1. Message from the HODs desk:

   Education is not the learning of facts, but the training of the mind to think.--Albert Einstein.
   Greetings from the HoD's desk!!
   I am extremely privileged to head the Physics department which comprises a dedicated team of teaching as well as non- teaching faculty.
   Our objective is to impart to our students education combined with innovative thinking, application of knowledge and an awareness of social responsibilities.The teaching faculty is highly qualified with years of teaching experience backed by excellent research in various branches of Physics.
   Since its inception seven decades ago, the department has consistently evolved in terms of innovations in the subject as well as in teaching methodology.The department strives to address the critical challenges faced by the academia and industry in bridging the gap between academics and employability. Perhaps, even more important, is our unflinching commitment towards our students, helping them to learn, grow, develop and achieve their goals in pursuit of excelling in their professional careers.
   The world is undergoing tremendous positive transformation and its effects on education are clearly discernible. We, the Physics department, want to be part of this positive change , utilising our core strengths in pure and applied Physics and the ongoing research to enable our students to become academically motivated as well as skill equipped individuals. Students are actively exposed to research as well in the subject via the well designed and upgraded syllabus under autonomy.
   We are confident that, in the years to come, the department, with its rigorous and relevant syllabus, innovative teaching techniques and active participation from the industry, will reinforce its reputation as an enviable seat of higher learning.
   Thoughts are but dreams till their effects are tried. -- William Shakespeare.
   - Dr. Manisha Deshpande

2. The Physics Department was established in 1949. Currently, it has a strength of 6 efficient professors.

The Physics Department lives by the motto **"To awaken and satisfy the students' innate curiosity coupled with hands-on experience."**

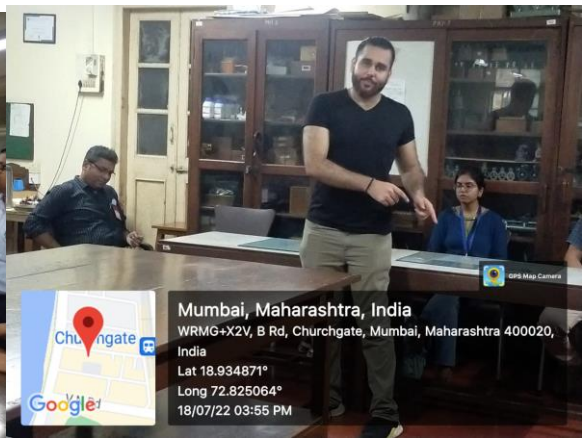
In the academic year 2022-2023,

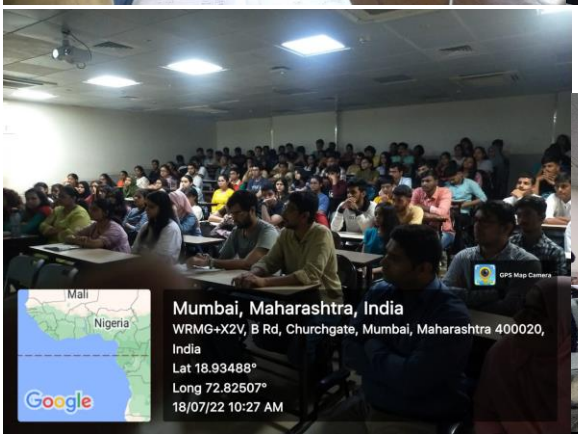
We conducted Two Spotlight Talks : **Moulding a Research Career in Physics** *on 13th of July 2022*


The objective of this talk was to encourage the attendees to pursue research after completing their education.

Spotlight Talk 2: **A Short Story on Dark Matter** *on 14th January, 2023*
The chief objective of this talk was to inspire interest on the topic of dark matter and give them thorough knowledge.

