



2nd QUARTERLY REPORT ON AZADI KA AMRIT MAHOTSAV (AKAM) PROGRAM

(December 2021 – February 2022)

As per the directive of the Department of Atomic Energy, Institute of Physics, Bhubaneswar is celebrating India's 75th year of Independence as '*Azadi Ka Amrit Mahotsav*'. Following activities have been carried out under this program.

PART A

December 2021

(1) Kalinga TV program on Samanta Chandrasekhara

Kalinga TV presented a half hour program on Dec 12 on Samanta Chandrasekhara, the legendary 19th century Indian astronomer, which included interviews of Prof. L. Satpathy (retd. Professor, IOP) and Prof. A.M. Srivastava (Professor, IOP). Prof. Satpathy and Prof. Srivastava discussed great works of Samanta Chandrasekhara, the naked eye astronomer, his extremely precise measurements, and his exceptional experimental skills in making various instruments for astronomical measurements with everyday materials such as wooden sticks and bamboo. They emphasized the importance of bringing his works to limelight, and recognizing him as a role model as an exceptional experimental physicist.



YouTube

link: https://www.youtube.com/watch?v=t1h_1tjQHSY

(2) Popular Science talk for B.Sc. students at Banki college

A popular science talk on “The universe, elementary particles, and dark energy” was given by Prof. A.M. Srivastava on 15th Dec. for B.Sc. Students at the Physics Dept., Banki College, Banki, Odisha.



(Popular science talk at Physics Dept. Banki College, Bank, Odisha)

(3) Hindi Workshop organized jointly by Institute of Physics, Bhubaneswar and Town Official Language Implementation Committee (Central), Bhubaneswar, Department of Official Language, Govt. of India.

Institute of Physics, Bhubaneswar organized the Hindi Workshop jointly with Town Official Language Implementation Committee (Central), Bhubaneswar on 15.12.2021 in the Institute. About 50 officials from different offices working under Govt. of India in Bhubaneswar participated in this workshop. Sri Roshan Pandey, Chief Manager (Hindi), NALCO and Sri Hariram Pansari, Consultant (Hindi), STPI, Bhubaneswar attended as Invited Speaker. Mr. Pandey deliberated on Hindi Grammar and Parliamentary Inspection Questionnaire and Sri Pansari deliberated about Qrtly. Report filling procedures and Rajbahsha Techniques.



(Inauguration function of the Workshop)



(Valedictory function of the Workshop)



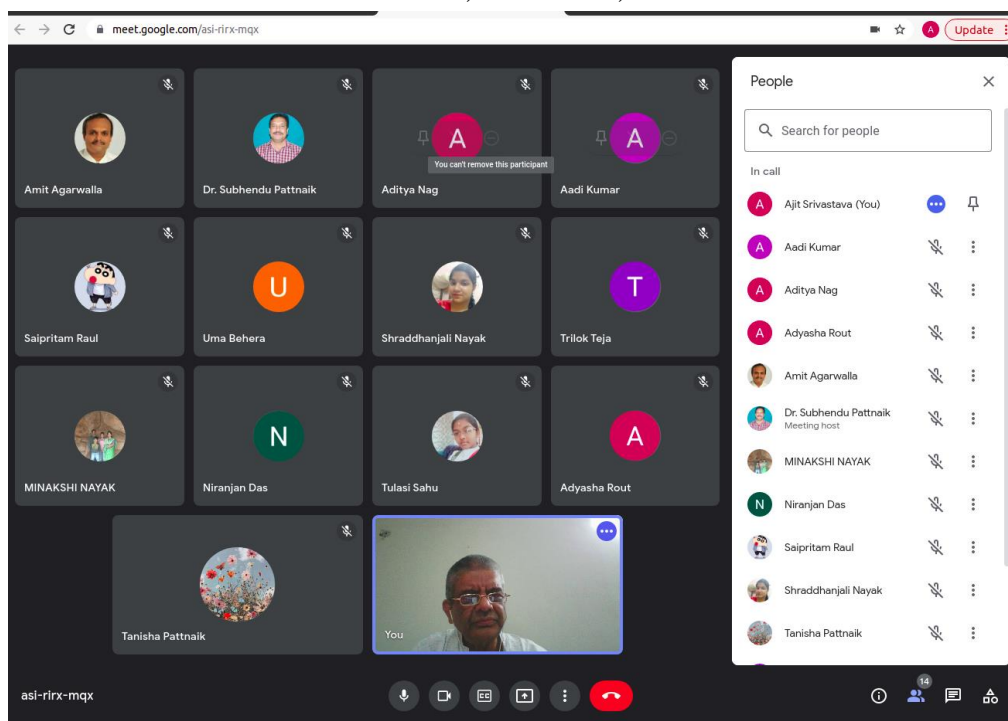
(Participants during the workshop)

