

Report of Physics Department (2019-20)



Mehr Chand Mahajan
DAV College for Women Sector-
36, Chandigarh

www.mcmdavcwchd.in

Annual Report of Department

Session 2019-20

1. **Name of the Department:** Physics
2. **Names of Programmes/Courses offered (UG, PG, M.Phil, Ph.D, Integrated Masters etc.)**
 - i. B.Sc. Non medical
 - ii. B.Sc. Vocational
 - iii. B.Sc. Physics Hons.

3. Faculties during session 2019-20

1. Dr. Renu Bedi (HOD till November 2019)
2. Mrs. Raman Chadha(HOD)
3. Mrs. Poonam Jain
4. Dr.Renu Bala
5. Dr. Anterpreet Kaur
6. Dr. Runjun Sarma
7. Dr. Pallavi Gupta
8. Ms. Aakriti

FACULTY DETAILS:

Publications:

| Permanent Faculty/ Contractual faculty | Title of Paper | Title of the Journal with ISSN | Month/ Year |
|---|---|---|------------------------|
| Dr. , Renu Bala | Exact ground-state properties of one-dimensional electron gas at high density | Phys. Rev. B 101 , 075130 (2020). | 2020 |
| Ms. Aakriti Bagai | Minimal texture of quark mass matrices and precision CKM measurements | Progress in theoretical and experimental Physics(2020) volume:2020, ISSN: 2050-3911 | 2020 |

Workshops/Seminar/Webinars/Conferences:

1. Dr Renu Bedi, Ms. Raman Chadda, Ms. Poonam Jain, Dr Renu Bala, Dr Pallavi Gupta, Dr. Runjun Sarma have attended International Webinar on Applications of Multi-Duality Imaging In Nuclear Medicine.
2. All faculty members participated in 5-Day Faculty Development Program on 'e-Content: Designing and Deployment Using G Suite' organized by Department of Computer Science and Applications, Mehr Chand Mahajan DAV College for Women, Sector 36 A, Chandigarh, 2-24 July, 2020.

Activities Organized by Physics Department in session 2019-2020:

Lectures:

- ✓ Department of Physics organized an International Webinar on Applications of Multi-Duality Imaging In Nuclear Medicine on **10th June, 2020**. In this context, Department of physics invited **Dr. Nand K. Relan**, Clinical Director of Nuclear Medicine and Physics Associate Professor of Clinical Radiology at Health Sciences & Bio-medical Engineering of New York, USA to deliver an international webinar about the importance of Nuclear medicine in diagnosing and treating many diseases like cancer.
- ✓ An interactive talk on Nanoscience and Nanotechnology by invited speaker "**Prof. H.N. Ghosh**, Director Institute of Nanoscience and Technology, Mohali" on **17 February 2020** was organized by Physics Department

Celebrations of various days:

- ✓ **Celebration of International day for Biological diversity:** Swachhta Committee (Sciences) of MCM DAV College for Women Celebrated International day for Biological diversity on 22nd May, 2020. Caption contest was organized among students on this occasion.
- ✓ **World Environment Day:** MCM ECO-CLUB under the aegis of swachhta committee (sciences) has celebrated World Environment Day on 5th June 2020. On this occasion Inter-college competitions on Bookmark making and T-shirt painting with an Environmental message were organized.

- ✓ **Celebration of World Oceans Day:** Department of Physics and MCM Eco-Club have celebrated World Oceans Day on 8th June, 2020. On this occasion following competitions were organized among students through online mode: Video and write up contest on the topic- “Satellite Oceanography”, Power point presentation contest on the topic- “Innovation for a Sustainable Ocean”, Report writing contest on the topic- “Basic Technologies to Study the Oceans”
- ✓ **Celebration of AkshayUrjaDiwas:** Under the aegis of Chandigarh Renewable Energy and Science & Technology Promotion Society (CREST), Chandigarh Administration (UT), the Renewable Energy Committee of Mehr Chand Mahajan DAV College for Women celebrated AkshayUrjaDiwas with great enthusiasm by organizing popular lectures and poster making competition on the theme- 'Impact of AkshayUrja in India'