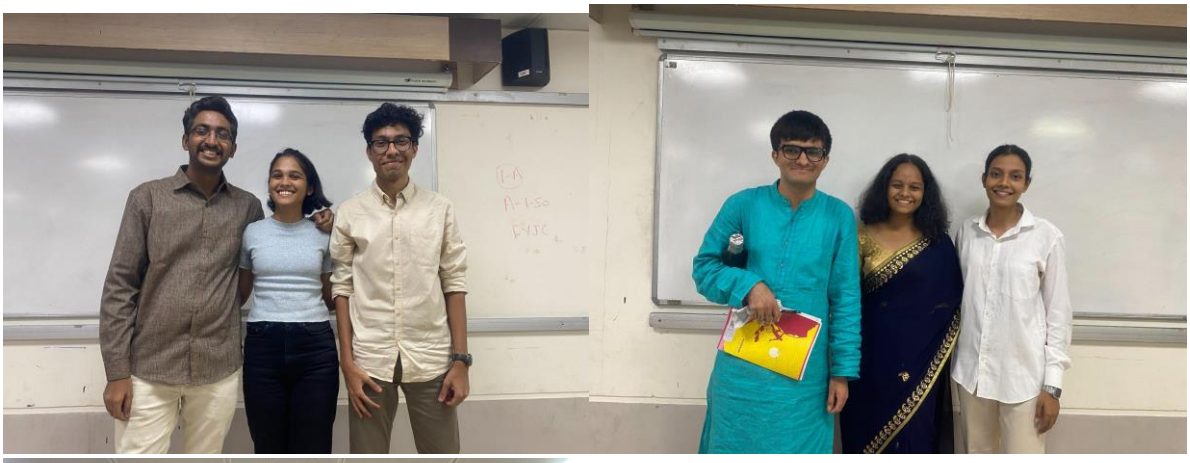
We conducted a **Workshop on Radiochemistry and Applications of Radioisotopes** in collaboration with IANCAS *on 18th of July, 2023*. The Lecturers being, “**Dr. Tapas Das**”,”**Dr. Jayashree Biswal**”,”**Dr. Arnab Sarkar**”,”**Shri Sandeep Vishwasrao**”.





The Society had arranged a **Physics Quiz Competition** *on the 17th of September 2023* for the students consisting of multiple rounds and twists and turns.

On 19th November 2023, we organised a **Debate Competition** with the topic "**Artificial Intelligence should not be used in the education system**". The competition had multiple selection rounds and a mock debate with the topic "Existence of Multiverses".


On 9th December 2023, the **Giant Metrewave Radio Telescope(GMRT), PUNE trip** was arranged.

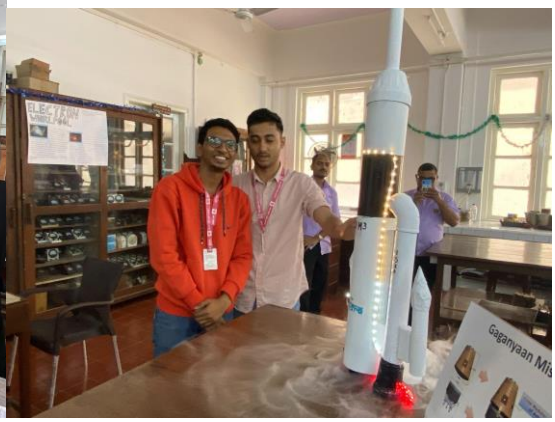
The objective of this trip was to introduce students to radio astronomy and ignite interest in them about the same.

The Grand Event of the academic year was **PHYZEX 2023,** conducted *on 6th and 7th of December, 2023*. It consisted of a “**Physics Exhibition**”, “**Circuit Express**”,”**Poetry Competition**” and "**Fun with Physics**”.

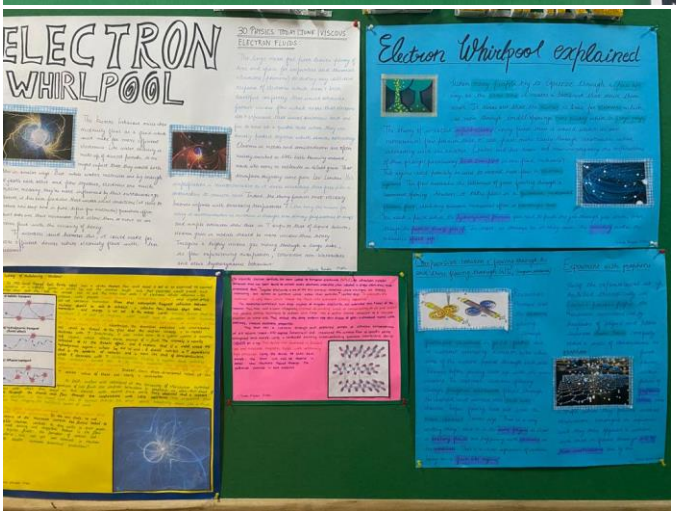
The **Physics Exhibition** was the primary source of attraction for Phyzex with over **40+ registrations** from students of JHC and other colleges.

