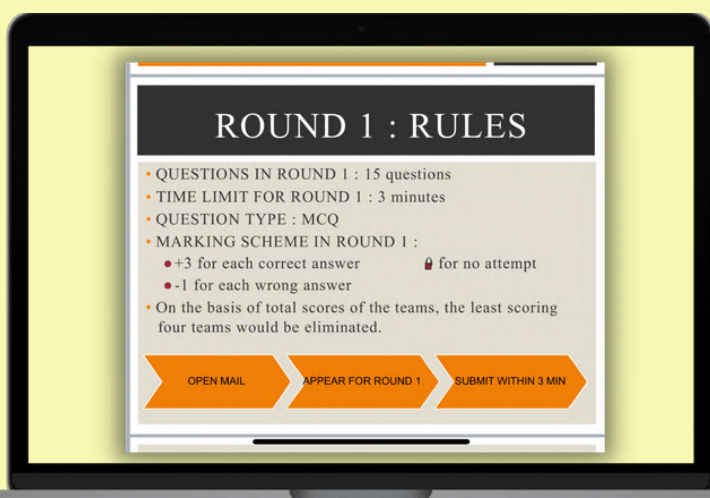
QUIZ COMPETITION BRAIN IT ON!

7th FEBRUARY, 2021

LUMEN organized its first competition for the academic session 2020-21 on February 7, 2021. It was a quiz named 'Brain it on!' which tested the grip of the students on the concepts of Physics and Electronics they had learnt so far. The event was conducted online on Microsoft Teams platform and was graced with the presence of our respected convenors and teachers who extended a warm welcome to the participants and gave them best wishes for the competition.

In total, 10 enthusiastic teams comprising of students pursuing Physics and Electronics participated in this exciting event.

The quiz was divided into four rounds namely MCQ round, picture & video based questions round, assertion and reasoning round and the rapid fire round. Every round was an amalgamation of questions from both Physics and Electronics. All the participants were instructed very briefly about the rules of each round before its commencement and they performed accordingly. The quiz was an enriching experience for all the participants because of the kind of questions that were put before them. The challenging questions and highly competitive nature and conduct of the quiz made the experience even better.



LUMEN
The Physics and Electronics Society

Is glad to announce
BRAIN IT ON!
QUIZ COMPETITION
On Physics and Electronics

Register at:
<https://bit.ly/3rdsuap>

Day: Sunday, February 7, 2021
Time: 10 AM Onwards
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For any queries contact
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Teacher Incharge
Dr. Maya Verma

Society Convenors
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

QUIZ COMPETITION

BRAIN IT ON!

7th FEBRUARY, 2021

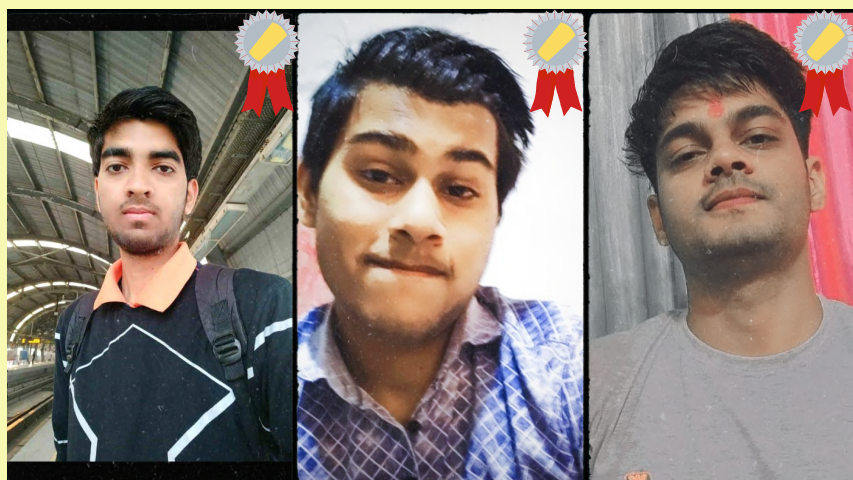
The winning team comprised of Swapnil, Aditya and Umesh, all students of first year Physics (H). The runner-up team was from Electronics(H) second year consisting of Harshit, Ankit and Anshul. Before concluding, Dr. Chetana Jain congratulated the students and LUMEN core team for organizing such a successful event. Vote of thanks delivered by the host and the hope of getting together for more such events marked the end of this amazing quizzing session.



SWAPNIL
B.Sc. Physics
Year I

ADITYA
B.Sc. Physics
Year I

UMESH
B.Sc. Physics
Year I



ANSHUL
B.Sc. Electronics
Year II

HARSHIT
B.Sc. Electronics
Year II

ANKIT
B.Sc. Electronics
Year II

Is glad to announce a workshop

**PHYSICS
UNPLUGGED**Date: 13th February 2021
Time: 10:00 a.m
Platform: MSTeamsDr. MAMTA SAINI
Associate Professor |
Department of
ElectronicsDr. CHETANA JAIN
Associate Professor |
Department of
PhysicsMr. DIBYAJYOTI DAS
Associate Professor |
Department of
Physics**REGISTER NOW!**

Society Convenors

Dr. Mamta Saini
Dr. Chetana Jain, Mr. Dibyajyoti Das

Teacher Incharge

Dr. Maya Verma

For any queries contact

Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

WORKSHOP

PHYSICS UNPLUGGED

13th FEBRUARY, 2021

Aiming to develop curiosity and a keen interest in physics, our respected teachers organized a virtual workshop - Physics Unplugged on MS Teams at 4 pm on 13th February 2021.

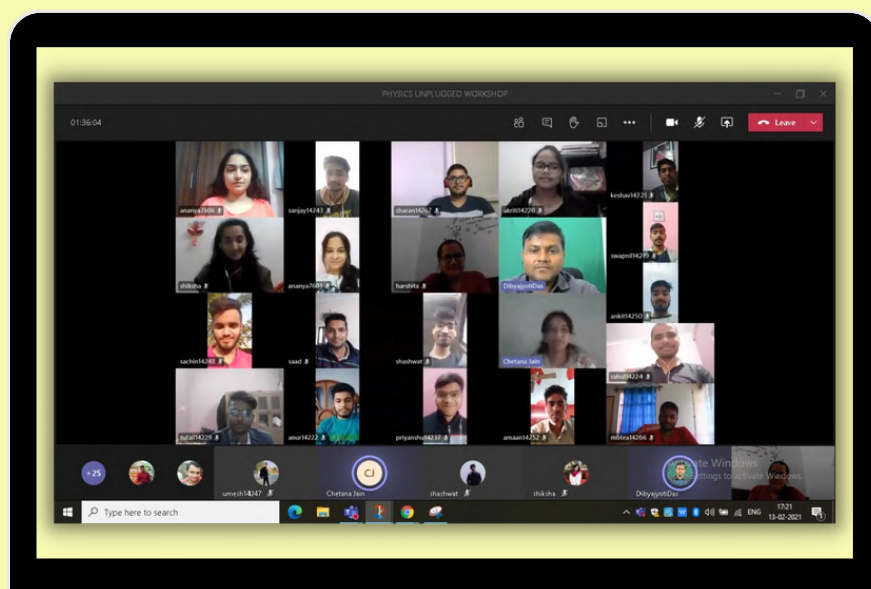
It began with a warm welcome of Dr. Mamta Saini, Dr. Chetana Jain, Mr. Dibyajyoti Das, and to the enthusiastic students.

The speakers raised some simple but profound questions which are often taken for granted. Discussions and detailed video explanations were held on all the topics, ranging from mechanics, sound and acoustics, to electromagnetic radiations. Experimental proof of Inverse square law using household materials was demonstrated.

An insight of Wi-fi detector, Light intensity detector, inelastic collisions and oscillations using the Phyphox app was given.

Students were encouraged to imagine, explore and innovate by making projects on their own and get them certified from the teachers.

Highly positive responses from the students marked it as another successful event of the session. The event came to an end with a vote of thanks to one and all present.



STUDENTS PROJECTS

1

PROJECT - SIMPLE PENDULUM
BY - RAHUL SINGH
COURSE - B.Sc. Physics (Year I)



RAHUL SINGH

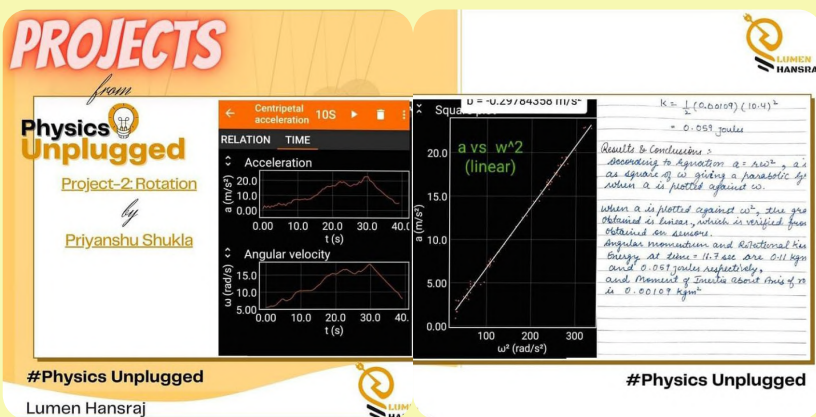


2

PROJECT - ROTATION
BY - PRIYANSHU SHUKLA
COURSE - B.Sc. Physics (Year I)



PRIYANSHU SHUKLA

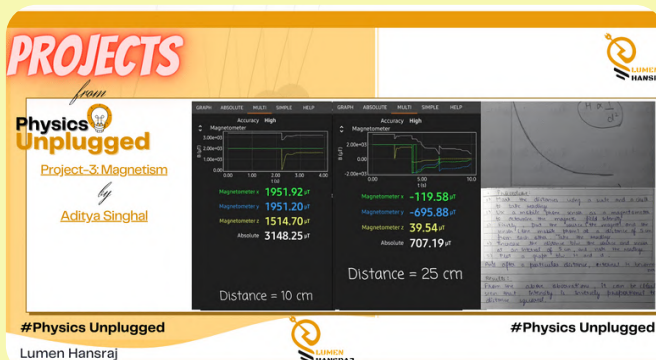


3

PROJECT - MAGNETISM
BY - ADITYA SINGHAL
COURSE - B.Sc. Physics (Year I)



ADITYA SINGHAL



STUDENTS PROJECTS

AN EQUATION MEANS NOTHING TO ME UNLESS IT EXPRESSES A THOUGHT OF GOD. ~SRINIVASA RAMANUJAN

Creativity is everywhere. Everyone has a special talent. I believe that God has gifted everyone a beautiful set of skills.

All of us are aware of the magic square but I found it even more wonderful when I made one on my own.