➤ **Competitions organized by Department:**

- ✓ **Essay Writing Competition:** To create awareness on challenges and issues related to pandemic outbreaks of covid-19, Swachhta Committee (Sciences) of MCM DAV College for Women organized a creative learning essay writing competition on the topic ‘impact of covid-19 pandemic on wild life in india’ for the students of science and arts streams.
- ✓ **Power Point Presentation Competition:** To involve a wide section of students in a constructive meaningful activity during Pandemic of COVID-19, Swachhta Committee (Sciences) of MCM DAV College for Women has organized Power Point Presentation on Science, Technology and Innovation for a Clean, Green and Healthy Nation on 22nd May, 2020.

➤ **Fests:**

- ✓ **Science Fest-2020:** Department organized a fest themed“Emerging Trends in Science and Technology” sponsored by Department of Science and Technology and Renewable Energy, Chandigarh Administration.

- ✓ **Physics Fest. Eureka -2019:** Physics Department, organized a fest “Eureka-2019” where invited speakers Prof. ManjitKaur, Professor, Physics Department, Panjab University delivered a motivational lecture on “Nobel dreams of mysteries of universe”. Another speaker Dr. J.K Goswamy , Professor at UIET, P.U. Chandigarh gave a glance to the era of nanotechnology.
- **Workshop on LED bulb Assembling and Energy Conservation:**The workshop aimed at teaching College staff and students about assembling 9 W and 12 W LED bulbs under the theme of energy conservation.
- **Book Club:**Physics Department of MCM DAV College for women has formed a `BOOK CLUB`, which is student’s resource for all the course books that the students may require for their academic pursuits. Under this semester based activity, on 04 February, 2020, books were issued from library to 30 students of B.Sc. having more than 75% of attendance for the whole semester.

Workshop on LED bulb Assembling and Energy Conservation (11 January 2020)

The workshop has been organized under the theme of energy conservation on 11 January 2020 at Department of Physics for students, teaching and non teaching staff members from all the departments of the college. Approximately 130 students and staff members have actively participated in it. The main motive of the workshop was to enhance the technical knowledge of the participants to enable them to assemble and repair the LED bulbs.

LED light bulbs use only 2-17 watts of electricity (1/3rd to 1/30th of Incandescent or CFL). LED bulbs used in fixtures inside the home save electricity, remain cool, and save money on replacement costs since LED bulbs last so long.LED lights are much more eco-friendly, and are up to 80% more efficient than fluorescent and incandescent lights”. With the increasing demand for green earth, LED will play significant role in environmental strain on energy resources.

Total 112 LED bulbs were sold.





Book Bank Activity (4 February 2020)

Physics Department of MCM DAV College for women has formed a 'BOOK CLUB', which is student's resource for all the course books that the students may require for their academic pursuits. Under this semester based activity, on 04 February, 2020, books were issued from library to 30 students of B.Sc. having more than 75% of attendance for the whole semester. The BOOK CLUB helps students to refer to multiple books for better understanding of the subject, imparts a sense of sharing and since, it is a chain process, it saves expenditure as well as paper. The Principal of the college, Dr. NishaBhargava, appreciated this initiative and has asked to further extend this project by providing more books to a larger number of students.



Science Fest 2020 (17 February 2020)

Science Fest-2020 held on 17th Feb, 2020 aims at introducing young students to scientific environment and inculcating in them a desire to seek additional knowledge and skills in areas of their interest. Theme for the science fest was "Emerging Trends in Science and Technology". Interactive talk on Nanoscience and Nanotechnology by invited speaker "Prof. H.N. Ghosh, Director Institute of Nanoscience and Technology, Mohali" was organized by Physics Department. Nanoscience is a horizontal-integrating interdisciplinary science that includes all sciences and engineering disciplines. All science department students actively participated and were motivated to carry out future research in different areas of Nanoscience and Nanotechnology.