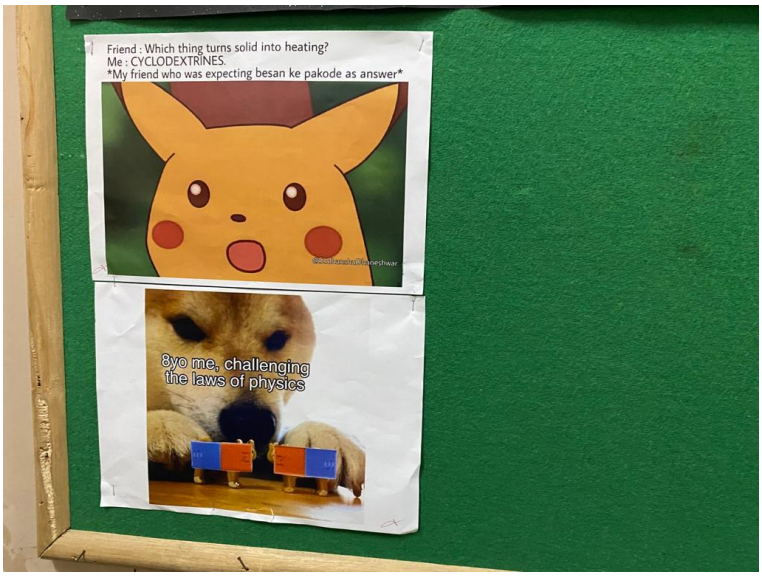
The Exhibition had **116+ visitors**, including students of Jai Hind College, students from other colleges and two schools.
The Circuit Express had **32+ registrations** and the students were asked to assemble the '**OP-AMP as voltage follower**'.
The topic given for the **Poetry competition** was '**Energy**'.

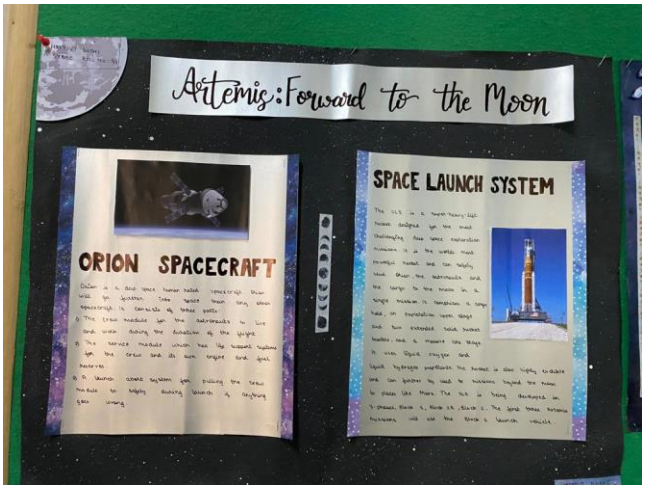
At the end of the event, the winners of all the competitions conducted and academic toppers were duely awarded for their excellence.


Gaganyaan Mi

“Let Us Share” is an activity enlightening the students via various engaging components such as poster making, meme making, and posting physics trivia.







“Science Open Day”, *on 28th February, 2023,* an event consisting of physics demonstrations for students to see and help them to understand complex concepts in an easy way.

The Department also arranges an **"Astronomy Course",** that consists of a series of lectures by various experts in the fields of **Astronomy/Astrophysics.**

We conducted the **"AAA Aspirants Course (2022-23)",** a course designed to help students prepare for **competitive exams in the field of physics.**

The "**Eureka Magazine**", consists of articles, poetries, movies/series recommendations and reviews written by students and teachers. The Magazine consists of Students Achievements and Yearly Report.

The Society has a **"Physics Discussion Club"** that aims to encourage discussions and engagement in various physics-related topics.

3. Faculty Details

I. Name: Dr. Manisha Deshpande

II. Designation: HOD, Physics, Associate Professor

III. Qualification: M. Sc. Ph. D.

IV. Specialisation: Solid State Electronics

V. Experience in years: 20 years

VI. Research: Semiconductor Bulk Crystal and Thin Films. We have interdepartmental MOU between Jai Hind College and D. G. Ruparel College for collaborative research.

