



1ST QUARTERLY REPORT ON AZADI KA AMRIT MAHOTSAV (AKAM) PROGRAM

(September – November 2021)

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

September 2021

(1) Visit of Prof. K. K. Nanda, Director, Institute of Physics, Bhubaneswar to Boudh District, Odisha during September 25-26, 2021.

On 25th September 2021, Prof. K. K. Nanda, Director, Institute of Physics, Bhubaneswar visited Boudh district of Odisha and met the Collector and District Magistrate Mr. Lalatendu Mishra. They discussed the possibility of organizing the Azadi Ka Amrit Mahotsav (AKAM) program of IOP in Boudh district. The school and college students of Boudh district will be benefitted during the 2 days scientific outreach program planned by Institute of Physics (IOP), Bhubaneswar.



Image: Prof. Nanda meeting Mr. Lalatendu Mishra, Collector and District Magistrate, Boudh.

Prof. Nanda, visited Khatakhatia High School, Khatakhatia, Boudh District, Odisha and interacted with school students and teachers. He announced a district level Science Quiz Competition for the school students to promote science which will be organized under AKAM program of IOP.



Image: Prof. Nanda interacting with school students and teachers of Khatakhatia High School, Khatakhatia, Boudh District

(2) Scientists-School Students online interaction program:Physics Open Discussion (POD) launched at IOP Bhubaneswar

The Physics Open Discussion (POD) is an online program at IOP Bhubaneswar. The program is aimed at the school students to provide them an opportunity for open and informal discussions with research scientists. During the session, students are free to discuss any question in Physics, from course material to any general query from their exposure to internet, media etc.

First online POD Session was held on 25th Sept. 2021 during 5:30 pm- 7 pm. The poster for this program is attached. The program was attended by about 40 students from all over Odisha (including few from outside Odisha) from class VI to class XII on Zoom online platform. The program was also broadcasted on YouTube. Questions ranging from basic physics concepts to frontier areas of physics (from internet exposure of students) were discussed.