My date of birth is January 5, 2003. Hence, I used 05, 01, 20, 03 as the elements of the first row, applied the trick, and to my amazement, I was able to construct a magic square which had 29 as the sum of the elements of each column, each row and even the diagonals.

MAGIC SQUARE

• Date :- 05-01-2003 •

05	01	20	03
04	19	-2	08
-1	07	05	18
21	02	06	00

• Columnwise, Row wise and diagonally the sum is +29 •

All thanks to LUMEN –The physics and electronics society, for organizing its science week's very first event * Talk with Prof. Pankaj Tyagi * from Cluster Innovation Centre, DU. "It would have been impossible to make such a wonderful magic square without his precious guidance. The way he presented such amazing tricks that day, was fabulous and they all worked successfully. I wholeheartedly thank him and the entire team of LUMEN for such a great and memorable session.

UMESH JANGRA, BSC (H) Physics, I

NATIONAL SCIENCE WEEK

25th FEBRUARY, 2021

LUMEN organized a series of exhilarating events to celebrate national science week instilling the same fervor among the science enthusiasts even in this difficult time.

EVENT 1

LUMEN | THE PHYSICS AND ELECTRONICS SOCIETY
HANSRAJ COLLEGE

**SCIENCE WEEK
EVENT#1**
TALK BY PROF. PANKAJ TYAGI
ON INNOVATION & RESEARCH AT UNDERGRADUATE LEVEL

Date: February 25, 2021
Time: 2 PM-3.30PM
Platform: Google Meet

Society Convenors
 Dr. Mamta Saini
 Dr. Chetana Jain
 Mr. Dibyajyoti Das

Teacher Incharge
 Dr. Maya Verma

For any queries contact
 Harshita Agarwal - +91 96537 44209
 Shiksha Sabharwal - +91 98111 94870

As part of the National Science Week, LUMEN conducted its maiden day talk on the topic “Innovation and Research at Undergraduate Level” by Prof. Pankaj Tyagi from Cluster Innovation Centre, University of Delhi on 25th February 2021. The event turned out to be a really intriguing one where the speaker commenced by pointing out the wide difference between research and innovation. He stressed the need to pose each problem differently in order to help students to learn innovatively and to articulate their scientific imagination into the physical world. Towards the end, he answered all the questions posed by the students and lauded each and every student for their effort in making the session quite interactive.

Pankaj Tyagi is presenting

Designing computer based OMR Sheet & related program for conducting and evaluating MCQ type Internal assessment test in class

Meeting details

People (53)

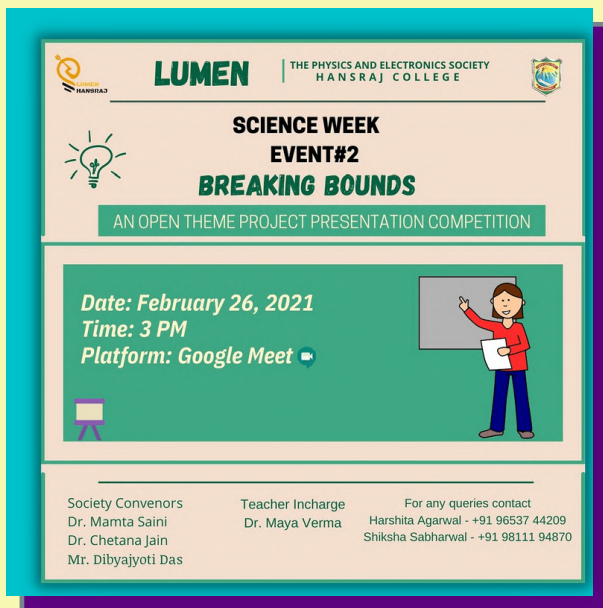
IN CALL

- Shiksha Sabharwal (You)
- A.K.J. jakhar
- Abhishek Kaushal
- aditya gautam
- Ajay Yadav
- Akriti Vishwas
- ananya dagur

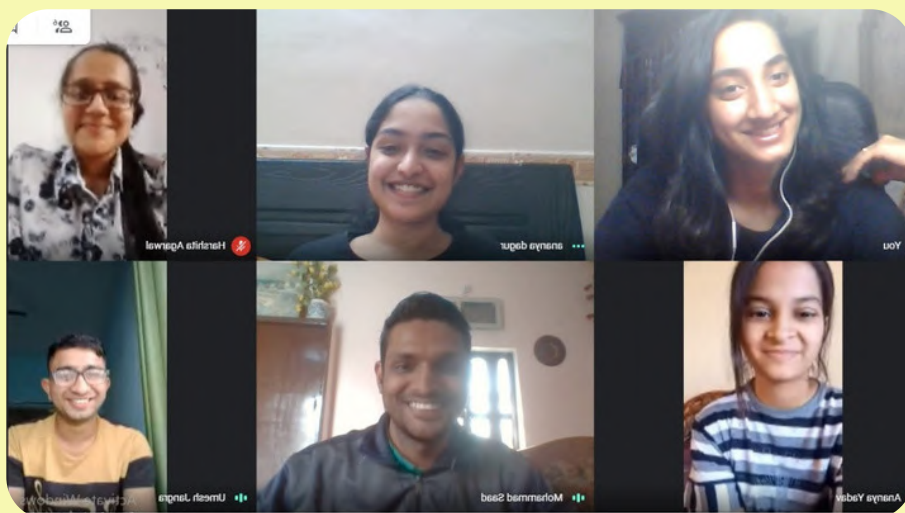
NATIONAL SCIENCE WEEK

26th FEBRUARY, 2021

EVENT 2



Celebrating science week on the auspicious occasion of National science day, on Day 2, we witnessed Breaking Bounds The Project Presentation Competition on February 26, 2021. This was an open-themed project Presentation Competition. The project made by Umesh Jangra from Hansraj College stood first. His project was about inverse square law. He innovatively discussed the law.

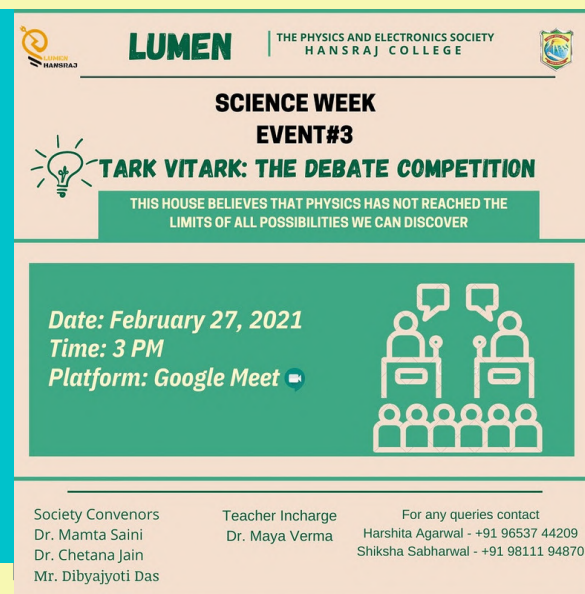


UMESH JANGRA
B.Sc. Physics (I)

NATIONAL SCIENCE WEEK

27th FEBRUARY, 2021

EVENT 3



LUMEN | THE PHYSICS AND ELECTRONICS SOCIETY
HANSRAJ COLLEGE

**SCIENCE WEEK
EVENT#3**

TARK VITARK: THE DEBATE COMPETITION

THIS HOUSE BELIEVES THAT PHYSICS HAS NOT REACHED THE
LIMITS OF ALL POSSIBILITIES WE CAN DISCOVER

Date: February 27, 2021
Time: 3 PM
Platform: Google Meet

Society Convenors
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

Teacher Incharge
Dr. Maya Verma

For any queries contact
Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

“To raise new questions, new possibilities, to regard old problems from new angles, requires new imagination and marks real advance in science.” – Sir Albert Einstein

This quote aptly describes the spirit of LUMEN, which focuses upon developing a questioning temper among students that encourages them to ask the right questions and eventually learn by finding answers to these questions.

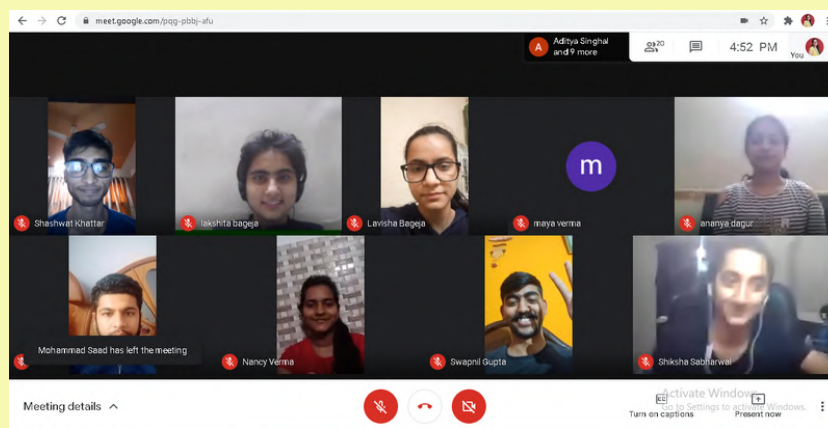
In order to fulfil the same motive another successful event 'Tark Vitark: the debate competition' was added to the string of events of the Science week. The event was held on February 27, 2021, via Google Meet platform.

The topic of the debate was –“This house believes that physics has not reached the limits of possibilities we can discover.”

The intriguing topic enabled the students to research more about different avenues of science and holistically present their point of views. The thoughts of the dedicated participants compelled the audience to think differently and made them wonder about some things in awe.

The debate competition was graced by participants from various colleges and institutions who participated in pairs having one member speaking in favour of the motion and the other member speaking against the motion.

The competition was judged by our esteemed teachers Dr. Maya Verma and Dr. Hema Chutani from the Physics department of our college. Questions were asked from the participants by the judges which helped the participants to establish and present their views on the topic more firmly.