Publications

1. Synthesis of GaSb-VDS thin film by electron beam physical vapour deposition and its electro-optical characterization as prerequisite for p-n device construction, Anshul Gupta, **Manisha Deshpande**, Dilip Maske, D. B. Gadkari. Materials Today: Proceedings, Volume 57, Part 5, 2022,
2. Electrical, Optical, and Structural Stability Over Ten Years for Sb Based III-V Semiconducting Bulk Grown by VDS, Anshul Gupta, **Manisha Deshpande**, Dilip Maske, D. B. Gadkari, ECS Transactions, 01-04-2022 107(1):10663-10671
3. Mapping of Elements and Microstructures in a Crystal, Dilip Maske, Manisha Deshpande, Vidula Angane, Dattatray Gadkari, New Frontiers in Physical Science Research Vol. 9

VII. E-mail Id: Manisha.joshi@jaihindcollege.edu.in

Name: Mr. Sharad Dange
Designation:Associate Professor
Qualification: M. Sc., NET
Specialisation: Nonlinear dynamics
E-mail Id:sharad.dange @jaihindcollege.edu.in

Research Area of Interest:

My research interest in Condensed matter physics, Currently, I am focused on:

- Magnetostriction measurement of rare earth intermetallic compounds.
- Metal Oxide nanoparticles and their applications, especially towards gas sensing.
- Instrumentation

Publications:

1. Magnetostriction measurement by four probe method, **S. N. Dange**, and S. Radha,

AIP Conference Proceedings 1942, 060028 (2018); doi: 10.1063/1.5028798

2. H2S Gas Sensing of ZnO Microcrystals Having Almond Morphology, S.S.Dange, **S.N.Dange,** P.S.More, Asian Journal of Physics, **25(8)**, 993-998, August 2016.(0971-3093)

3. Effect of pH on Morphology of Cu Added ZnO Nanostructures by Precipitation Method, S.S.Dange, **S.N.Dange,** P.S.More, International Journal of Innovative research in Science, Engineering and Technology, Volume 4 ,ISSUE 9, 15 September 2015. ISSN:2347-6710

4. "Magneto resistance of Bismuth in Bulk and Thin Film Forms" AIP conference proceedings 1591, **S. N. Dange,** Ritwik Saha, A. M. Patade, Ajit Mahadkar, Deepa T. Pujara, S. V. Vansutre, and S. Radha1400 (2014); doi 10.1063/1.4872973 ISBN: 978-0-7354-1225-5

Name: Mrs. Jyoti S. Mayekar

I. Designation: Assistant Professor

II. Qualification: M.Sc, SET

III. Specialization: Solid State Physics

IV. Experience in years: 12 years

V. A. Publications:

1. J. S. Mayekar, V. S. Dhar, Need of research for Undergraduate students, DS, JHC, Vol. 3, July 2013, ISSN 2249-7471
2. Mayekar Jyoti, Dhar Vijay, S. Radha; To study the role of temperature and sodium hydroxide concentration in the synthesis of zinc oxide nanoparticles, International Journal of Scientific and Research Publications (IJSRP), vol. 3, issue 11, November 2013

Impact factor : **7.662**
ISSN: 2250-3153

3. Mayekar Jyoti, Dhar Vijay, S. Radha; Role of salt precursor in the synthesis of zinc oxide nanoparticles, International Journal of Research in

Engineering and Technology (IJRET), vol. 3, issue 03, March , 2014, 43-45

Impact factor : **7.529**
eISSN: 2319-1163 | pISSN: 2321-7308

4. Jyoti Mayekar, Vijay Dhar, S.Radha, Synthesis of copper oxide nanoparticles using simple chemical route, International Journal of Scientific and Engineering Research (IJSER), vol. 5, issue 10, October 2014.

Impact factor: **3.791**
ISSN 2229-5518

5. Mayekar Jyoti, Dhar Vijay, S. Radha; Synthesis and characterization of pure zinc oxide and nickel doped zinc oxide nanoparticles, International Journal of Research in Engineering and Technology (IJRET), vol. 4, issue 11, Nov. , 2015

Impact factor : **3.935**
eISSN: 2319-1163 | pISSN: 2321-7308

6. Mayekar Jyoti, Dhar Vijay, S. Radha,Synthesis, characterization and magnetic study of zinc ferrite nanoparticles, International Journal of Innovative research in Science, Engineering and Technology (IJIRSET), vol. 5, Issue 5, May 2016, 8367-8371,

Impact Factor: **6.209**
eISSN:2319-875 3 | pISSN: 2347-6710

7. Mayekar Jyoti, S. Radha, Synthesis and characterization of zinc oxide nanoparticles and silver doped zinc oxide nanoparticles and their comparative antibacterial activity, Journal of Interdisciplinary Cycle research ,An UGC-Care approved Group II journal,serialno.21259 ,JICR Journal, Volume XIII, Issue IV, April 2021