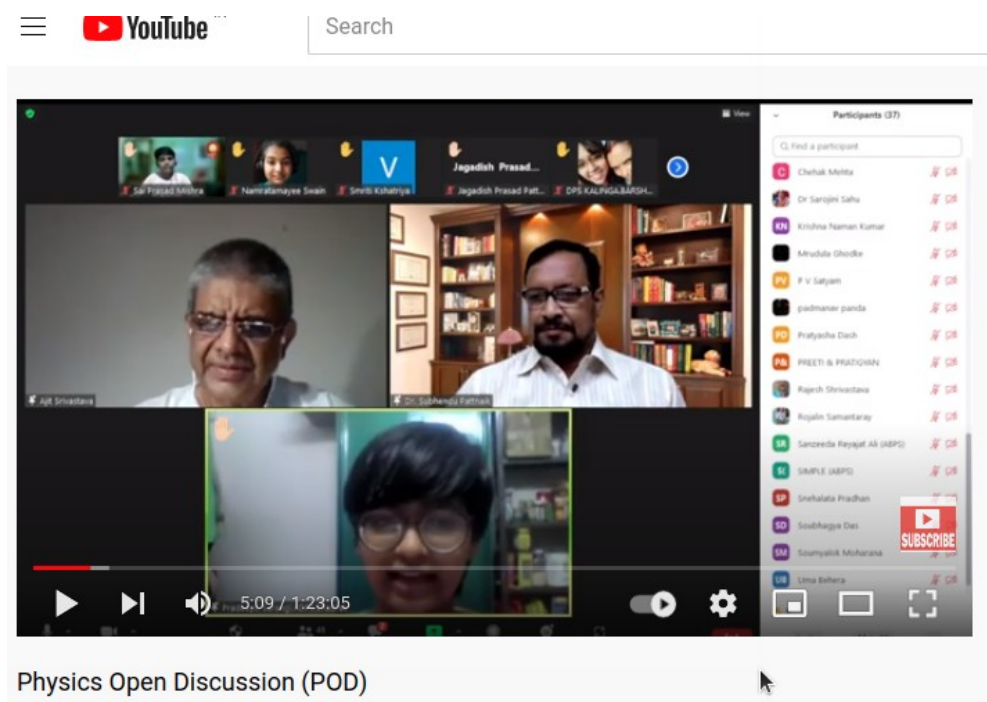


Image: POD Online session on YouTube, Sept.25th, 2021





 INSTITUTE OF PHYSICS, Bhubaneswar 	
An autonomous research institution of Department of Atomic Energy, Government of India.	
Presents :  5:30 pm –7 pm 3rd Saturday of each month.	 © Stocklib / kudryashka
Online interaction for school students with scientist(s) of Institute of Physics	POD is a program aimed at the school students to provide them an opportunity for open and informal discussions with research scientists. Students will be free to discuss any question in Physics (in English, Hindi, Odia), from course material to any general query from their exposure to internet, media etc. Our guiding principle is the famous saying: Science is not about answering questions but about questioning answers
Ask questions in English, Hindi or Odia	Scientist : Prof. Ajit M. Srivastava Institute of Physics, Bhubaneswar. Coordinator: Dr. Subhendu Pattnaik, Dy. Director, Pathani Samanta Planetarium,
1 st Programme : 25 th Sept. '21 at 5.30 pm	Register at : https://forms.gle/bxSEBwajqQqBBSou6

Image: The details of the Physics Open Discussion (POD) at IOP Bhubaneswar

(3) Training programme on ‘Official Language Policy, Functional Hindi & Computation and Translation on 18.09.2021

As part of the AKAM program, Institute of Physics organized a series of training programmes on “Functional Hindi and Translation “on 18.09.2021 and 28.0 9.2021 for University and College Students.

(a) First Batch Training programme on ‘Official Language Policy, Functional Hindi & Computation and Translation on 18.09.2021’.

On 18.09.2021, Inaugural programme of the ‘Azadi Ka Amrit Mahotsav’ and 1st Batch Training programme were organized in the Institute. The programme was attended by Prof. K. K. Nanda, Director, IOP, Prof. A. M. Srivastava, Sr. Professor and Chairman, AKAM Celebration Committee, Sri R. K. Rath, Registrar and Dr. Snehalata Das, HOD, Hindi Department, R.D. Women’s University, Bhubaneswar. About 40 students (both Postgraduate and Graduate) were

participated from R.D. Women's University. Dr. Rajeeb Ku. Rawat, Sr. Hindi Officer, IIT Kharagpur, Dr. Raj Narayan Avasti, Sr. Hindi Officer, Sri Achaleswar Singh, Joint Director (OL), DAE and Sri Narayan Das Mamtawalla, Hindi Officer, Door Darshan Kendra, Bhubaneswar delivered the talks on functional Hindi and Translation through on-line mode.



Image: Inaugural function chaired by Dr. Snehalata Das, Prof. A.M. Srivastava, Prof. K. K. Nanda and Sri R. K. Rath



Image: A group photo of the participants with speakers in 1st Batch Hindi Training Programme on 18.09.2021 at Institute of Physics

(b) Second Batch Training programme on ‘Official Language Policy, Functional Hindi & Computation and Translation on 28.09.2021’.

On 28.09.2021, 2nd Batch Training programme was organized in the Institute. The programme was attended by Prof. K. K. Nanda, Director, IOP, Prof. A. M. Srivastava, Sr. Professor and Chairman, AKAM Celebration Committee, Sri R. K. Rath, Registrar. About 37 students & Faculty Members (both Postgraduate and Graduate) were participated from Utkal University, Bhubaneswar, Ravenshaw University, Cuttack, Sailabala Autonomous Women’s College, Cuttack and Udayanath (Autonomous) College of Science and Technology, Adaspur, Cuttack. Dr. Rajeeb Ku. Rawat, Sr. Hindi Officer, IIT Kharagpur, Dr. Raj Narayan Avasti, Sr. Hindi Officer, delivered the talks on functional Hindi in computing and translation through on-line mode.



Image: A group photo of the participants of the 2nd Batch Hindi Training Programme held on 28.09.2021 at Institute of Physics



Image: Prize distribution function, Prof. A.M. Srivastava, Prof. K. K. Nanda and Sri R. K. Rath on Dias

October 2021

(4) Tree Plantation and cleanliness drive under Swachhta Hi Sewa campaign by Institute of Physics, Bhubaneswar

Under the ongoing “Azadi Ka Amrit Mahostav” campaign, Staff members of the Institute carried out Tree Plantation at the Institute on the occasion of “Gandhi Jayanti” on 2nd October, 2021. Nearly 30 staff members including Director Prof. K. K. Nanda participated in the campaign and around 20 trees of different varieties of guava were planted.