(4) Scientists-School Students online interaction program:

Fourth Session of Physics Open Discussion (POD) at IOP Bhubaneswar

The Fourth Session of the Monthly Physics Open Discussion (POD) online program at IOP Bhubaneswar was held on 18th Dec. 2021 during 5:30 pm – 7 pm. The program was attended by about 15 school students from all over Odisha from class VI to class XII on Zoom online platform. Questions ranging from basic physics concepts (Newton's laws of motion, light scattering by gases, quantum physics, energy quantization, sound waves), to frontier areas of physics (muon catalized fusion, time dilation, relativistic mass, ..from internet exposure of students) were discussed. Students asked questions in English, Hindi, and Odiya.

POD Online Session No. 4, Dec 18th, 2021



YouTube link for the session: <https://www.youtube.com/watch?v=jKSVgddnUkg&t=888s>

(5) Popular Science talk at the State Level Science Seminar on “Exploring the Universe” held at Nimapara College, Odisha

A popular science talk on “Universe and elementary particles” was given by Prof. A.M. Srivastava on 20th Dec. at the State level Science seminar on “Exploring the Universe”. The seminar was arranged at the Nimapara College, Nimapara, Odisha.

‘ବ୍ରହ୍ମାଣ୍ଡର ଅନୁସନ୍ଧାନ’ ରାଜ୍ୟସ୍ତରୀୟ ପାଠକକୁ

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(News in a local paper and participant in the meeting)

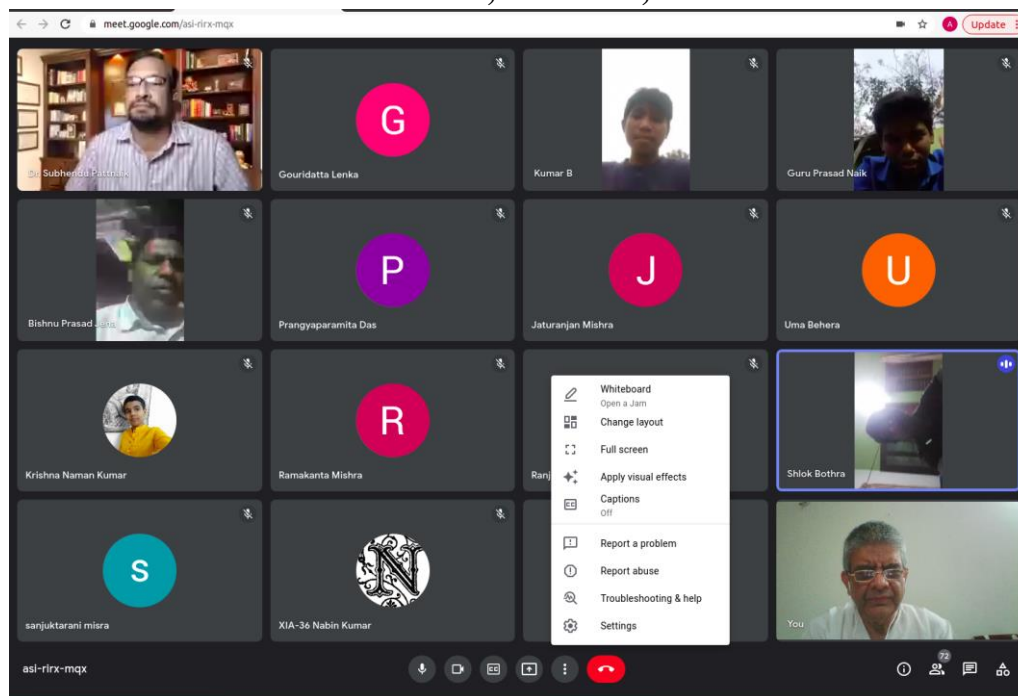
January 2022

(6) Scientists-School Students online interaction program:

Fifth Session of Physics Open Discussion (POD) at IOP Bhubaneswar

The Fifth Session of the Monthly Physics Open Discussion (POD) online program at IOP Bhubaneswar was held on 15th Jan. 2022 during 5:30 pm – 7 pm. The program was attended by about 80 school students from all over Odisha from class VI to class XII on Zoom online platform. Questions ranging from basic physics concepts (Astronomical measurements by early astronomers, magnetic force, seeing the light, sound generation, nature of gravitational force,...), to frontier areas of physics (quantum entanglement, metric tensor and curvature, shape of planets, lightening, ..from internet exposure of students) were discussed. Students asked questions in English, Hindi, and Odiya.