Scientific Models in Science Fest 2020 (17 February 2020)

Science Fest-2020 held on 17th Feb, 2020 aims at introducing young students to scientific environment and inculcating in them a desire to seek additional knowledge and skills in areas of their interest. Theme for the science fest was “Emerging Trends in Science and Technology”. The fest was sponsored by Department of Science and Technology and Renewable Energy, Chandigarh Administration. Scientific Model Making competition, organized by Physics department received an overwhelming response. 97 students of B.Sc. IInd year (NM and Voc) prepared working scientific models like fire alarms, burglar alarms, vacuum cleaner, hydraulic robot, voltage regulator, water heater, USB fan etc. Out of these, Hydraulic robotic arm was awarded the first prize and USB fan the 2nd prize. Model Making exhibitions explore the creative talent of the students and enable them to think out of the box. Shreya, Shrishti, Prarthna, Deborah and Astha got first prize for preparing hydraulic robotic arm. And Radhika, Aditi, Priyanka and Sakshimittal got second prize for making USB fan.



Annual Fest “Gravitino 2020” at DAV College, Chandigarh (26, 27 February 2020)

The Annual Science Fest “Gravitino 2020” was celebrated at DAV College on **26 and 27 February 2020**. Teams from various colleges from Chandigarh participated in inter-college Rangoli, Poster making, Model making, Physics Quiz competitions. From our institute, 14 B.Sc students actively participated in it and also won third prize in Rangoli, Poster making and Quiz. The theme for this fest was “Advancement in Modern Sciences”. Topics covered were “Contribution of Indian Scientists in field of Physics”, “Gravitational waves”, “optical tweezers”, “Understanding of evolution of Universe”, “International Thermonuclear Experimental Reactor”.



Inter college science and maths competition at CGC (28 February 2020)

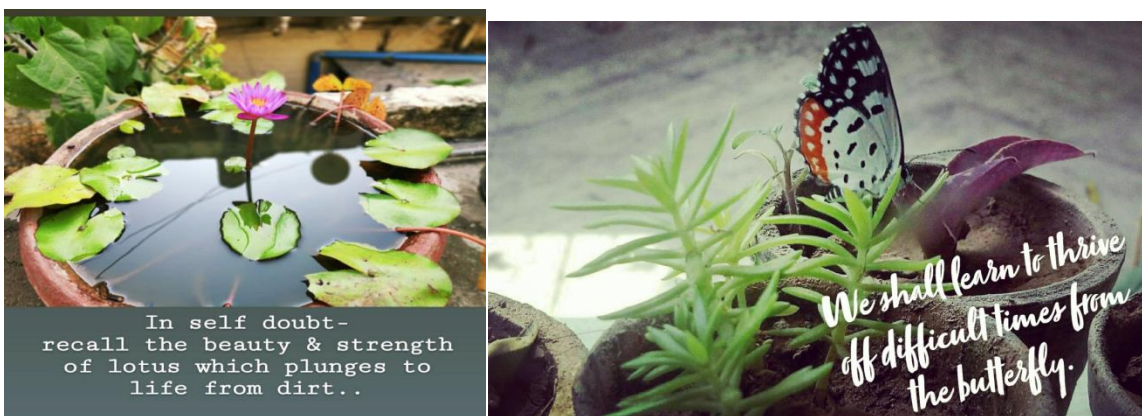
A one day Inter college competition for Science and Mathematics focusing on the theme of experiencing the marvelous World of Science and Mathematics was organized by CGC, Landran (B.Ed Department) on 25th February, 2020 in order to celebrate Science day that occurs on 28th Feb every year. 8 participants from MCM DAV participated and one team bagged first position. Following students participated in the respective events:

- | | |
|--------------------------------------|-----------------------------------|
| 1. On the spot working model making: | Vritika and Kirti (B.Sc III C.A.) |
| 2. On the spot T-shirt painting: | Riya (B.A I.II) |
| 3. On the spot Paper bag making: | Amanjot (B.Sc I (Non-Med)) |
| 1. On the spot working model making | Simran and Prachi (B.A. II) |
| 2. Power point presentation | Ambika (B.Sc. I Non-Med) |
| 3. Skill in teaching | Deepanshi (B.A. II) |



Celebration of International day for Biological diversity (22 May 2020)

Swachhta Committee (Sciences) of MCM DAV College for Women Celebrated International day for Biological diversity on 22nd May, 2020. Caption contest was organized among students on this occasion. As many as 40 students from different streams participated enthusiastically in the caption contest during the lockdown period. They captured the beauty of flora and fauna in their backyards and gave suitable captions to them. Eye-catching photographs with inspirational captions were posted by the students. Through this contest, students got an opportunity to appreciate the beauty of nature around them.