Impact factor 6.2 ISSN no. 0022 1945

8. Published a chapter " Synthesis of copper oxide thin films", in a book titled Thin film Technology and its novelties in Material Science ,79-82, Bhumi publishing, 2022, ISBN: 978-93-91678-93-5
9. Jyoti Mayekar, Adnan Khan, Prutha Kendre, Aadil Khatik, Nilesh Makwana, Study of nature of neutrino: Majorana or Dirac, Journal of Interdisciplinary Cycle Research,An UGC-Care approved Group II Journal,serial no.21259, Volume XIV, Issue XI, November/2022, 1001-1006, ISSN NO: 0022-1945
10. Jyoti Mayekar, A review on the synthesis of doped and undoped ZnO thin filmsand understanding the effect of doping on the band gap of doped ZnO thin films on the basis of Burstein-Moss effect, International journal of Research and Analytical Reviews,Volume 9 , Issue 4, December 2022, E-ISSN no. - 23481269,P-ISSN- 2349-5138

E-mail Id: jyoti.mayekar@jaihindcollege.edu.in

Name: Dr. Balakrishna Rongali
Qualification: M.Sc.,B.Ed.,M.A.Education, LL.B, PhD,.
Designation: Assistant Professor
Specialization: Electronics
E-mail Id: balakrishna.rongali@jaihindcollege.edu.in

VI. Experience in years: 15 years

VII. A. Publications:

VIII. 1) "Studies of Nanoparticle Doped Liquid Crystal Mixture" (Vol.511pp75[1545]-84/[1554],2009 ***Mol.Cry.Liq.Cry*, Taylor and Francis,U.K**) (Vol.511pp75[1545]-84/[1554],2009 Gupta Sureshchandra J. Pradnya Prabhu Arvind Singh **Balakrishna Sreeram** Vinita Dhulia Bhakti S. Yadav Anita Kanwar

2) "Binary Mixtures of PDLC Doped with Nanoparticles and MWCNT" ISBN NO 973-93-80864-47-3/ISBN NO 978-615-58717-2)/ *International Conference & Workshop on Recent Trends in Technology, (TCET) 2012 Proceedings published in International Journal of Computer Applications® (IJCA)* Gupta Sureshchandra **Balakrishna R.S**.

3) "Investigation of Parameters of Liquid Crystals Mixtures" 978-93-80747-74-1 p*roceedings published by International Journal of Computer Applications® (IJCA) 2nd International Conference and workshop on Emerging Trends in Technology (ICWET) 2011* Gupta Sureshchandra **Balakrishna R.S** Vinita D.

I. Name: Dr. Niyaz Ahmed K C

II. Designation: Assistant Professor

III. Qualification: PhD, NET, JEST

IV. Specialization: Condensed Matter Physics

V. Experience in years: 4

VI. A. Publications:

MoP3SiO11: A 4d3 honeycomb antiferromagnet with disconnected octahedra Danis I Badrtdinov, Lei Ding, Clemens Ritter, Jan Hembacher, **N. Ahmed**, Yurii Skourskii and Alexander A Tsirlin, Phys. Rev. B, 104, 094428 (2021)

Low-dimensional magnetism of BaCuTe2O6 P. Bag, **N. Ahmed**, Vikram Singh, M. Sahoo, A. A. Tsirlin, R Nath, Phys. Rev. B, 103, 134410 (2021)

Quasi-one-dimensional magnetism in the spin-1/2 antiferromagnet $BaNa_2Cu(VO_4)_2$, Sebin J. Sebastian, K. Somesh, M. Nandi, **N. Ahmed**, P. Bag, B. Koo, J. Sichelschmidt, A.A.