POD Online Session No. 5, Jan 15th, 2022



YouTube link for the session: https://www.youtube.com/watch?v=rIBlc_1EEsM

February 2022

(7) Popular Science talk at the virtual Science outreach camp "Science Movement" for high school students of Odisha at Cohen International School, Bhubaneswar

A popular science talk on “Origin of the Universe” was given by Prof. A.M. Srivastava on 14th Feb. 2022 at the virtual Science outreach camp "Science Movement" for high school students of Odisha at Cohen International School, Bhubaneswar. The talk and interaction session was held for 2 hours.

 VIRTUAL SCIENCE CAMP-2022 13 th Feb., 2022 to 14 th Feb., 2022 AGENDA	
INAUGURATION Date: 13th Feb., 2022 Time: 9:00AM-9:15 AM	
Topic: "Understanding DNA: 3D Folding Influences How We Read Our Genes"  February 13, 2022 09:15 AM to 11:15 AM	 SPEAKER Prof. Subhojit Sen University of Mumbai (UM), DAE Centre for Excellence in Basic Sciences, Mumbai
Topic: "Peering into the nano-nano world"  February 13, 2022 11:15 AM to 01:15 PM	 SPEAKER Prof. Gagan Bihari Mohanty Department of High Energy Physics, Tata Institute of Fundamental Research, Mumbai
Topic: "Origin of Mass" (TBC)  February 13, 2022 02:30 PM to 04:30 PM	 SPEAKER Prof. Bedangadas Mohanty School of Physical Sciences, National Institute of Science Education and Research, BBSR
Topic: "Chemistry in the Welfare of Human Society and the Challenges in Future"  February 13, 2022 04:30 PM to 06:30 PM	 SPEAKER Prof. Chandra Shekhar Purohit School of Chemical Sciences, National Institute of Science Education and Research, BBSR
Topic: "Origin of the Universe"  February 14, 2022 09:00 AM to 11:00 AM	 SPEAKER Prof. Ajit Mohan Srivastava Institute of Physics, Bhubaneswar, Odisha
Topic: "S....."  February 14, 2022 11:00 AM to 01:00 PM	 SPEAKER Prof. Deepak Modi Scientist, Molecular and Cellular Biology Laboratory, National Institute for Research in Reproductive and Child Health, Mumbai

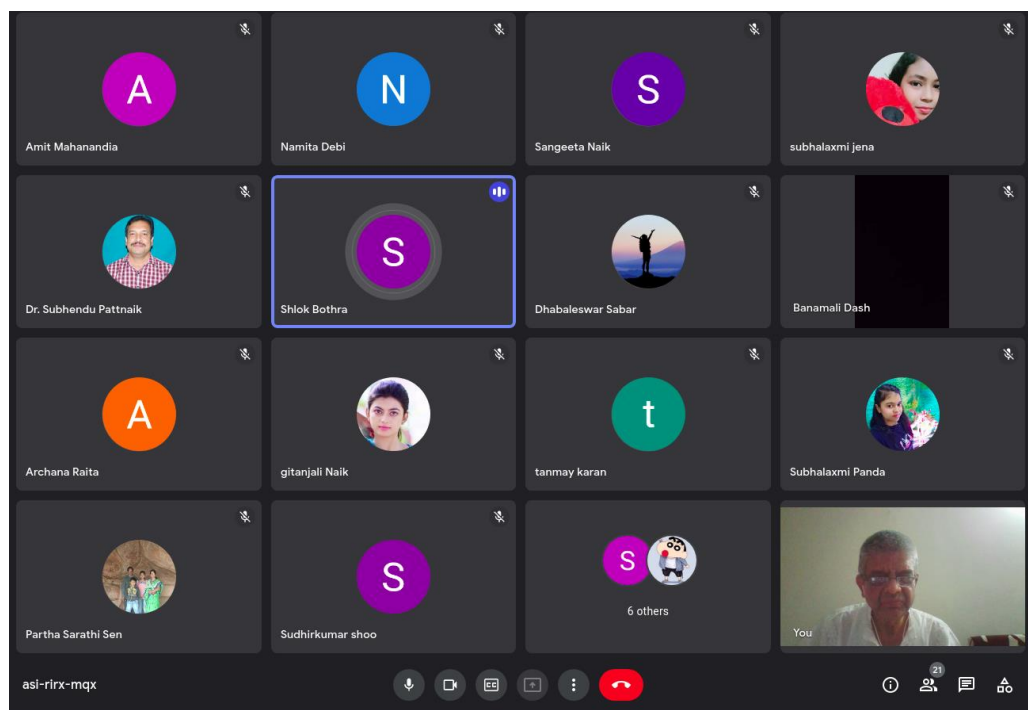
(Details of program of the event "Science Movement")