Power Point Presentation Competition (22 May 2020)

Science and technology has been the pillar of modern civilization hence, it is extremely important that the students understand the strength of both wings to make a clean, green and healthy nation. To involve a wide section of students in a constructive meaningful activity during Pandemic of COVID-19, Swachhta Committee (Sciences) of MCM DAV College for Women

has organized Power Point Presentation on Science, Technology and Innovation for a Clean, Green and Healthy Nation on 22nd May, 2020. The call for online power-point presentation competition created a buzz among the students. There was an enthusiastic participation from 17 students. It was a challenge to explain the concept in a limited number of slides.

Essay Writing Competition (22 May 2020)

To create awareness on challenges and issues related to pandemic outbreaks of covid-19, Swachhta Committee (Sciences) of MCM DAV College for Women organized a creative learning essay writing competition on the topic 'Impact of Covid-19 pandemic on wild life in India' for the students of science and arts streams. Total 22 undergraduate students of the college participated in the competition with great enthusiasm and interest. Students understood the concept of healthy ecosystems, biological diversity in terms of the wide variety of animals and microorganisms and dependency of our health on biodiversity.

Celebration Of World Environment Day (5 June 2020)

MCM ECO-CLUB under the aegis of Swachhta Committee (sciences) has celebrated World Environment Day on 5th June 2020. On this occasion Inter-college competitions on Bookmark making and T-shirt painting with an Environmental message were organized. Even, during these trying times of COVID-19, as many as a total of 80 students from various colleges of Chandigarh, Punjab and Haryana participated enthusiastically in Bookmark making and T-shirt painting competitions. All entries were amazing and worth recognition. They portrayed beautiful messages on environmental issues through their bookmarks and T-shirt paintings. Through this contest, students got an opportunity to know and address various issues on environment.



Celebration of World Oceans Day (8 June 2020)

Department of Physics and MCM Eco-Club of Mehr Chand Mahajan DAV College for Women have celebrated World Oceans Day on 8th June, 2020. On this occasion following competitions were organized among students through online mode:

1. Video and write up contest on the topic- “Satellite Oceanography”
2. Power point presentation contest on the topic- “Innovation for a Sustainable Ocean”
3. Report writing contest on the topic- “Basic Technologies to Study the Oceans”

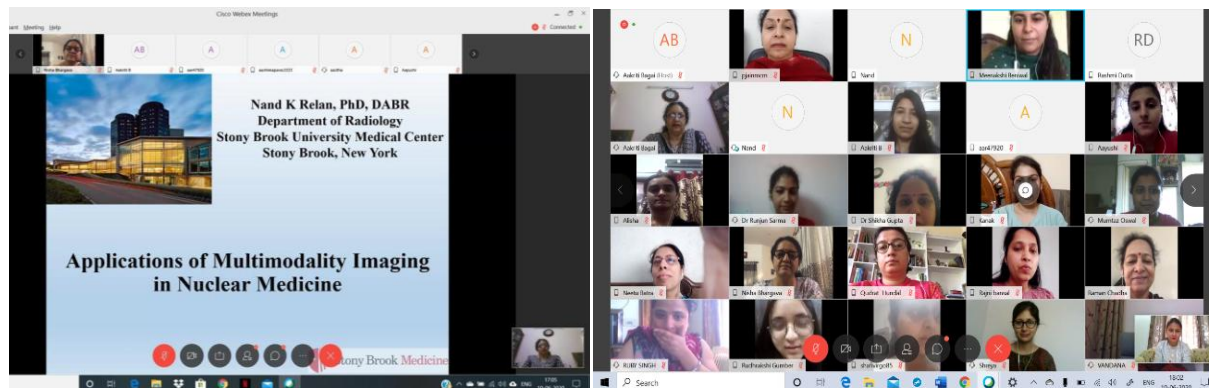
As many as 103 students from different colleges and institutes participated enthusiastically in the above mentioned online contests. With the help of their presentations, reports and videos depicted the sustainability measures taken worldwide to save oceans. The detailed elucidation of satellite oceanography helped to understand the ocean dynamics. The work done by students was highly appreciable. Moreover, through this contest, students got opportunities to widen their horizons of knowledge regarding marine ecosystems and increased their awareness manifold.