Image: a) Prof. K. K. Nanda, Director planting a tree, b) Staff members are cleaning the roads, c) Prof. K. K. Nanda, Director cleaning the roads

Besides, a cleanliness drive was also undertaken in the premises and dry leaves from approach roads were collected for appropriate disposal.



Image: A group photograph of the staff members who participated in the tree plantation and swachhata campaign.

(5) Four Lectures on the theme of “Nanostructures and Sensors” at Charotar University of Science and Technology, Changa, Gujarat.

Prof. Shikha Varma from IOP gave four lectures on the theme of “Nanostructures and Sensors” to BSc, MSc students as well as research scholars and faculty at Dr. K. C. Patel Research and Development Centre, Charotar University of Science and Technology, Changa, Gujarat, during 27th to 29th September and 4th October 2021. The motive of these Endowment Chair Lectures was to discuss and motivate young students as well as to foster the academic excellence and enhance

interaction with faculty members and research scholars. In all, nearly 60 students from B.Sc and M.Sc batches attended these lectures. In addition, about 40 research scholars and about 14 faculty also attended these lectures.

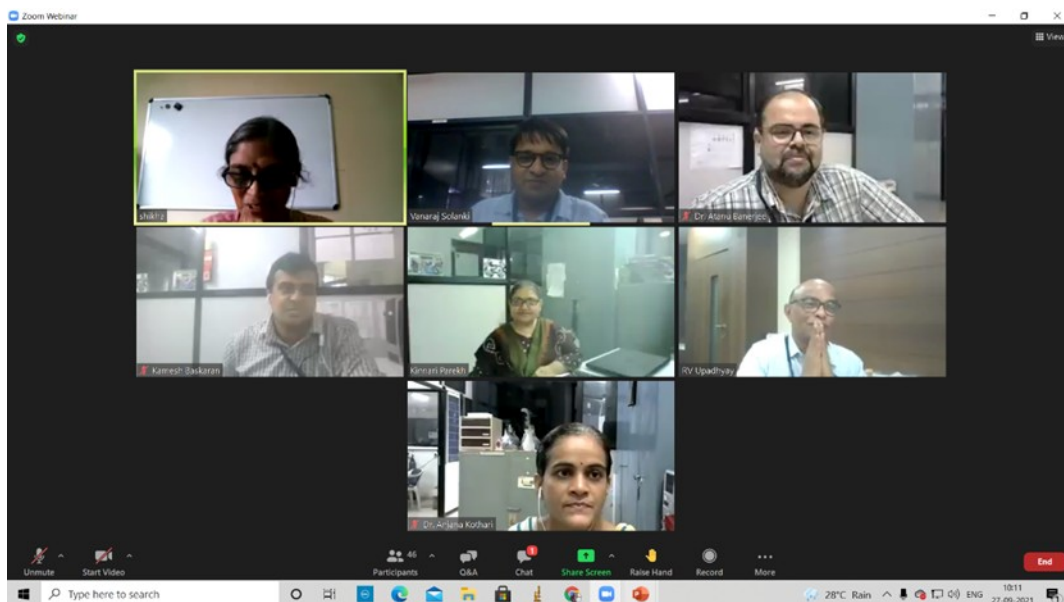


Image: Prof. Shikha Varma gave lectures on the theme of “Nanostructures and Sensors” at Dr. K. C. Patel Research and Development Centre, Charotar University of Science and Technology, Changa, Gujarat, during 27th to 29th September and 4th October 2021

(6) Participation of IOP in 1st One day Online State Level Science Teachers’ Camp

IOP Scientist (Prof. A.M. Srivastava) participated in the 1st one Day State Level Science Teachers’ camp which was organized by Bigyan Chetana Mancha, Bhubaneswar. Program was attended by about 90 school teachers from across Odisha. Teachers raised issues such as how to generate interest among young students in science subjects, how to encourage them in asking questions, to specific questions such as, how to explain basic physics concepts, e.g. Newton’s laws, diffusion, etc. to junior students of class 7-8.