NATIONAL SCIENCE WEEK

27th FEBRUARY, 2021

WINNERS



SHIVAM RAI
MOTILAL NEHRU COLLEGE, DU

ADITYA MISHRA
MOTILAL NEHRU COLLEGE, DU



LAVISHA BAGEJA
Vivekananda Institute of Professional Studies

LAKSHITA BAGEJA
Sri Venkateswara College, DU

NATIONAL SCIENCE WEEK

28th FEBRUARY, 2021

EVENT 4

LUMEN | THE PHYSICS AND ELECTRONICS SOCIETY
HANSRAJ COLLEGE

**SCIENCE WEEK
EVENT#4
FIT IN PHYSICIST**

A PRESENTATION COMPETITION TO BECOME THE PHYSICIST OF YOUR CHOICE

**Date: February 28, 2021
Time: 3 PM
Platform: Google Meet**

Society Conveners
Dr. Mamta Saini
Dr. Chetana Jain
Mr. Dibyajyoti Das

Teacher Incharge
Dr. Maya Verma

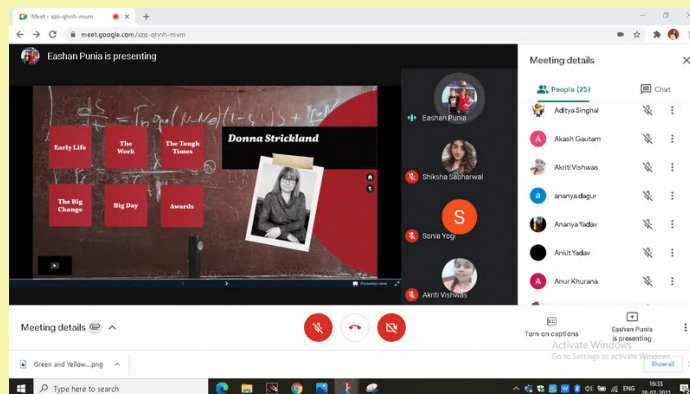
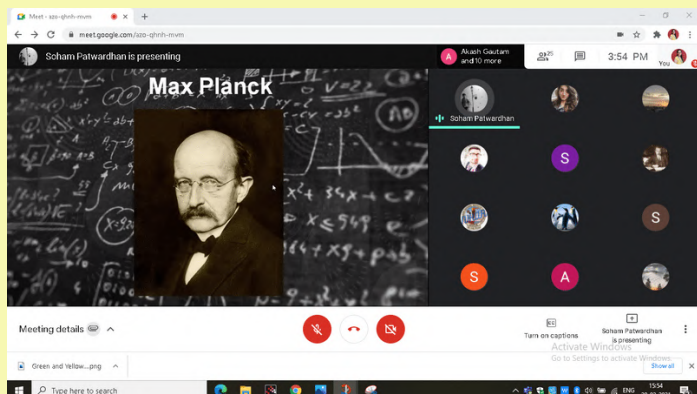
For any queries contact
Harshita Agarwal - +91 96537 44209
Shiksha Sabharwal - +91 98111 94870

On the occasion of National Science Day i.e. February 28, 2021, LUMEN successfully completed the series of events of the Science week with 'Fit in Physicist' as the final event.

The event was a presentation competition where participants fitted into the character of a well known Physicist and explained their most celebrated work.

Participants also described the journey of the Physicists, their inspirational life story, their breakthroughs and their contributions to the development of Physics. Each participant was allotted a time slot of 7-8 minutes for presenting everything through presentations and verbal explanation. Questions related to the presentation were asked from the participants thereafter, by our esteemed judge Ms. Sonia Yogi.

The event concluded with the announcement of winners and a vote of thanks. The feedback of the students revealed that the event was, indeed, an enriching experience for all the students who were a part of it.

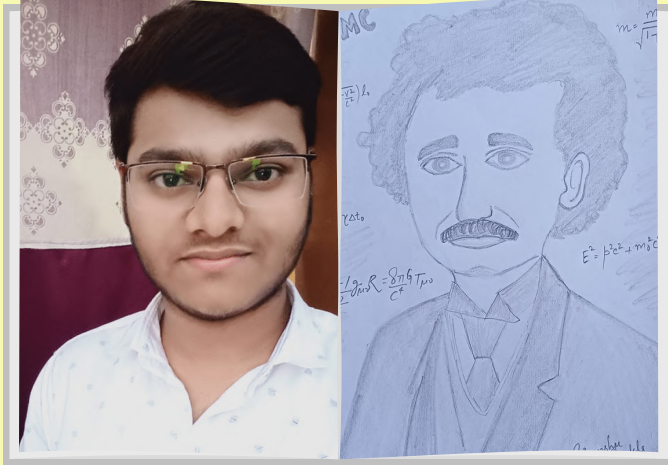


NATIONAL SCIENCE WEEK

28th FEBRUARY, 2021

WINNERS

1



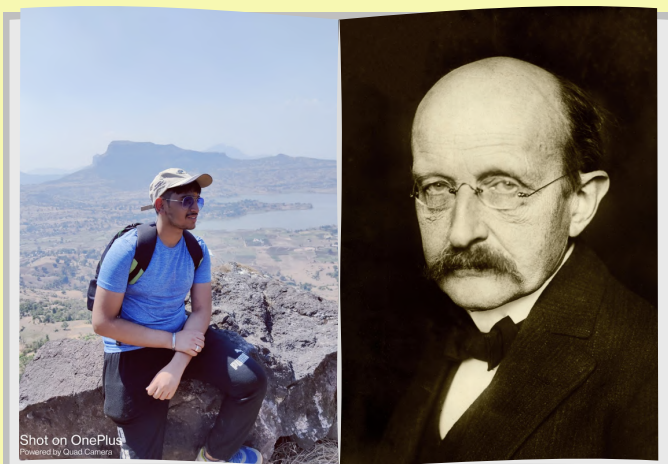
PRIYANSHU SHUKLA
as Dr. ALBERT EINSTEIN.
B.sc (H) Physics, I Year,
Hansraj college
(Photo Credit : Priyanshu Shukla)

2



UMESH JANGRA
as Dr. CV RAMAN
B.sc (H) Physics, I Year,
Hansraj College
(Photo Credit : [wikimedia.org/Sir_CV_Raman.JPG](https://commons.wikimedia.org/wiki/File:CV_Raman.jpg))

3



SOHAM PATWARDHAN
as Dr. MAX PLANCK
B.sc, I Year,
K.J Somaiya College
Photo Credit: https://upload.wikimedia.org/wikipedia/commons/3/3d/Max_Planck_1933.jpg

ARTICLES

BLOOMING BUDS



Blooming Buds

Articles

New definition of Kilogram

Before we begin, let's imagine a situation, suppose you go to a dairy shop for buying cheese and milk and like a reasonable shopkeeper he asks you how much? Now, suppose, you live in a world which is without any units or metric system whatsoever. You answer the shopkeeper that you want 3 cheese and 2 milk. Now how does that sound to you? Awkward? Yeah I know, but by understanding this little example you have understood the needs of units and how they come into picture in our daily life. Well, units are nothing but the way of telling someone, how much in quantity, you need something. Simple? Right. But apart from helping us to measure things, units also help us to differentiate between different objects.

Now next question is if we have units and all, then how do we define S.I units? According to Wikipedia, "the international system of units (S.I) is the modern form of metric system which consists of seven base units" which are in the chart given below and from these base units, any quantity can be described.

International System of Units - SI	
K	▶ kelvin (temperature)
m	▶ meter (distance)
A	▶ ampere (electric current)
s	▶ second (time)
mol	▶ mole (amount of substance)
kg	▶ kilogram (mass)
cd	▶ candela (intensity of light)

Picture Credit:
<https://www.google.com/2Finternational-system-of-measurement-si-2>

Simply, we can say that SI units are formed in order to standardize things for the whole world. 'But, what is the purpose? The answer is simple, which is, to maintain neutrality while trading between different regions or countries and to make things less complex because different regions of a country can have different way to measure things, which in turn, can make things very confusing. For example, in India, distance is measured in kilometer(km) while in the USA, it is measured in miles but both of these units are bound together by S.I unit meter which makes it possible to create a common understanding among people about the commonly used non SI units popular in a region.

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Articles

Now if we dig a little deep into our history then we may find out that people have understood the necessity of units a long time ago. The first ever historical evidence of a metric system takes us back to 3rd and 4th millennia BC among the ancient people of Egypt, Mesopotamia and Indus valley civilization where cubit was a unit used for equal construction purposes to the length of forearm from elbow to the tip of the middle finger (≈ 46 cm) but there was no standardization. until 1875, when General Conference On Weights And Measures (CGPM) was established by meter convention which brought many international organizations together in order to find a standard way to measure things and to fix definitions of those standard measures which could be acceptable to whole world and thus, the need of SI units arose first time and finally in 1960, SI unit system was formally published. But on which parameters, on what definitions did they classify what should 1 meter or 1 kg be equal to? The earlier definitions were mostly based on the artifacts or man-made objects or by some things which can't remain constants forever like for example, in 1793, meter was defined as one ten-millionth of the distance from the equator to north pole and in 1799, meter was redefined in terms of a prototype meter bar and finally in 1983, it got its current definition which is defined as the length of path travelled by light in a vacuum in $1/299,792,18$ second. problems with those definitions were the objects that they were based on or how precise results we could get from those methods. An object can be damaged or one can do so many mistakes while calculating distance from equator to North Pole. There would always be some place for approximations in those methods. Redefining a unit doesn't mean changing its value from the previous definition, rather, it means keeping that value constant by making it more accurate with a more precise method.

If the definitions are not stable and can't keep the value of a unit constant then it can wreak havoc in the world itself. For example, historically, second was measured by the rotation of earth. So think, if rotation of earth becomes slower then a second would become larger, a car travelling with 30 km/hr would travel more distance, several other units which are dependent on second would possess some error and so on, and that was the reason why such methods were rejected by CGPM, due to this, the need of defining these units by using universal constant were arose for the first time. In Nov 2018, 26th CGPM unanimously approved these changes, which international committee for weights and measures (CIPM) had proposed earlier. Thus, on 20th of May 2019, on the 144th anniversary of meter convention, aka world metrology day, the redefinition of four of the seven base units, i.e., kg, ampere, Kelvin and mole took place and set to universal constant like plancks constant, charge of an electron, Boltzmann constant, Avogadro constant respectively. The second, meter and candela were already defined by some universal constants.

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Articles

The center of attraction of this whole event was none other than kilogram as this was the only base unit among the seven base units which was dependent upon a physical object named IPK which was the definition for a kg for over 143 years. IPK stands for international prototype kilogram. It is a roughly golf ball sized object made of platinum alloy known as “Pt-10Ir” which provides it more hardness, high density etc. than its predecessor “kilogramme des archives” which was solely made of Platinum. The weight of IPK is considered to be a kg and all other calibrations in the world were measured against it. There are total 40 original copies of IPK, many of which, were given to different countries for the calibration of their own mass standards while IPK and its six sister copies are stored at international bureau of weights and measures (BIPM) in an environmentally monitored vault in Paris. Three independent keys were given to three different people and the vault can only be opened by the three keys together. IPK was opened roughly every 40 years to measure standards. Although IPK is in the vault encased in a trio of vacuum sealed bell jars undisturbed for most of its life, it is still gaining or losing weight over time due to the atmospheric adsorption on the metal surface of IPK. On the basis of latest measurement, IPK has been found to have lost around 50 μg in mass which, theoretically, shouldn't happen as IPK is the definition of kg. plus, original IPK is locked in a vault and simply inaccessible, which in turn, makes it super hard to calculate kg in any lab around the world with the right apparatus as we can't rely on the copies of IPK to measure the kg and because of such reasons, Planck's constant comes into the picture which is a universal constant and an unchangeable quantity.