Tsirlin, Y. Furukawa, and R. Nath Phys. Rev. B, 103, 064413 (2021)

B. Oral/Poster Presentations: Low-dimensional magnetism of BaCuTe2O6, N.Ahmed, Workshop on Statistical Physics of Complex Systems, International Center for Theoretical Physics, Trieste, Italy, 08-10 September 2021

VII. E-mail Id: niyaz.ahmed@jaihindcollege.edu.in

I. Name: Mr. Kishor Dattatray Kumbhar

II. Designation: Assistant Professor

III. Qualification: MSc Physics , SET, GATE-2023,2022,2021

IV. Specialization: Nuclear Physics & Solar terrestrial Physics

V. Experience in years: 1 year 6 months

VI. A. Publications:

B. Oral/Poster Presentations: Observation of Kinetic Alfvén waves in Magnetic cloud, **Kishor Kumbhar**, Omkar Dhamane, Kalpesh Ghag, Vinit Pawaskar, Zubair Shaikh & Anil Raghav, presented at First meeting of Science from In-situ Measurements of Aditya-L1 (SIMA-01), Space Physics Lab (SPL), Vikram Sarabhai Space Center (VSSC), Thiruvananthapuram, Kerala, 11-13 April 2023.

VII. E-mail Id: kishor.kumbhar@jaihindcollege.edu.in

4. Courses offered

1) Programmes offered

Sr.No	Programme name	Degree/diploma/certificate	Aided/Self financed
1.	BSc	Degree	Aided
2.	Credit course in Astronomy	certificate	Self financed
3.	Introduction to python	certificate	Self financed

5. Supporting Staff

S.N.	Supporting staff	Designation
1	Mr. Panchamlal	Lab Assistant
2	Mr. Laxmanprasad Sonkar	Lab Assistant
3	Mr. Satyanaryan Yadav	Lab attendant
4	Mr. Jagdeesh Prasad	Lab attendant
5	Mr. Sachin Nivagune	Lab attendant
6	Mr. S. Viswakarma	Lab attendant
7	Mr. Vikarm Parkhe	Lab attendant
8	Mr. Jayvant B. Warude	Lab attendant
9	Mr. Pradeep Patil	Lab attendant
10	Raj Kumar Jaiswar	Lab attendant

7. Students Achievement

1. Vaibhav Baldaniya (TYBSc - 2023) participated in an introductory summer school on astronomy and astrophysics (organised by IUCAA) from 15th May 2022 to 17th June 2022.
2. Aditya Gupta (SYBSc - 2023) completed a summer internship at Miranda House, Delhi, from May - June 2022. He worked on the synthesis of Zinc Oxide thin films and studied contacts formed

by the deposition of various metals on it. He assisted in synthesising reduced Graphene Oxide and various kinds of nanoparticles. He also presented his research work at the ICNOC conference on recent developments in nanotechnology.

3. IV. Mehboob Hashim Shaikh (SYBSc - 2022) participated and submitted a research proposal titled "Nuclear Battery" in the AVISHKAR research convention 2021- 2022.
4. Arsalaan Akil Solkar (SYBSc - 2023) attended a webinar on 'Understanding Research Metrics' organised by the IQAC, Research Team of Jai Hind College (Autonomous) on the 28th of May 2022.

5. Shama Parveen (TYBSc - 2023) had been awarded for taking the pledge "Say yes to life, no to drugs" conducted by the Ministry of Home Affairs.
6. .Ekta Keswani participated in an intercollegiate poetry competition and won the third prize. She also participated in an intercollegiate debate competition and won the second prize.
7. Bavisha Ayushkumar Kumanbhai and Parikh Siddharth Bhadresh, students of TYBSc - 2023 (Physics), secured the third place in the Mumbai City Intercollegiate Chess Tournament organised by SIWS College, Wadala, Mumbai.
8. Prithvi Patil (TYBSc - 2023) (Physics) was awarded with the All India Best Cadet prize on 22nd January 2022. She represented the Maharashtra Directorate, who won the Champions cup. She received the medal and the baton, and the Maharashtra Directorate received the Prime Minister's banner from the hands of our honourable Prime Minister.
9. Sakshi Rane (TYBSc - 2023) (Physics) was awarded with the prestigious Guard of Honour prize in January 2022.
10. Om Khanna (SYBSc - 2023) is the Joint Secretary of the Physics Society. He successfully completed a research internship in quantum computing at Atos Pune, from 9th May 2022 - 29th July 2022. He worked on a research project under the mentorship of Dr. Amit Saha. He has co-authored and published a research paper titled - 'Intermediate qudit assisted Improved quantum algorithm for string matching with an Advanced Decomposition of Fredkin gate' on 7th April 2023.
11. Tarun Jhangyani(TYBsc-2020) was awarded a scholarship by R.D

Tata Scholarship.

10. Addendum
    1. Dr. Vijay Dhar superannuated on 28th February 2018
    2. Mrs. Dilber Daruwalla superannuated on 30th September 2021