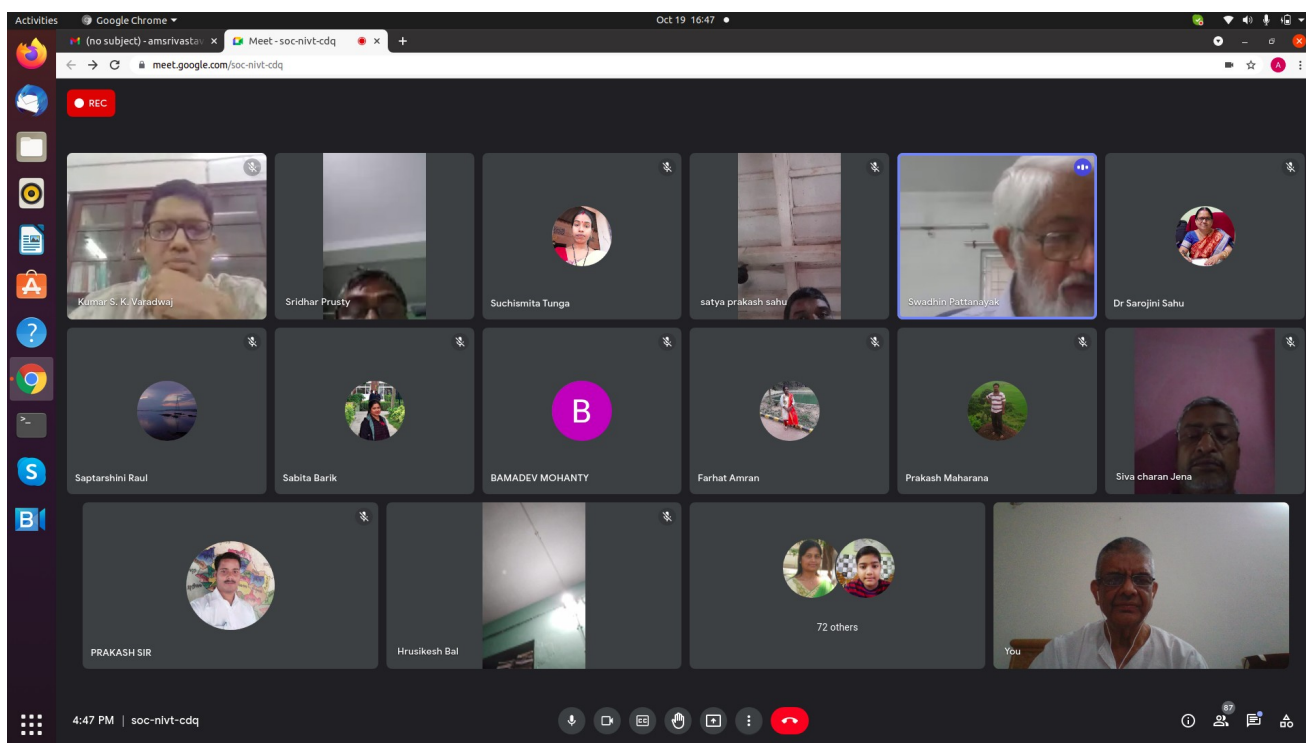


Image: Online State Level Teachers' Camp , 19th Oct. 2021

(7) Scientists-School Students online interaction program:Physics Open Discussion (POD) at IOP Bhubaneswar

The second session of the Monthly Physics Open Discussion (POD) online program at IOP Bhubaneswar was held on 23rd Oct. 2021 during 5:30 pm – 7 pm. The program was attended by about 25 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, Centripetal and centrifugal forces,) to frontier areas of physics (black holes, neutrino oscillations,...from internet exposure of students) were discussed.