In simple words, Planck's constant can be described as the smallest action of a photon and it relates energy of a photon to its frequency with the help of expression, $E = hf$ where h is the Planck's constant. But the problem is how are we going to define kilogram with Planck's constant? The answer to the rescue comes with the watt balance, now known as kibble balance, named in the honor of its deceased founder Bryan kibble.

It ,sort of, looks like a normal balance but instead of measuring weight on both sides of balance, we do the measuring only on the left side. Kibble balance can work in two modes. One is weighing mode and other one is velocity mode. Now here comes some scientific stuff which I have tried to keep it as minimal as possible. So, in weighing mode, we put the mass on the pan and passed the current through the coil located between two magnets just below the mass pan. Now, the coil starts moving until the gravitational force becomes equal to the magnetic force, i.e. , $mg = BIL$. Now, the tricky part here is to find magnetic field B and length of coil L , for which, we will use the kibble balance in the velocity mode, in which, mass is lifted off the pan and motor, on the right side, is used to move the coil back and forth with constant velocity v . Due to which, magnetic flux through the coil will change, which in turn, will induce the emf V in the coil

$$V = BLv$$

$$V/v = BL \quad \text{-----eqn 1}$$

$$BL = mg/I \quad \text{----- eqn 2}$$

From eqn 1 and 2:

$$VI = mgv \quad \text{-----eqn 3}$$

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Articles

This means electrical power is equal to mechanical power and watt being the SI unit of power, it is called watt balance. But how can we introduce Planck's constant in this equation? Now, it turns out that we can calculate induced voltage using a macroscopic quantum effect that includes Josephson junction. A Josephson junction consists of two semiconductor separated by a thin piece of insulator and if we pass a microwave radiation through that junction, we create a voltage across the device which is equal to $hf/2e$. There are thousands of stacks of Josephson junction put in the coil and we can obtain any kind of voltage by tuning that frequency accurately and that's how we balance the induced voltage in the coil with Josephson junction. Now, instead of calculating current directly, we calculate it by using V/R by passing the voltage through R and then again calculating the voltage by Josephson junction. We use quantum Hall effect to measure R where R is equal to $(1/p) \cdot (h/e^2)$ where p is an integer fraction. Now, substituting all equations in equation 3, we get

$$h = 4gvm/pn^2 f^2$$

Where $m = 1 \text{ kg}$ and that's how we relate a kg mass to Planck's constant.

It may not seem a big step for now but it will have an enormous impact on science. It will ease the calculations and will provide more precise results on the microscopic level. This redefinition will provide the kg its long term stability and will give us the new direction towards attaining sustainable approach to science.

References Used to write this article:

<https://greg.org/archive/2009/08/25/the-international-prototype-kilogram-or-le-grand-k.html>

The kilogram has changed forever. Here's why on Youtube

~ Naveen Vashistha, Bsc (H) Electronics, II Year

Blooming Buds

Articles

Search of spectrum: How electromagnetic waves were discovered?

There are many discoveries in the field of science which occur on a daily basis. 50% of them are unintentional or unplanned. Some of them are really interesting. Not as interesting as sci-fi movies (maybe because writers of sci-fi are from different world and that's why every movie has its own set of time traveling rules.) But most of these discoveries are far more interesting than any other Bollywood film. (No offense!! I said interesting). Today let's find how electro- magnetic waves like microwave, radio waves , infra red ,UV rays were discovered. First of all, when these waves are arranged in order of increasing frequency and decreasing wavelength or vice versa that arrangement is called a spectrum and that justifies the title "Search of spectrum". Visible light is also a part of this spectrum but as the name suggests they are visible ,therefore no discovery was required .The first discovery of an electromagnetic radiation or wave other than visible light came in the year 1800. Which was:

1. Infra Red Radiation: Once William Herschel was studying different colors of visible rays (VIBGYOR) at different temperatures. He noticed that the thermometer he placed in red region had slightly moved away from its position and showing even a higher temperature than in red region . At that time it was named as "calorific rays" but later its name was changed to " Infra Red" rays. This, ladies and gentlemen, was the first knock by Electro Magnetic waves, as they told about their special existence in our world . After the discovery of Infra Red rays there was a race to find about our new invisible friends. One year later another wave was discovered but this time it was present on the opposite side of visible rays that is towards the violet side that's why they were called .

2. Ultra Violet Waves: Next year German physicist and pharmacist Johann Wilhelm Ritter performed a different experiment. Ritter placed a little pile of light sensitive silver chloride in each, visible color as well as in the dark area next to the violet end of the spectrum. Sure enough, the pile in the unlit (beyond VR) patch darkened more than the pile in the violet patch. What's beyond violet? "Ultra" violet, better known today as UV or UV rays.

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Articles

3. Radio waves and Microwave: Around 1860s James Maxwell developed four partial differential equations for the electromagnetic field. These equations predicted an infinite number of frequencies of electromagnetic waves, all traveling at the speed of light. This was the first indication of the existence of the entire electro- magnetic spectrum. In order to prove Maxwell's equations Heinrich Hertz (owner of unit of frequency) built an apparatus to generate and detect what are now called Radio waves. In later experiments, Hertz similarly produced and measured the properties of microwaves, which have higher frequency and lower wavelength than the radio waves.

Fun Fact about Microwaves :- In 1964 two American physicists and researchers Arno Penzias and Robert Wilson of Bell Telephone Laboratories were searching for new channel for communication in microwave band. They recorded the presence of microwave but there was nothing in front of antenna which could produce microwaves when they went to check the antenna they found the nest of pigeon, when they cleared it up there was actually a slight difference in reading but still an unknown source of microwave was present there. Later it was found that what they were recording was not only microwave but Cosmic Microwave Background(CMB) coming from the space, result of the big bang (but this topic is for another time).

4. X Rays: In 1895 Wilhelm Röntgen noticed a new type of radiation emitted during an experiment with an evacuated tube subjected to a high voltage. He called these radiations "x- rays" and found that they were able to travel through parts of the human body but were reflected or stopped by denser matter such as bones. After that, many uses were found for them in the field of medicine.

5. Gamma Rays: In 1900 Paul Villard was studying about the radioactive emissions of Radium when he identified a new type of radiation that he first thought consisted of particles similar to known alpha and beta particles, but with the power of being far more penetrating than either of them. However, the name "Gamma rays" was given to these rays in 1903 by Ernest Rutherford. Rutherford along with Edward Andrade found that gamma rays were similar to X-rays, but with shorter wavelengths and higher frequencies.

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Articles

With this, ladies and gentlemen, we came to the end of our search but why was the search of spectrum is important? I mean, why? If you read carefully, you will see that time gap between discovery of IR (in 1800) and of Gamma rays (in 1900) is almost a century. Why did those scientists waste their 100 years on something which we can't even see ? I mean, don't they have work to do like posting the food they made on Instagram or Snapchat stories. Let's understand this with an example . Imagine you bought a new house, when you reach there you found that there's a door which takes you to a staircase going under the ground. The second most strong feeling inside your heart (first will be fear, of course) will be of curiosity. As we humans are known for good pattern recognition and curiosity. So, no matter how much you are frightened but you will look inside that place. Now this nature is our house and when William Herschel found Infra Red Radiation that opened a door to the new world, world which cannot be seen with our eyes, world which shows some of the wonderful pictures to us(like that of super novas and all). And as a curious human we must take a visit to this world and we did.

References Used to write this article:

Astrophysics for People in a Hurry By Neil deGrasse Tyson

<https://www.spacelegalissues.com/the-electromagnetic-spectrum/>

<https://espectro.org.br/en/content/electromagnetic-spectrum>

<https://courses.lumenlearning.com/boundless-physics/chapter/history-and-quantum-mechanical-quantities>

- Himanshu, BSc Physical Science with Computer Science, II Year

Blooming Buds

Articles

Zeno Paradox

What is a PARADOX?

A word, you might have read in a newspaper or a magazine or in a text book or even in your favorite Marvel comics. So, what is a paradox exactly?

A paradox is a logically self-contradictory statement. It leads to some absurd conclusions despite sound reasoning from acceptable premises. Some of these crumble upon mere critical thinking but others help in unraveling the mysteries of the cosmos. One such class of paradoxes is Zeno's Paradoxes.

Zeno's paradoxes --

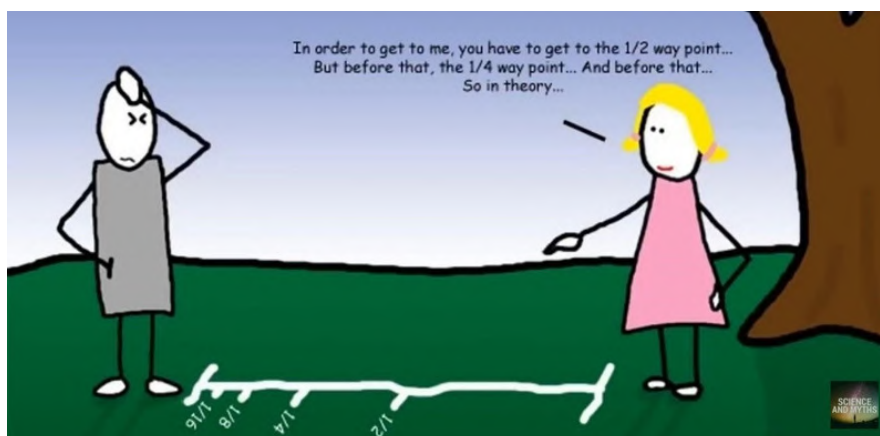
As the name suggests, these were devised by the Greek philosopher, Zeno of Elea. Seemingly simple set of paradoxes, when inspected, thoroughly provides some great insights to the very fundamental concepts of "motion" and "time".

Debate continues on the question of whether or not Zeno's paradoxes have been resolved.

So hold fast to your seats and get ready for some brainstorming!!

Dichotomy Paradox

A child has to travel 1 km to complete his journey. As per Zeno, in order to travel 1km, he first has to get half way to the destination point i.e. 0.5 km. Time taken to cover this part of his journey is finite. Once he gets to this point, he has to cover half of the remaining distance. Again he takes some finite time to do so.



(Picture Credit :<https://www.google.com/Why-doesnt-Zenos-paradox-work>)

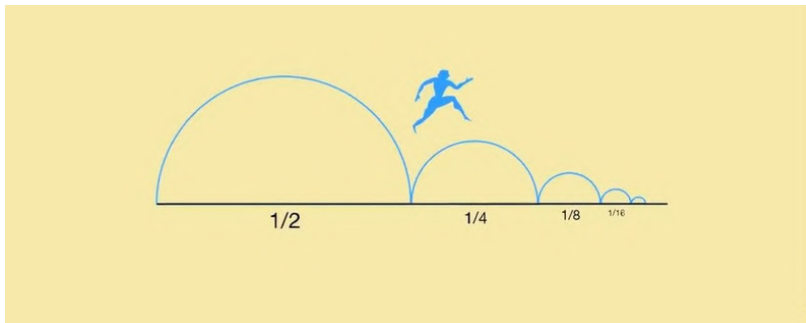
After he gets there, he still has to cover half of the distance left which again will take a finite amount of time. It happens time and again. It seems he will be walking forever dividing whatever distance is remaining into smaller and smaller pieces.