(8) Scientists-School Students online interaction program:

Sixth Session of Physics Open Discussion (POD) at IOP Bhubaneswar

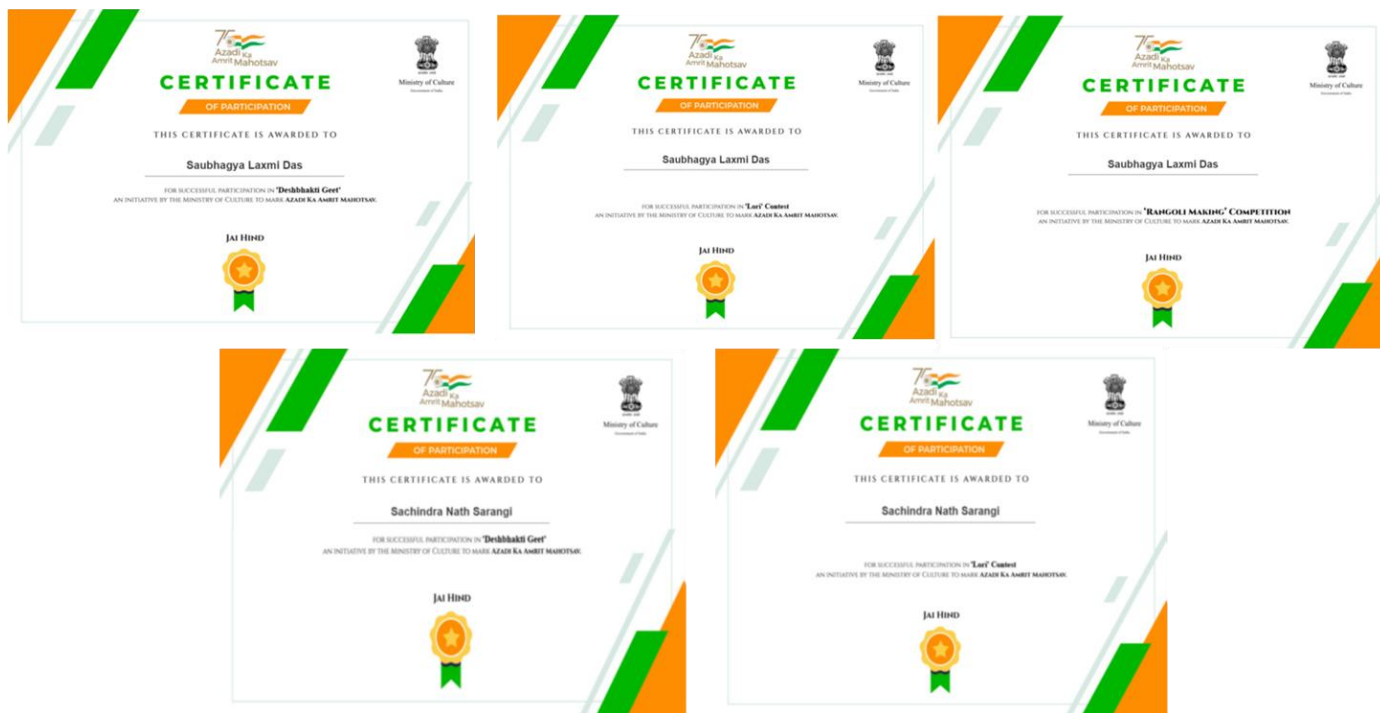
The Sixth Session of the Monthly Physics Open Discussion (POD) online program at IOP Bhubaneswar will be held on 19th Feb. 2022 during 5:30 pm – 6:30 pm. The program was attended by about 20 school students from all over Odisha from class VI to class XII on Zoom online platform. Questions ranging from basic physics concepts (electrical circuits, high voltage current lines, light scattering by gases, polarization of waves,...), to frontier areas of physics (black holes, elementary particles etc. from internet exposure of students) were discussed. Students asked questions in English, Hindi, and Odiya.

POD Online Session No. 6, Feb. 19th, 2022



(9) Ministry of Culture, Govt. of India, organized competitions on Deshbhakti Geet, Lori and Rangoli.

On the eve of Azadi Ka Amrit Mahotsav, Ministry of Culture, Govt. of India, organized competitions on Deshbhakti Geet, Lori and Rangoli. Employees of IOP, Mrs. Saubhagya Laxmi Das, and Dr. S. N. Sarangi, participated in the event and received participation certificate.