YouTube link for the session: <https://www.youtube.com/watch?v=YZiLL97qdh8>

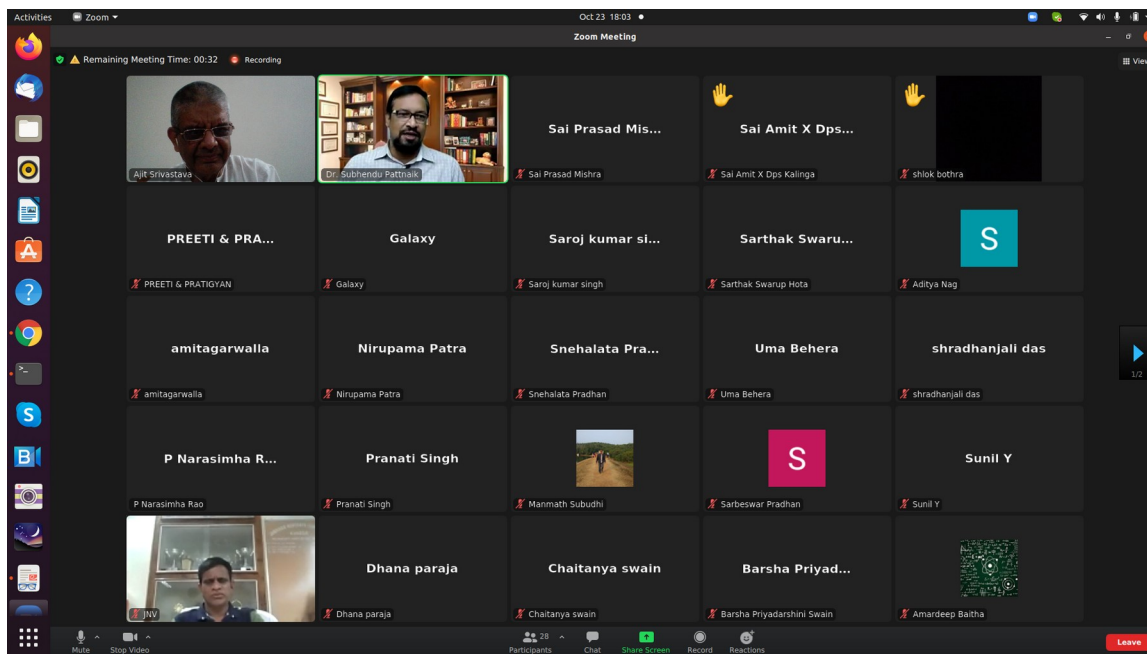


Image: POD Online session, Oct.23rd, 2021

(8) One day seminar on “energy, radiation and materials”

Institute of Physics, Bhubaneswar, Indian Association of Nuclear, Chemists and Allied Scientists-Eastern Regional Chapter, Bhubaneswar and Centurian University of Technology and Management, Bhubaneswar jointly organized a one day seminar on “Energy, Radiation and Materials at Centurian University of Technology and Management campus, Bhubaneswar on 27.10.2021.

SCHOOL OF APPLIED SCIENCES

One Day Seminar on
ENERGY, RADIATION AND MATERIALS

27th October 2021 from 10:30 AM to 05:00 PM
Venue: Seminar Hall, Madhusudan Building

Organised by:
School of Applied Sciences

Chief Guest
 Dr. Karunakar Nanda
 Director Institute of Physics
 Bhubaneswar

Guest of Honour
 Prof. Supriya Pattanayak
 Vice Chancellor
 CUTM

Co-ordinator
 Dr. Susanta Kumar Biswal
 School of Applied Sciences
 CUTM

In Association with:
**Indian Association of Nuclear Chemists and
 Allied Scientists-Eastern Region Chapter and Institute of Physics, Bhubaneswar**

centurian university of technology and management
 Shaping Lives... Empowering Communities...

Image: Flyer for one day seminar on “Energy, Radiation and Materials”.

During the inaugural function Prof. K. K. Nanda, Director, IOP & President, IANCAS-ERC, Prof. Supriya Pattanayak, Vice-Chancellor, Centurian University of Technology and Management, Prof. S. K. Biswal, Dean, School Applied Science & Vice-President, IANCAS-ERC, Dr. S. N. Sarangi, SO-D & Vice-President, IANCAS-ERC, Dr. Biswajit Mallick, SO-C & Secretary, IANCAS-ERC, Shri Bhagabana Behera, SHT & Treasurer, IANCAS-ERC, all Faculty Members, School of Applied Sciences, CUTM and about 120 B.Sc. & M.Sc. Students of CUTM were present in the meeting. Prof. Biswal delivered the welcome address and Dr. Sarangi presented the vote of thanks.