International Webinar (10 June 2020)

Department of Physics of MCM DAV College for Women has organized an International Webinar on Applications of Multi-Duality Imaging In Nuclear Medicine on 10th June, 2020. In this context, Department of physics invited Dr.Nand K. Relan, Clinical Director of Nuclear Medicine Physics and Associate Professor of Radiology, Health Services and Bio-medical Engineering at Stony Brook University, Medical centre in New York, USA as a resource person to conduct webinar through online mode. Around 60 participants joined this international webinar. Dr.Relan deliberated on the advantages of multiple imaging methods in order to improve the accuracy of imaging diagnostics in a very simple and lucid way. He emphasized about various multiplexed imaging techniques like Magnetic Resonance Imaging (MRI), Single

Photon Emission Computed Tomography (SPECT) and Positron Emission Tomography (PET) to improve early detection and localization of cancer related diseases. Dr.Relan also enlightened the students about various career and research prospects in the emerging field of nuclear medicine. Also, Principal Dr.Nisha Bhargava appreciated the efforts of speaker and Department of physics.



➤ **Visits:**

- ✓ Educational Trip To Pushpa Gujral Science City, Kapurthala
- ✓ Visit to National Agri-Food Biotechnology Institute (NABI), Mohali
- ✓ students of B.Sc 3rd year Non-Med. accompanied by 2 faculty members Ms. Raman Chadha and Ms. Poonam Jain visited Venus Remedies Limited at Baddi.
- ✓ students of B.Sc 3rd year Non-Med. accompanied by 2 faculty members Ms. RunjunSarma and Ms. Aakriti visited Panjab Engineering College.

Educational Trip To Pushpa Gujral Science City, Kapurthala (9 February 2020)

Physics department organized an educational trip to Pushpa Gujral Science City on **09th** February 2020. Science City is an institution of fun and learning, dedicated after the mother of late, I. K. Gujral, the 12th Prime Minister of India. 102 students of B.Sc. 1st year along with 6 staff members visited the Science City. Anyone can experience simulation and visual effects to take the thrill and fun up a notch. Attractions at Pushpa Gujral Science City are Space Theatre, Climate Change Theatre, Virtual Reality, Laser Theatre and Energy Park etc. The objective of the visit was to encourage students and to make them aware of the role of science in daily life. Students explored the world of science through various setups in science city. The trip was beneficial for students as they explored many new horizons of science and knew about significance of science and technology. Trip was sponsored by Department of Science and Technology, Chandigarh



STUDENTS' DETAILS

University Merit Holders

| University Roll Number | Name of the student | Course | University Position |
|------------------------|---------------------|-------------------------------|---------------------|
| 17061185 | DIKSHA | B.ScHons. Physics May,2021 | 1 st |
| 17061247 | MANSI | B.ScHons. Physics May,2021 | 2 nd |
| 17061195 | GARIMA | B.ScHons. Physics May,2021 | 3 rd |
| 17061179 | CHHAVI | B.ScHons. Physics May,2021 | 4 th |

Other Achievements:

| Name (Roll No. and class of the Student) | Name of the Award/Project/Position | Name of the event and the organizing Agency/University | Month/Year |
|--|------------------------------------|--|------------|
| Gurnoor Deepanshi | 1 st in Poster Making | Event on Akshay Urja Diwas organized by Mehr Chand Mahajan College for Women, Chandigarh | 20.08.2019 |
| Aayushi(Roll No. 900) (B.Sc.II NM) Devorah(Roll No. 821) (B.Sc II NM.) | 2 nd in Poster Making | Event on Akshay Urja Diwas organized by Mehr Chand Mahajan College for Women, Chandigarh | 20.08.2019 |
| Vibhuti Shreya | 3 rd in Poster Making | Event on Akshay Urja Diwas organized by Mehr Chand Mahajan College for Women, Chandigarh | 20.08.2019 |
| Jasleen Namisha | Consolation Prize | Event on Akshay Urja Diwas organized by Mehr Chand Mahajan | 20.08.2019 |