Zeno argued, shouldn't it take infinite time to cover these infinitely finite-sized pieces ?

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Articles

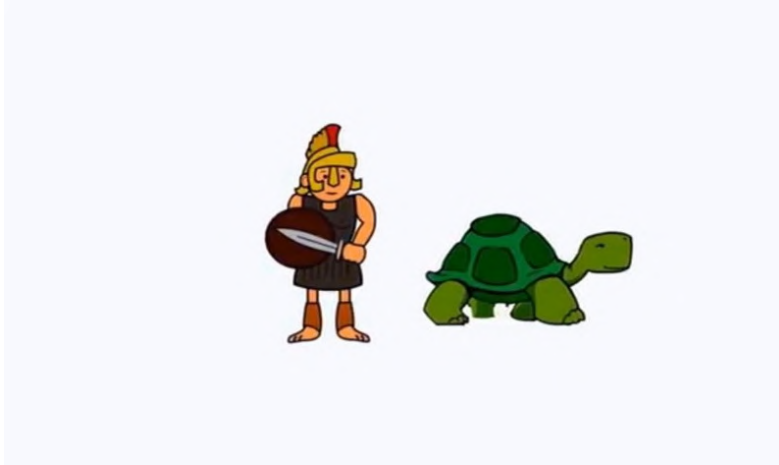
But it's contradictory with the observations of real world. One can easily cover finite distance in finite time. So this's the paradox.



Picture Credit: https://itotd.com/files/2018/05/Zeno_Dichotomy_Paradox-696x331.png

Achilles and Tortoise

Here's another attention-grabbing situation, a race between Achilles and a tortoise with tortoise having a head start of say, 100m. Achilles, being faster, runs past the tortoise easily, right? Or will he?

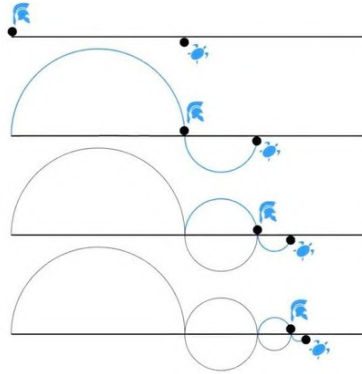


Picture Credit: (www.YouTube.com//Zeno's Paradox: Achilles and Tortoise Race)

Here is the issue. After some finite time, Achilles would have covered 100 meters, bringing him to the tortoise's starting point whilst the tortoise ran a much shorter distance, say 2 meters. It will then take Achilles some further time to run that distance, by which time the tortoise will have advanced farther. And this is the conundrum!

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Articles



Picture Credit : (Wikipedia Zeno's paradoxes)

Tortoise will always be some distance ahead of Achilles and he can never overtake it. But this does not happen in reality. So, this's the paradox.

You can conclude that both the conditions contradict with the reality.

SOLUTION

Zeno concluded that sum of an infinite series should be infinite and that's where all went wrong. Mathematically, an infinite series can add to a finite value.

Another way of solving these seemingly paradoxes is by invoking the idea of PLANK'S LENGTH, that is the minimum distance that any object can travel (All thanks to our lovely, Quantum Mechanics) .

$$\ell_P = \sqrt{\frac{\hbar G}{c^3}} \approx 1.616\,199(97) \times 10^{-35} m$$

In the race, the distance between Achilles and tortoise is decreasing continuously and then a time comes when this distance is equal to the Plank's Length. As Quantum Mechanics wouldn't allow him to travel a distance lesser than this so at this point the person overshoots the tortoise, and wins the race.

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Articles



(Picture Credit: <https://i.ytimg.com/vi/NCtw5f6XPF4/maxresdefault.jpg>)

Same explanation can work for the former scenario as well. When the distance between the child and the final destination is equal to the Plank's Length then he actually completes his journey!

References used to write this article:
Zeno's paradoxes From Wikipedia.

Abhishek Baranwal
Bsc (H) Electronics
I Year



THE EXPRESSIONS

(Cover Credit: Deepali Verma, Bsc (H) Physics, III Year)

The Expressions

Poetry

इक रास्ता है जिसपर हर समझदार इंसान चलता है,
वो कितना ज़िंदा है, कितना मर गया, बिना करे कोई सवाल चलता है
सालों साल से बुनी जा रही बेड़ी है रेशम कि इक
वादा मंज़िल का दे कर, मुसाफ़िरो को बांध कर रखा है।

अकलियत के आयने पर डाल दिया मरायाट का पर्दा,
अंजाम में नदानों ने खो दि खुद की सच्चाई
और जला दिया अक्ल की तक को फिर
बड़े नाज़ से चल दिए बनकर ज़माने कि परछाई।

इसी शमशान से मंज़र में ज़िंदा हैं अभी भी कुछ ज़माने के ठुकराए हुए
लोग

ज़माना जिनकी दरकार नहीं करता वो सर फिराए हुए लोग
मेहताब को मेहबूब बताने वाले लोग
चांद के नूर को हाथों से पी जाने वाले लोग
ये नफ़रत कि दुनिया में मोहब्बत का पैगाम बटवाने वाले लोग।

ग़म ए दाहर कि स्याही से बना देते हैं दुनिया का अक्स कोरे कागज़ पर
ये

बुतों कि भीड़ में खोए हुए शायर हैं ये।
मकसद, वतन, इंसान, इंसानियत से इश्क कि जुस्तजू खोकर सिर्फ
सांस लेती लाशों के बीच,
इक खूबसूरत सी दुनिया की हसरत आंखों में लिए, जहान को रोशन
वाले शायर हैं ये।

वही जो कि कोहरे को चीरती हुई सूरज कि किरणों में किरणों से
ज्यादा अंदाज़ देखते हैं

वही जो गर्दिश ए आसमान में कायनात का रक्स ढूंढते हैं
वही जो होकर हलाल खुद कस्तूरी कि तरह खुशबू हर सम्पत में
बिखेरते हैं

जो कभी किताबों की दुनिया में तो कभी महव ए हैरत में खोए हुए होते
हैं

वही जो शब्दों की मूरत में खयालों की जान फूकते हैं

वही जो कि हटा देते हैं ज़माने का नकाब,

आयने पे लगा मैल जो मिटा देते हैं

यानी कि वो जो दुनिया को दुश्वार होते हैं,

भीड़ में खोए हुए शायर होते हैं।



-Pushkar

B.Sc. Physical Science

I Year

The Expressions

Poetry

तू खुद की खोज में निकल
ना जीत के लिए, ना हार के लिए चल ;
चलना जीवन है रुकना मृत्यु है,
तो जीना जीवन है इसलिए तू चल।

हज़ारों - हजार आकर्षणों से क्यों तू भटक रहा,
खुद की खोज में क्यों नहीं तू निकल रहा ??

दिमाग की बत्ती कौन जलाने आयेगा??
तू नहीं न्यूटन जिस पर सेब खुद गिरेगा ;
तुझे सेब के पेड़ को हिलाना होगा
तुझे जीवन-लक्ष्य खोजना, पाना खुद सीखना होगा।

हार से न हो तू हताश,
मुश्किलें चाहे तेरे पास हो पचास ;
रख विश्वास खुद पर, कर तू सतत प्रयास
ग्रह आस ही बनायेगी तुझे दुनिया से कुछ खास।



मीठा बनकर राजा बनना, सीख ले तू आम से
जीवन-संग्राम में कर्तव्य-पथ पर दृढ़ रहना, सीख ले तू राम से ;
पानी में आग लगाना, सीख ले तू कलाम से,
हार को हार का हार पहनाना, सीखा दे तू अपने काम से।

बहुत हो गया आराम - उपहास, अब चलने की बारी है ;
बहुत रट लिया इतिहास, अब रचने की बारी है।

-Keshav Kumar
Bsc Hons Physics
I year

The Expressions

Nazm

जब जब रब से राबता तोड़ेगा,
कागज़-कलम पर खुद को छोड़ेगा,

फिर बात लिखेगा वही,
जो तेरे बस में है ही नहीं,

लोग तो वाह-वाह कर आगे बढ़ जाएँगे,
पर तेरे जैसे खुद को कहाँ पाएँगे?

क्या ख्याल आएगा अपना तभी,
जब हटेंगे ज़हन से ये पर्दे कभी,

हाल कभी अपना भी लफ़्ज़ों में उतार,
शायद इस जहाँ में लग जाए क़तार,

गुस्ताकि मुआफ़,

लेकिन ये रहमत भी तू देख पाएगा,
सिर्फ़ जब खुदा के करीब जाएगा।

*-Md. Nayab
B.Sc. (H) Electronics
II Year*

The Expressions

Poetry

Emergence

A speck of dust exists out there,
in the Goldilocks zone of an average star.
The lives, emerged on the face of it, are
transcending to evolve into something
better.

Some came out to be called as beings,
so privileged to manifest their things.

The Vibrance of a life should only be
considered,
rest just lies in the eyes of a beholder...

-Priyanshu Shukla
BSC (H) Physics
I Year



OVERCOMING THE OBSTACLES

OVERCOMING THE OBSTACLES

(*stories of our JAM crackers*)



With Einstein, Dirac and Feynman as my heroes, right from my childhood, I wanted to be a scientist. And given that I was not too bad at science during my school days, I decided that I would move forward with the path of being a physicist. But there was one problem. I had no idea how exactly one becomes a scientist.

And then I appeared for class XI, during which I was still tied to the chains of youthful idealism, thinking of a modern day scientist as someone who boxes himself up in an ivory tower, and comes out with the proof of a famous conjecture (read-Fermat's last theorem). The result? I ended up not taking any coaching for the JEE, and even though I was apparently good at physics and mathematics, I never developed the sincerity to prepare for the exam extensively. The death of my dear grandmother provided fuel to the fire, and here I was in class XII, knowing that a good performance in my board exams for a physics undergraduate course would be my best shot at my dreams. I worked really hard the entire year of 2017, and got decent marks to finally make it to Hansraj College.

I thought that the path would become easier here, but I started facing more troubles. My anxiety issues had made my mental health deteriorate to an extent that I no longer thought of myself as competent or worthy enough of the dreams that I so dearly wanted to achieve. But then, things changed. I met some great people who helped me believe in myself better. I discussed ideas with many of them, and found an amazing mentor for life in my first-year roommate. Around this time, it occurred to me that to learn a great deal of physics in a short time; it would be a good idea to prepare for the competitive exam JAM. I knew that the exam itself would not be difficult, but the experiences which the entire preparation was going to teach me for life would be what I was looking for right from the start. The preparation started, and then side by side COVID happened, which revived my long-lost mental health issues. But as months moved forward, I realised one important thing about life.