(Various participation certificates by Ms. S. L. Das and Dr. S. N. Sarangi)

(10) “Bigyan Sarbatra Pujyate” ”, a week-long festival organized by Science and Technology Department of Odisha at KIIT University, Bhubaneswar

Prof. K. K. Nanda, Director, Institute of Physics, Bhubaneswar was invited as a chief guest in the valedictory function "Bigyan Sarbatra Pujyate", a week-long programme organized by Department of Science and Technology, Odisha as a part of the Azadi Ka Marit Mahostav from February 22-28, 2022 at KIIT university. The festival was celebrated in collaboration with Odisha Bigyana Academy (OBA), Regional Science Centre, Bhubaneswar, City Knowledge Innovation Cluster (BCKIC) and KIIT University. The programme comprised of expositions, popular scientific talks, lecturers, films, science literature activities, books & posters and awards aiming at students, teachers, and researchers from different schools and colleges of Odisha to make them aware about science and scientists. The speech delivered by Prof Nanda in valedictory function

emphasized on the career in science and the how the research in science mutualized by different other agencies. He also presented the awards to different participants in the valedictory function.

(11) Popular science talk at Berhampur University on the occasion of National Science Day on 28th Feb 2022

Prof. Shikha Varma presented a popular science talk at Berhampur University on the occasion of National Science Day on 28th Feb 2022. The talk was attended by UG and PG students of Physics, Chemistry, Biology, Maths, computer science, Management etc. The title of the talk was “Excitements in Functional Materials: Nanotechnology to “Nano Bio”. The importance and exciting aspects of Nanotechnology in numerous applications was presented to the students.

(12) “OPEN DAY” event at Institute of Physics, Bhubaneswar

Each year on 28th February, Institute of Physics (IoP) observes National Science Day (NSD) in its premises. This year, NSD celebration at IoP was planned in a very different manner from previous years by the initiative of Prof. K. K Nanda, Director, IoP. As a part of celebration of National Science Day 2022, IoP organized an “OPEN DAY” event to show-case its activities to the student community, teachers, parents, technology enthusiasts and the general public. The idea of having an “OPEN DAY” at IoP was conceived by Prof. K. K Nanda, from his past long experience about it at IISc, Bangalore. He realized through “OPEN DAY” IoP can reach out to a larger section of students, teachers, parents and public in the local area and create more scientific awareness.

The science activities on “OPEN DAY” at IoP featured live demo experiments, Laboratory visits, poster presentations, and the display of scientific movies. Some of the live demo experiments included Eco house, Invisible flame, Surface tension, Faraday effect and Lenz’s Law, Tyndall effect, O₃-based Sanitization, Superconducting Levitation ... to kindle curiosity in the minds of young budding talents. Besides, the visitors visited the research laboratory craning their necks to catch a glimpse of sophisticated equipments/experimental set up. Some of these include Ion Beam Laboratory, Advance material Growth Laboratory, Laboratory for Low Dimensional Materials, Surface Nanostructuring and Growth Laboratory, Raman spectrometer, SQUID-Magnetometer, and HEP Detector Laboratory. The event extended from 10:00 am to 05.00 pm on 28th February at the premises of the Institute. Efforts were put in advance to make a wide circulation about the event in various Schools, Colleges, and public places in and around Bhubaneswar and invitations were extended to students, teachers of various schools/colleges to visit, explore and enjoy the scientific activities at IoP during the “OPEN DAY”. IoP received an overwhelming response from the visitors, altogether, there were about 600-700 visitors out of which the majority belonged to students community, who were very much excited to look around the scientific happenings at IoP and enjoyed the scientific vibes. A dedicated team comprising of faculty members, scientific staff, administrative staff, PhD students and postdocs who have been instrumental in organizing such outreach scientific activities put all their efforts, time and energy to smoothly organize the event and made it a grand success and memorable one. Some of the photographs and media report on the “OPEN DAY” event at IoP are enclosed below.



(Volunteers at IoP main gate, Laboratory demonstration, Live experiment demonstration, Doordarshan coverage: A byte by Prof. K. K. Nanda, Open Day Flyer)

(13) Popular Articles

Prof. K K Nanda has contributed an article on "Carbon dots based invisible ink" and Prof. Arijit Saha has written an article on "Topological Insulators: A Modern Era of CMP. Both the articles are put in the AKAM webpage link of IOP website. The following are the links for popular articles.

https://www.iopb.res.in/AKAM/Prof_K_K_Nanda_Pop_Art_Invisible_Ink.pdf

https://www.iopb.res.in/AKAM/Topo_Insu_A_Saha.pdf