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|--|--|---|------------|
| | | College for Women, Chandigarh | |
| Palak (Roll No. 1351) (B.Sc. I NM) | 1 st Prize in Collage making with Scientific Photography | Eureka Fest 2020, organized by Mehr Chand Mahajan College for Women, Chandigarh | 31.09.2019 |
| PinkeyChaudhary (Roll No. 1303) (B.Sc. I NM) | 2 nd Prize in Collage making with Scientific Photography | | |
| Tania Singla (Roll No1367) (B.Sc. I NM) | 3 rd Prize in Collage making with Scientific Photography | | |
| VibhuBharti (Roll No. 1402) (B.Sc. I NM) | 1 st Prize in Poster Making | Eureka Fest 2020, organized by Mehr Chand Mahajan College for Women, Chandigarh | 31.09.2019 |
| Deepanshi (Roll No. 1421) (B.Sc. I NM) | 2 nd Prize in Poster Making | | |
| Shrishti (Roll No. 1001) (B.Sc. I VOC) | 1 st Prize in Power Point Presentation | Eureka Fest 2020, organized by Mehr Chand Mahajan College for Women, Chandigarh | 31.09.2019 |
| Muskaan (Roll No. 1032) (B.Sc. I VOC) | 2 nd Prize in Power Point Presentation | | |
| Raymanjot (Roll No. 1033) (B.Sc. I VOC) | 3 rd Prize in Power Point Presentation | | |
| Kirti Devi (Roll No. 874) (B.Sc. II NM) | 1 st Prize in Research Paper | Eureka Fest 2020, organized by Mehr Chand Mahajan College for Women, Chandigarh | 31.09.2019 |
| Namisha (Roll No. 826) (B.Sc. II NM) | 2 nd Prize in Research Paper | | |
| KhushiGirdhar (Roll No. 909) (B.Sc. II NM) | 3 rd Prize in Research Paper | | |
| SanyaPahwa (Roll No. 899)(B.Sc. II NM) | Consolation Prize | | |

| | | | |
|---|--|---|-------------------------|
| Muskaan (Roll no. 535) | 1 st Prize in Essay Writing | Eureka Fest 2020, | 31.09.2019 |
| Rinki (Roll No. 542) | 2 nd Prize in Essay Writing | organized by Mehr Chand Mahajan | |
| Nitika(Roll No. 514) (B.Sc. II NM) | 3 rd Prize in Essay Writing | College for Women, Chandigarh | |
| Shreya Shrishti Prarthna Deborah Astha (B.Sc. II) | 1 st Prize in making Hydraulic Robotic Arm competition. | Science Fest 2020 organized by Department of Science and Technology and Renewable energy Committee, Mehr Chand Mahajan | 17.02.2020 |
| Radhika Aditi Priyanka Sakshi Mittal (B.Sc. II) | 2 nd Prize in making USB Fan | College for Women, Chandigarh | |
| Vritika Kirti | 1 st Prize in On the spot working model making | Inter College Competition on 'Experiencing the marvelous World of Science and Mathematics' at CGC LANDRAN | 25.02.2020 |
| Janvee(Roll No. 1345) Aanchal Garg(Roll No.1333 Palak(Roll No.1351) (B.Sc I NM) | 3 rd Prize in Rangoli Competition | Inter College Event 'Gravitino 2020' organised by DAV College, Chandigarh | 26.02.2020 – 27.02.2020 |
| Diksha(Roll No. 803) Shreya Sharma (Roll No. 903) (B.Sc II) | Consolation Prize in Rangoli Competition | Inter College Event 'Gravitino 2020' organised by DAV College, Chandigarh | 26.02.2020 – 27.02.2020 |
| Tania Singla (Roll No.1367) Sheena (Roll No.1312) Umang (Roll No.1309) (B.Sc I N.M) | 3 rd Prize in Poster Making | Inter College Event 'Gravitino 2020' organised by DAV College, Chandigarh | 26.02.2020 – 27.02.2020 |