In the beginning of a journey, you are afraid of the demons that chase you, but as time passes and you can no longer separate yourself from them, they become a part of you, and you make peace with them. After a point, it seems almost ridiculous as to how you would even move forward without them, because a life without troubles stinks like death. The entire lockdown was my "working upon myself" time. I got involved in a research project, completed books cover to cover, took joy in feeding the pups outside my house, and read some books related to philosophy, self-development and a political satire, all while preparing for JAM.

The exam finally came, with me vaguely aware that I was ready to go to IIT Bombay for my master's course. A month later the results were announced and I got AIR 12. Now, in no way do I claim that my story is inspiring or emotional at all. All the above things are pretty main-stream at best. But there is one thing I would like to say—"Consistency is highly underrated, and being inconsistent slowly pulls you away from your dreams" because Aristotle was spot on when he said—*"We are what we repeatedly do. Excellence then, is not an act, but a habit."*

~SARTHAK GIRDHAR, BSC (H) PHYSICS, III YEAR

OVERCOMING THE OBSTACLES

(the stories that continues to inspire)

It all started with a positive hope and mind set towards the exam. I was fully confident about the exam and my preparation. I never thought about the result, I just assured myself that whatever effort I make, that would decide whether I'm worthy of selection or not.

Obviously, many problems came and sometimes they made me feel a bit tensed too, but, those were the things that also made me mentally stronger. Today, I feel more pleasure in reminding myself of the process I had gone through rather than the result and glad to announce that I got Rank 44 in JAM examination.

"I have always believed that process is more important than the results"-MS DHONI

~GAURAV JHA, BSC(H) PHYSICS, III YEAR



I have always been very unclear about what I wanted to do in my life, but I believe we should keep moving as far as we can see, and when we get there, we'll be able to see further.

JAM was the only exam which could land me in a better institution for masters, where I can continue to think about my life and career ahead.

Talking about the preparation, I was highly under confident throughout, but I learned that consistency is the key, intensity is not, and we should not be afraid of failures. I got AIR-95. I will conclude by saying *try like you are meant to succeed, fail like you were meant to fail.*

~ PRAJWAL MADHWAL, BSC (H) PHYSICS, III YEAR



Grabbing a seat in IIT is something that every science student aspires at least once in their life, either at the time of JEE or at the time of IIT JAM. I was also in the same race but the thing that makes me different is that I fought this fight all on my own. Yes, it takes sleepless nights but I didn't spend them during JAM, I spent them at the time of IIT JEE and I failed in that by 4 marks in Mathematics. Somehow I recollected myself and reminded myself of the famous quotation *"When there is a will, there is a way."*

I started my preparation in January of 2020 and then paused at February 2020. I then moved back to my hometown due to unsafe environment in Delhi and then came the novel corona virus to ruin the existing conditions even more.

Now months passed away and instead of studying I was teaching students who were in classes 11th and 12th. Somehow I restarted my preparation in January 2021 and exam was on 14th February, 2021. My previous preparation of JEE worked here and by God's grace I got AIR 34 in IIT JAM 2021.

~BHEEM CHAND GOYAL, BSC (H) PHYSICS, III YEAR



OVERCOMING THE OBSTACLES

(*if they can DO why not YOU?*)

I have secured AIR-259 in IIT JAM Examination. Though I had taken coaching while preparing for the examination and it was indeed very helpful, college has also been an important factor for me to crack JAM examination. In college, teachers are really good at teaching and their teachings will help us in further entrance examinations. I would personally suggest being consistent and focusing on basics of Physics to crack this entrance exam. All these entrance exams are not too tough. Keep studying and enjoying college life.

~MANAK RAM, BSC(H) PHYSICS, III YEAR



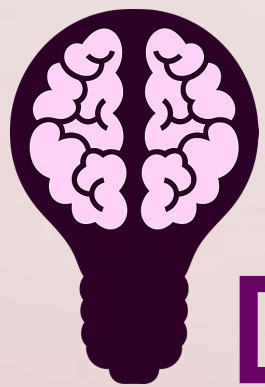
To start with, I'd definitely recommend on deciding and getting the study material or joining a classroom programme for your preparation about a year before the date of IIT JAM Examination. The whole motive for that being to start the preparation early so as to develop the temperament for the exam, which is something that you might struggle with for a long time. I did. I will not recommend not taking either the study material or the classes; you'll surely need one of these. Based on my experience, you can prepare without a coaching just fine. I did not take any classroom programme either. Start with getting your basics right, begin with understanding the theory of the units from the standard reference books. Do not ignore solving the questions at all, that is a very crucial part of the preparation. For me, what worked the best was to cover the theory and simultaneously solving the questions for every unit. I repeat, get into a habit of solving questions, if you don't, nothing can help you. You will need to change your strategy again and again till the very end and it will eventually work out for you. You should have a decided timeline so as to divide your preparation into different phases and making some completion checkpoints in your year. Do not blindly follow the study material, pick and choose the resources to learn and practice each unit tailored to your own needs, keep researching for the same. Constantly analyze the parts you need to work upon and keep updating your strategy to try and cover the maximum syllabus efficiently. Aim to complete the whole syllabus as it is not a very vast syllabus. Know when to move on from a chapter so that you do not waste time repeating a hundred similar questions.



Definitely join a test series, giving constant tests is what will boost your score and ensure a uniform revision. Throughout the process, find some ways of cheering yourself up. At the lowest moments, take a small break from the preparation. That's the whole point of starting early, remember?

Go easy and hard upon yourself with the right balance. The exam is very important but so are you and your mental space. Take out time as and when you need to do the things you enjoy. Learn to manage yourself, your stress and your moods. At times, you might feel you're not even at 20% of what you planned, but it's okay, the preparation catches pace in the second half only, at least it did for me, till then, just keep studying for the exam and keep enjoying it, an hour a day or 5 hours a day, just do not stop. Aim your best but learn to accept what you could achieve, appreciate yourself and aim again.

~ PARUL JAIN, BSC(H) PHYSICS, III YEAR



**THINKING
DIFFERENT!**

Thinking Different!



I am Vipin Kumar, a physics undergraduate. Though my major is physics, my interest lies mainly in Coding, Hacking, Entrepreneurship, and Marketing. I worked on numerous projects throughout my college life, ranging from web automation, bots, search engine, websites, apps, cybersecurity, and AI. Some of my projects are used by various students across DU. In June 2019, I found a security loophole in a major hosting company that led me access to all the 1.8 crores websites hosted there. Moving further, In the same month, I created and scaled an anonymous chat service named as uKonnnect.tk to 9100+ students in one week across DU and in March 2020, a social media service uKonnnect.co (Different from uKonnnect.tk) to ~ 4700 users. During the pandemic, I created an app named as NoteBox to provide study notes to over 250+ students who lost their study material at their hostels and PG. In 2019 I also made a tool, search engine, and meta-search engine that can search for Open Web Directories across billions of pages on the internet. I was also technical head at LUMEN (2019-20) and technical advisor to Markus(2020-2021). Apart from that, I am currently working on WaveApp and on the natural language processing library that changes how we interact with things around us (like Jarvis from Iron man movies). Overall it was a remarkable journey for me, but Everything comes at a cost, and for me, it was my academics, but I guess it's a good trade-off considering the experience and expertise I gained.

~Vipin Kumar, Bsc (H) Physics, III Year



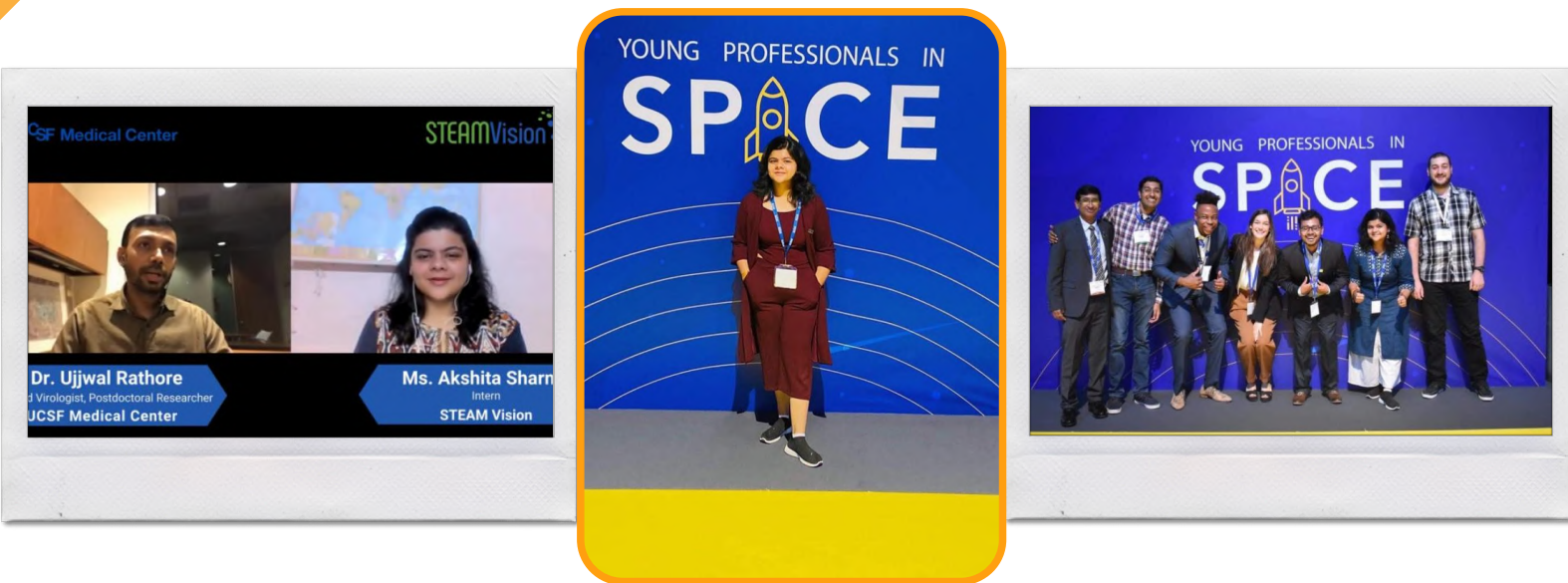
Thinking Different!