Image: a) Inaugural function, b) Speech by Prof. K. K. Nanda, c) Speech by Dr. S. N. Sarangi, d) Participants of the seminar

After inaugural session, two technical sessions arranged for the one day seminar. Technical session starts with the invited talk of Prof. K. K. Nanda, Director, IOP on “+3 Sc / MSc Courses and various properties of nanostructured materials”. Then Prof. Sujata Mishra, HOD, Department of Chemistry, ITER, S’O’ Anushandhan University, Bhubaneswar delivered a talk on “Solvent extraction -An efficient hydro metallurgical method for recovery of critical metal values from waste materials”, Dr. Binita Nanda, Associate Professor, Department of Chemistry, ITER, S’O’ Anushandhan University, Bhubaneswar delivered a talk on “Role of Nanomaterials in societal benefit”, Dr. S. N. Sarangi, IOP, Bhubaneswar delivered a talk on “Nanoscience: Today’s Science”, Dr. Biswajit Mallick, IOP, Bhubaneswar delivered a talk on “Nuclear Accelerator: A radiation generating machine and its Applications” and Dr. Tapan Dash, HoD, Physics, CUTM delivered a talk on “Plasma Processing of Advanced Material for Neutron Shielding Application in Nuclear Reactor”.

(9) IOP Participation in the Inaugural Function of the State level resource persons development training workshop on Low-cost hands-on Mathematics through Origami-2021

IOP Scientist (Prof. A.M. Srivastava) participated as Chief Guest in the Inaugural Function of the State level resource persons development training workshop on Low-cost hands-on Mathematics through Origami-2021. The program was attended by 60 school teachers (mostly mathematics teachers, and some science teachers) from various places in Odisha. Prof. Srivastava, in his address emphasized that not only origami can play crucial role in visualization and imagination in understanding abstract concepts of school level mathematics, the art of paper folding, cutting, gluing is extremely useful even in explaining advanced mathematical concepts like non-orientable manifolds (using mobius strip), and difficult concepts in physics like worm-holes.



Image: Inaugural function 28th Oct. 2021

November 2021

(10) Night-Sky-view session at IOP

A night-sky-view session was held at IOP on 9th Nov. 2021 during 6 pm – 8 pm. The program was conducted with an 8” Schmidt-Cassegrain 2 meter focal length telescope, (computer controlled with GPS system), along with a 4" refractor telescope with manual controls with fine adjustment knobs (a robust, user friendly telescope, which everyone was allowed to handle). The program was held for IOP members and their families. Participants were able to see craters of Moon, Saturn, its rings, and some of its moons, Jupiter, its four Galilean moons and bands of Jupiter. Uranus was also faintly visible (limited by sky conditions).



Image: Night-sky-view session held at IOP

(11) Celebration Of Children’s Day-2021

November 14 is celebrated as Children’s Day or Bal Diwas every year in India in remembrance of India’s first Prime Minister Pandit Jawahar Lal Nehru, born on November 14, 1889. He was also fondly called Chacha Nehru.

A day marking childhood, and to make this event a memorable for our little ones, Institute of Physics, Bhubaneswar celebrated Children's Day on 14 November 2021 in the campus. From Sai Academy, Cuttack, 35 students and 5 teachers participated in this programme. Prof. K. K. Nanda, Director of the Institute gave a summary of the activities of the Institute and delivered a talk on Light phenomena and nanoscience and Dr. S. N. Sarangi delivered a talk on Nano-Biotechnology. Students and teachers visited the different laboratories of the Institute.