Helping the society is what I've always dreamt of and I'm totally focused to achieve my dream. Being a part of the Blue Horse Army (an organization that works for physically disabled and economically poor people) is a step towards my actual goal. I remember the day when we first started working for a noble cause. That feeling was so wholesome and amazing and I couldn't have been more proud of myself. Let me give you a short glimpse of how our organization works. We first collect donations from our friends, family and also by circulating messages on social media. This gives us a manageable amount of money. Majority of this fund goes towards the betterment of the poor and physically disabled. We are associated to many old age homes, so a fixed proportion goes there as well which is used for their basic necessities like food, medicines etc. Unlike most of my friends, I usually spend my weekends with all the "dadjis" and "dadijis", and honestly their blessings serve as a motivation for our whole team. Apart from this, we also work for some "gau chikitsyalayas". A definite proportion of the fund we raise goes there which is utilized in the treatment of injured cows and we ourselves go there to feed them with fresh grass. Apart from this, our organization is equally concerned about the protection of mother earth and its environment, so we regularly organize some tree plantation events. In a nutshell, just being a third year student and doing all this is my dream come true!

Kamal Vashistha, Bsc (H) Physics, III year

Thinking Different!



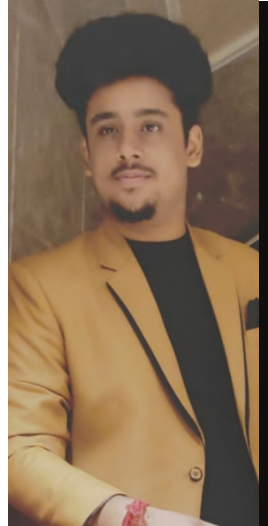
During the first year of College, I did a summer internship in DRDO, Delhi for two months. Later, in November I got a chance to attend an international conference “Young Professional in Space” held in Dubai which proved to be a very new and enriching experience for me. In January 2020, I got associated as an intern with STEAM Vision where I developed 21st Century Skills, different programming languages and enhanced my editorial skills. I also mentored a team of innovators for FTC (First Tech Challenge), a robotics championship held in Pune. I was also a Part of Microsoft’s Student Ambassador Program, I also participated in hackathons organised by MIT and Facebook. To explore and learn from an inspirational journey of a scientist, I recently took an interview of a Post-Doctoral researcher in University of California, San Francisco to get insights on COVID vaccination drive, how to choose ones career and much more. I look forward to keep learning and explore like beyond I can see!

Akshita Sharma, Bsc (H) Electronics, III year

Thinking Different!



Pratham Ahuja



Jishant Talwar



Sumit



Sahil Sharma

My Journey To Asteroids!

The National Space Asteroid Search Campaign (NSASC) is a citizen science project led by 'Spacenova' in collaboration with the International Astronomical Search Campaign that provides high-quality astronomical data to students around the world. Participants in the Asteroid Exploration Campaign, also known as citizen scientists, are able to make original scientific discoveries and participate in hands-on astronomy. This mission involves NASA, the PAN-STARRS observatory, and the Catalina Sky Survey Observatory. I participated in this campaign with my team members- Jishant Talwar, Sahil Sharma, and Pratham Ahuja, and each of us practiced enough to perform well.

The campaign commenced on April 5th and ended on April 30th. During this period, two preliminary findings, JST0002 and SUM0009, by me and Jishant were obtained.

This campaign has taught me a lot as how to look for asteroids in image data sets and gave me an insight of the data analysis procedure followed in the field of Astronomy. To be specific, we examine the image sets based upon the following factors: Linear motion of the object, the shape of the object, the SNR value and the Gaussian curve for a particular range of pixels and some more that one can gain while analyzing the sets. I would like to recommend other students that they should also participate in this campaign.

~ **Sumit, BSc(H) Physics, II year.**

Thinking Different!



1st place in 10th Mahatma Hansraj Invitational basketball tournament.

2nd place in 7th KMC invitational Basketball tournament.

Being an ordinary merit based kid from Saharanpur (U.P), joining Hansraj College was a matter of pride for me in my prime days. But as far as my hobbies were concerned, I was wholeheartedly devoted to basketball. Joining HRC may be the dream for everyone but for me, to wear “HANSRAJ” on my chest with jersey number “08” on my back is an indescribable feeling. And this jersey was made to pay tribute to my mother on Mother’s Day. This new identity which I got in the game of basketball in Delhi became possible only with the help of my coach and my well-wishing seniors. I will forever be thankful to my Parents, Principal Ma’am, Coach, HOD of sports and academic professors who helped me achieve this big title.

Md Nayab. B.Sc(H) Electronics, Year-II

Thinking Different!

When I took admission in this college, I had only one aim and it was to get selected into my University Squash Team. I practiced and worked hard for it. And finally, all my efforts helped me secure the 1st position in All India Inter University Squash Championship and now I'm even a part of my University team. This wouldn't have been possible if my team was not so supportive, hard-working and motivating. This is what I've always dreamt of and I owe this to Hansraj College.

Vishal Rana B.Sc(H) Physics, Year-II



My name is Cadet Rupesh Kumar from BSc. (Hons.) Physics, 2nd year and I want to share my thrilling experience of last year's parasailing camp conducted by NCC. I was one of the few selected students, and an only cadet from Hansraj College. There were tough physical parameters for selection, but I cleared them. So, I took 5 flights in total.

I was very scared initially, because paratrooper is taken at very high altitude. But later on, when I took my 1st flight, the experience was quite different and amazing. It was one of the best feelings in the world as I felt like I got wings. Moreover, that also helped me to overcome my acrophobia.

I really enjoyed a lot, and this experience is added to my lifetime achievement. Indeed, it provides that thrill, for which I joined the NCC.

Jai hind!

Rupesh Kumar, B.Sc(H) Physics, Year-II



Thinking Different!

The journey of my college life started from July 2018. Excitement of joining the college was at its peak. As the days passed, the pressure of assignments, class work and lab work increased but to be involved in these activities was very interesting for me. Initially, I suffered a lot because of my inability to understand programming languages. Learning programming language with having non-programming background was quite difficult and to accommodate with the students, those who had learned programming language in their schools, was very challenging indeed. Whenever I got any time apart from my electronics subjects, I used to spend my time in coding. Honestly, at the beginning it was my compulsion because I couldn't afford back in the first semester, but from the subsequent semesters I started enjoying coding and it took me two years to become an efficient programmer & by the end of 4th semester, I learned the basics of these programming languages- C/C++, Java, SQL, HTML, CSS, Javascript, C#, Scilab and Pspice.

During the lockdown, I had plenty of time to polish my coding skills and I also enrolled in the Machine Learning workshop of 15 days which was organised by LUMEN, Department of Physics and Electronics. This workshop made me realize that analyzing the data can be interesting as well. Workshop was very fruitful to build a career in this particular line.

Dr. Mona Bhatnagar figured out various areas such as Financial Services, Healthcare, Marketing & Sales, Electronics Industry, Transportation etc. where ML is used. Now, College is about to be over and I am focused in building a career using programming, especially ML and Web Development.

-Rohan Dutta, Bsc (H) Electronics, III year



Being a self-taught artist, I've always found my peace and tryst with creativity. During my school days, it had been one of the few things that kept me going. In essence, my artistic aspirations always outweighed my academic aspirations. Brushes, pencils, and canvases have always motivated me to find various nuances of art. Hansraj and Kalakriti have been a constant source of inspiration and support for me. It has helped me to traverse every obstacle and to take my passion to the next level. For every human being, there would be a point where they would follow their true passion. And I'm glad that I have found it. I hope my passion would always help me improve and improvise upon myself.

-Sreehari KP, Bsc (H) Physics, III Year



Thinking Different!

I was always a quiet & a shy girl in school and even though I wanted to make a mark around, I could never. I entered Hansraj in 2018 with a lot of dreams and getting over social anxiety was one of them. I have a beautiful story to tell and I hope it inspires those like me. In my first year (2018-2019), I joined Oorja-The Western Dance Society, Hansraj College. Dance was never my cup of tea but that little voice in me always wanted to dance and so I pushed myself and made it.



Our achievements-

1st position- 7 colleges

2nd position- 5 colleges

3rd position- 3 colleges

Lesson learned: Get past your fears and ideals of what others might feel about you, you can do it. In my second year (2019-2020), I wanted to explore my academic preferences and that's how I ended up doing the "7 Robots" course by SkyFi Labs where I made 7 simple robots like - line follower/avoider, obstacle avoiders, mobile controlled robot, swarm robots etc. which motivated me to study more about it after which I did an internship in robotics. I interned at Johnnette Technologies Pvt. Ltd., an aerial robotics company, as a Research Intern. This was the highlight of my entire college life as I went through some life changing events. Besides my learning journey, I got the chance to anchor at a national conference called "RPAS 2020" organised by IIFAD, IID and IIC. It was the first time I did public speaking and that experience ended me up with an offer by Indigo Airlines right after I took off from the stage. I was also able to network with a lot of industry based companies which enabled me to get many opportunities. In my internship, I got the opportunity to make drones and to fly them as well! I handled various positions of responsibility and an internship which was supposed to be for only 3 months but was stretched till 10 months with an offer letter. I was also awarded as the "Best Intern of the Year 2020". I was the only female employee in the organisation. This enabled me to think that the drone industry may be gender biased but with determination, you can be a change. You're more than what you think you are.. Lesson learned: it takes determination to do things in life and if you want to do it and are thinking about it, you're already on a path in getting it done.

-Shiksha Sabharwal, B.Sc. (H) Electronics, III Year

Thinking Different!



Over these three years I've been part of eleven productions, 3 stage plays and 8 street plays

Stage Plays:

1: Word Of Mouth 2: Holi 3 Thirunangai

Street Plays:

1: Bura Na Mano (Talks about Celebration of Harassment)

2: This Ends Now (Talks about power of dissent and importance of raising voice against people in power)

3: Special (Talks about the problems faced by differently abled students in University, in collaboration with Enabling unit (Differently abled students Wing Hansraj College)).

4: Railways (Talks about the facilities provided by Indian Railways and spreading awareness about issues people face during a train journey, in collaboration with IRCTC)

5: The Water Project (Talks about the contamination of Water, in collaboration with Indian Oil and Water Aid (NGO))

6: Suffer (Talks about the mental health of students in University, in collaboration with Enabling unit)

7: Unlimited (talks about the conservation of water and ignorance of people regarding the same)

Performed these production across the country in major cities like Delhi, Mumbai, Kolkata, Jaipur, Chandigarh, Kanpur etc.

Team Achievements

Won Over 40 first, 38 Second and 21 Third prize for all the productions combined.

WON 2 best DIRECTION awards for Word of mouth and This ends Now.

WON best Direction for Holi and Thirunangai ONCE.

Personal Achievements

Won Best actor at MSIT

WON BEST PERFORMER AT GARGI COLLEGE

WON Best actor at IIIT Delhi

Won Best actor at Aryabhata College

Won Best Actor at Aurobindo College

Ayush Kumar, B.Sc. (H) Electronics, III Year

Thinking Different!