Image: A group photograph of the participants, teachers with Institute members



Image: Prof. K. K. Nanda delivering the talk



Image: Dr. B. Mallick explaining about the IBL

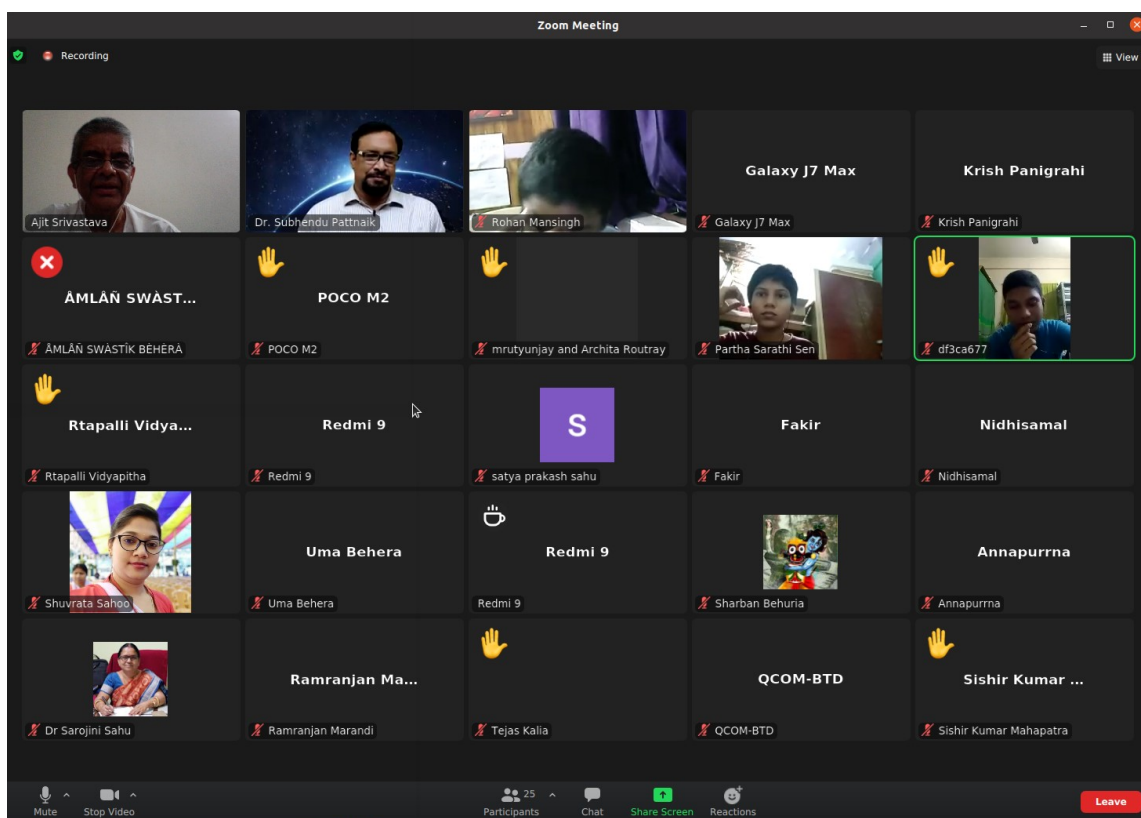


Image: Students, teachers are being addressed by Dr. S. N. Sarangi about the facility

(12) Scientists-School Students online interaction program: Third Session of Physics Open Discussion (POD) at IOP Bhubaneswar

The Third Session of the Monthly Physics Open Discussion (POD) online program at IOP Bhubaneswar was held on 20th Nov. 2021 during 5:30 pm – 7 pm. The program was attended by about 27 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, weight and mass, electricity,) to frontier areas of physics (muon, fifth force, black holes, extra dimensions... from internet exposure of students) were discussed. Students asked questions in English, Hindi, and Odiya.

YouTube link for the session: <https://www.youtube.com/watch?v=KVBwrhKfn-I&t=1237s>



POD Image: Online Session No. 3, 20th Nov., 2021

(13) Participation of IOP in the One Day Science Workshop

IOP Scientist (Prof. A.M. Srivastava) participated in the One-day Science Workshop on 21st Nov. 2021 during 10 am – 1 pm, organized by the Bigyan Chetana Manacha and Aswasana at the Sayeed Seminary School, Cuttack. The workshop was attended by about 60 school students from class VIII - X from that school and neighboring schools (all Odiya medium students). Prof. Srivastava participated in explanation of the concept of the number pi and its calculation directly by measuring the circumference of a circle and its diameter. Discussions about importance of errors in such measurements were held. Prof. Srivastava explained (in Hindi) to the students the physics of magnets and organized the experiment of converting iron needles into magnets (by rubbing the needles with small powerful magnets) and then suspending the needle by thread so that it points to the North-South direction, making it into a compass. Students, in groups of fours, were given one iron needle, one magnet, paper, thread etc. and it was ensured that each student participated in carrying out the experiment.