Hazy, muffled voices reverberating in my
ears,

I can still perceive the gentle breeze
waving my hair.

Perplexing emotions squirting inside of
me,

it's the memories we miss, it seems,

senses being triggered in a certain
fashion,

neither the incidents nor the people.

-Parul Jain

Basically, this Instagram handle of mine was a side product of a more important experiment, i.e. my blog, which in turn was a result of my attempt to spend more time with myself and to explore my interests better. During the time when I started my blog, my life felt kind of dull, so I needed to have something to be enthusiastic about as it was a really static phase. So, I started this with the hope that it could become a reason to spend more time doing the things I enjoy, which otherwise do not get my attention due to the other priorities. For me, this was something radiating joy, something that would give me a slight sense of responsibility for my hobbies and not as much as another task on the to-do list, so that I could derive the good out of them. This, in a nutshell, is how it started and I couldn't have been more grateful.

Since I was preparing for IIT JAM at the time, my blog and the social media associated with it became a bit of a distraction, taking more time than I anticipated and hence, I learned some ways of managing both of these things by trial and error. So, I decided not to post as a ritual but as and when I had something exciting to post about. To be honest, there are phases in learning to handle a platform, and even though it is a very small platform at present, it has taught me so much and one of the significant lessons that I would like to pass on is that content creation is increasing at a massive rate nowadays, but it is unnatural, at least for me, to develop a day long job around it. The reason being, creativity as I perceive it is not time bound and if we try to make it so, we end up losing its presence in that time bound work. Then, it is just more of the same.

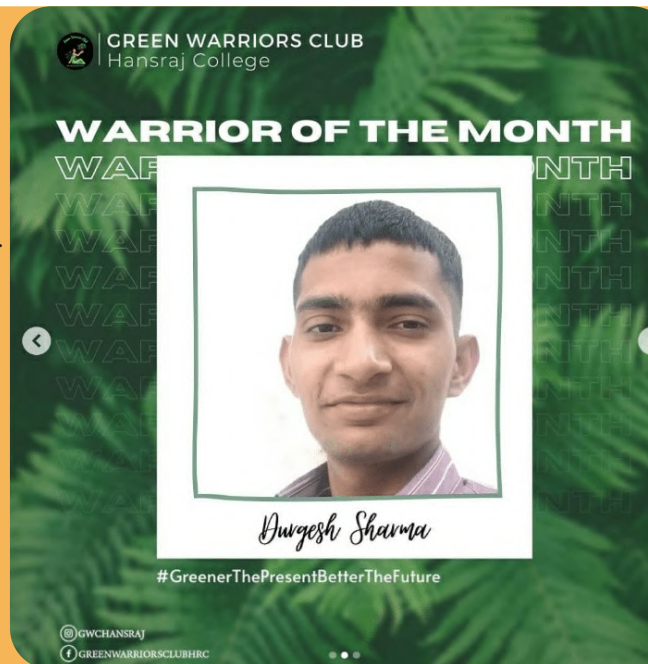
With this in mind, I'm curious and enthusiastic to take forward my small project which has no decided niche yet, but all the things that I enjoy, physics, reading, writing, craft, English literature, to name a few..

Parul Jain, B.Sc(H) Physics, Year-III

Thinking Different!

Hi there! My name is Durgesh Sharma, a first year student of BSc. (Hons.) Physics. I'm an active volunteer at Green Warriors Club, NSS and NCC Hansraj. What brought me here is the fact that I prepare eco-memes i.e. Environment friendly memes, which are posted on the official page of Green Warriors Club, Hansraj College. I have also organized a meme quiz in GWC fest for which I was recognized as the 'Warrior of the month' by the society. Through these memes, I either highlight a problem or give some idea about what an individual can do to save our environment. Sometimes, I also use memes to express how satisfied a person feels when he/she does something for the environment. And it's a really effective way because people prefer short and crispy material rather than going through long paragraphs. Moreover, they can easily relate to it. Just spreading awareness in a funny way!

-Durgesh Sharma, Bsc (H) physics, I year



As a smart learner, you must continuously think of ways to get clarity of your fundamentals in an effective and efficient manner. Google and YouTube are the platforms which provide you with these opportunities. Almost 1 billion people visit YouTube each month globally. In such a way, YouTube has also provided Ridhika with such an opportunity but not as an information seeker but rather as a distributor of knowledge. Initially called "Sciencestudio" and gradually to her own name "Ridhika Chhabra", is a growing YouTube Channel which provides everyone content about the preparation of Physics and clearing important concepts related to higher education which includes videos on topics such as Electrostatics, Magnetostatics, Optics and much more. Initially, when I stepped into higher studies after choosing sciences as my option, I really felt that it was going to be very hard to learn and grasp the fundamentals of Physics for an average and above average student in a span of 35-40 minutes given in the class. So, this became a source of motivation for me to do something "little or more" for the students by a student. This all was planned and executed in the lockdown period which also helped me to explore my skills and to make the best use of this Covid time which converted the threats into opportunities.

Ridhika Chhabra, Bsc (H) physics, II year



Thinking Different!

In a debate organised by the Indian Space Research Organisation (ISRO) on the motion "This house believes it is right to invest money in space projects for developing countries like India which although has many other areas to look after." I secured 1st Position while speaking against the motion.

It was a great experience because I learnt so much. I look forward to actively participate in more such events.

Swapnil Gupta, Bsc (H) physics, I year



It was my first opportunity to appear on live television and I just grabbed it. The show "We the people" of NDTV was held on February 21, 2021. The topic of discussion was "Priya Ramani Verdict" and what it means for the women going ahead. Being in a panel discussion with 4-5 experts and an audience of 15-20 people, I got an opportunity to put forth my question. It was quite a nice experience for me to get the opportunity to interact with such great law experts. I would like to say one thing to everyone reading this, opportunities are always there. You just need to look at them and without overthinking about anything; you just need to grab them

-Ritu Rahar, Bsc (H) Physics, II year



Before the 1st semester, I was uncertain about my career. I thought in which field I should go, since I was interested in research and civil services. But as I entered Hansraj College and joined Nishtha-The Civil Services Society, things changed. Nishtha organised several webinars and events in which various Civil Servants and Leaders were invited and they shared their thoughts and experiences. They guided me well and helped me explore my passion and interests. At last, I have decided to go for Civil Services as I like to help others and would love to do something for the betterment of the nation since I know many things around me which could be improved. And I think Civil Services would provide me with a platform to fulfil my dreams. The main thing Hansraj did for me is that it made clear to me as to why I exist on this planet. Thank you Hansraj.

Vikas Richhariya, Bsc (H) Physics, I year



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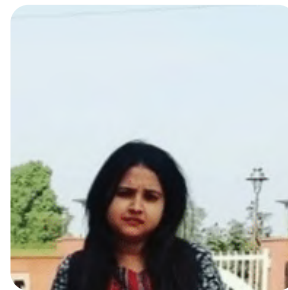
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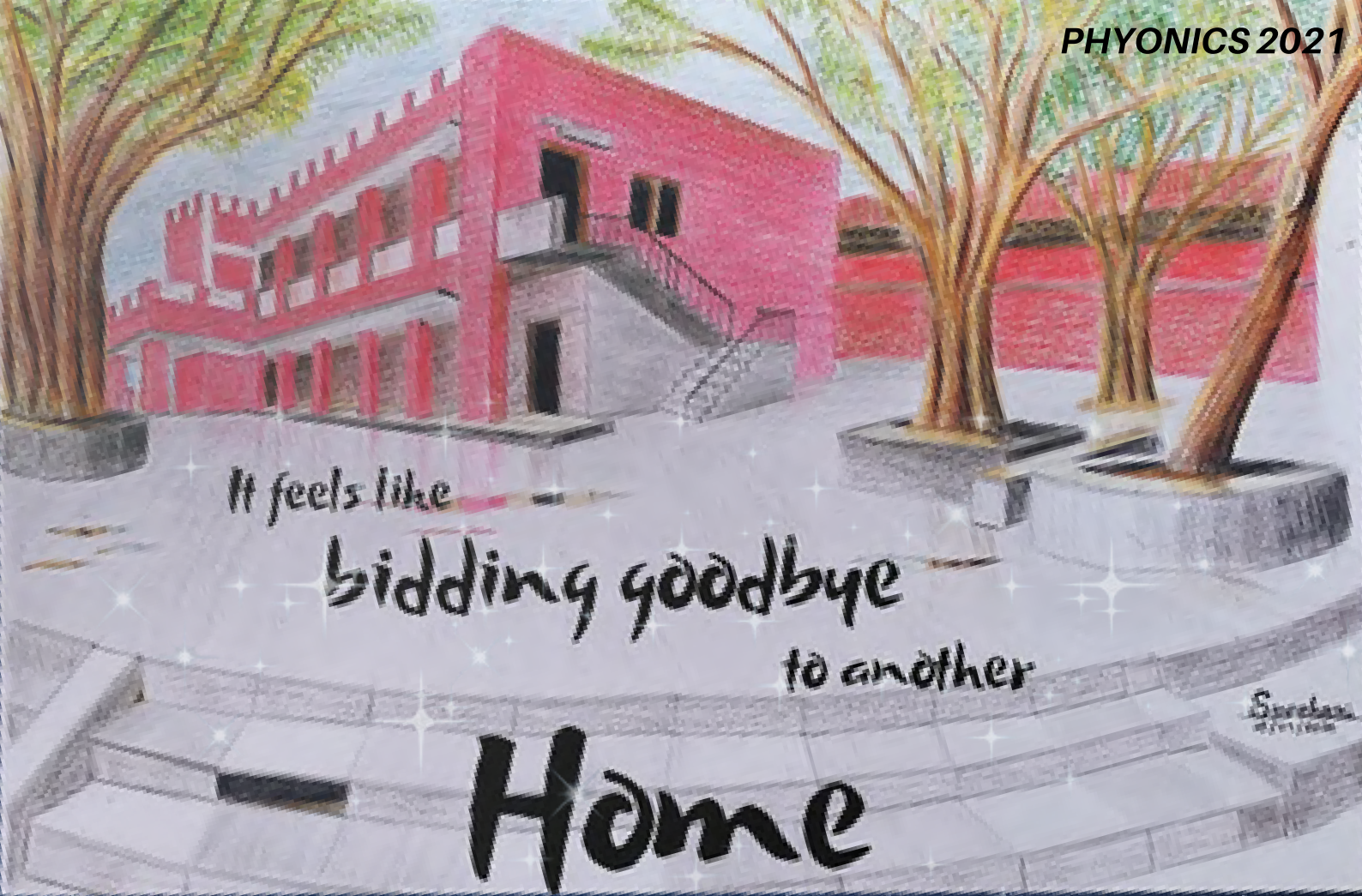
GRADUATING BATCH



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