Image: Participants with Prof. Srivastava in the One-day Science Workshop

(14) Awareness programme on “Societal Applications of the Atomic Energy”

As part of the AKAM program, a Public Awareness Programme was organised by Institute of Physics, Bhubaneswar at Khorda, Dist-Khorda, Odisha on 29.11.2021 for SHG Members, MAS Members working in Khodha Block, District Khorda in collaboration with Bhairabi Club (NGO), Khorda.

Prof. K. K. Nanda, Director, Prof. P. K. Sahu, Professor, Dr. S. N. Sarangi, SO-D, Sri R. K. Rath, Registrar, Sri Bhagaban Behera, Coordiantor on behalf of Institute Sri Ritesh Sahu, Councillor, Khorda Municipality and Sri Pratap Ch. Pal, Bhairabi Club were present in this programme. About 150 women SHG Members, MAS Members participated in this programme. Sri P.C. Pal delivered the welcome address. Prof. Nanda inaugurated the programme and delivered a talk on the activities of the Department of Atomic Energy and use of nuclear energy as electricity. Prof. P. K. Sahu delivered a talk on “Societal Applications of Atomic Energy” and Dr. S. N. Sarangi delivered a talk on “Department of Atomic Energy : Covid-19” and Sri R. K. Rath delivered a talk on the technologies developed by the Department of Atomic Energy especially AKRUTI Technologies. All the talks were in local language i.e . Odia. Participants were also shown the different technologies developed by BARC through posters. Sri Ritesh Sahu delivered the vote of thanks. All the participants were quite appreciative of the facts and figures provided during the programme. They appreciated the measure being taken to make nuclear energy safe & environmentally friendly. They were very keen to learn during the interaction.



Image: Delegates on the dias Prof. K. K. Nanda, Prof. P. K. Sahu, Sri R. K. Rath and Sri P.C. Pal



Image: A group Photograph with participants and delegates during the programme



Image: Members and delegates of the programme

PART B

September 2021

(1) Inauguration of Lecture Hall, Block-A, Institute of Physics

Institute of Physics, Block-A Lecture Hall was inaugurated on 04.09.2021 by Prof. K. K. Nanda, Director of the Institute. Faculty Members, Scholars and employees of the Institute attended this function.

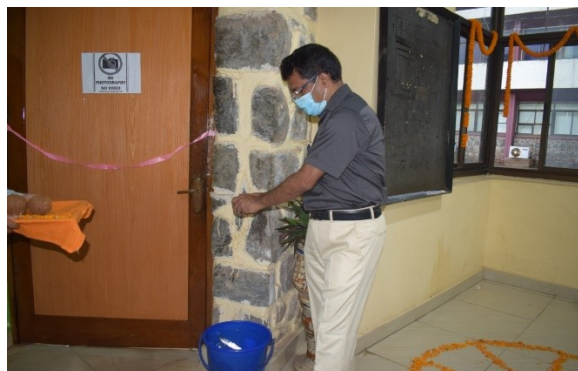


Image: Prof. Nanda, Director, IOP inaugurating the renovated Lecture by breaking coconut



Image: Prof. Nanda, entering the Lecture Hall, Block-A, after inauguration

(2) Inauguration of 3D THEATER hall at Regional Science Centre, Bhubaneswar

Prof K. K. Nanda, Director, Institute of Physics, Bhubaneswar inaugurated the 3D THEATER hall at Regional Science Centre, Bhubaneswar on 26th November 2021. Twenty students of Vivekananda School, Unit –IV, Bhubaneswar attended the inaugural function along with the Director and the Technical Engineers of the Regional Science Centre, Bhubaneswar as well as Dr. Sachindra Nath Sarangi, Institute of Physics, Bhubaneswar. The inaugural speech delivered by Prof Nanda emphasized on the career in cosmological science as well as 3D movies. Dr. S. N. Sarangi spoke about mechanism behind 3D movie display and a comparison in 2 D and 3D display system. A movie entitled “Mystery of Science & Space Adventure” was shown to the audience at the end of the inaugural function.



Image: Prof. Nanda inaugurating the 3D THEATER hall at Regional Science Centre, Bhubaneswar



Image: Inaugural speech by Prof. Nanda

Web Link for Azadi Ka Amrit Mahotsav (AKAM) program: <https://www.iopb.res.in/AKAM.pdf>