₹ 25/-

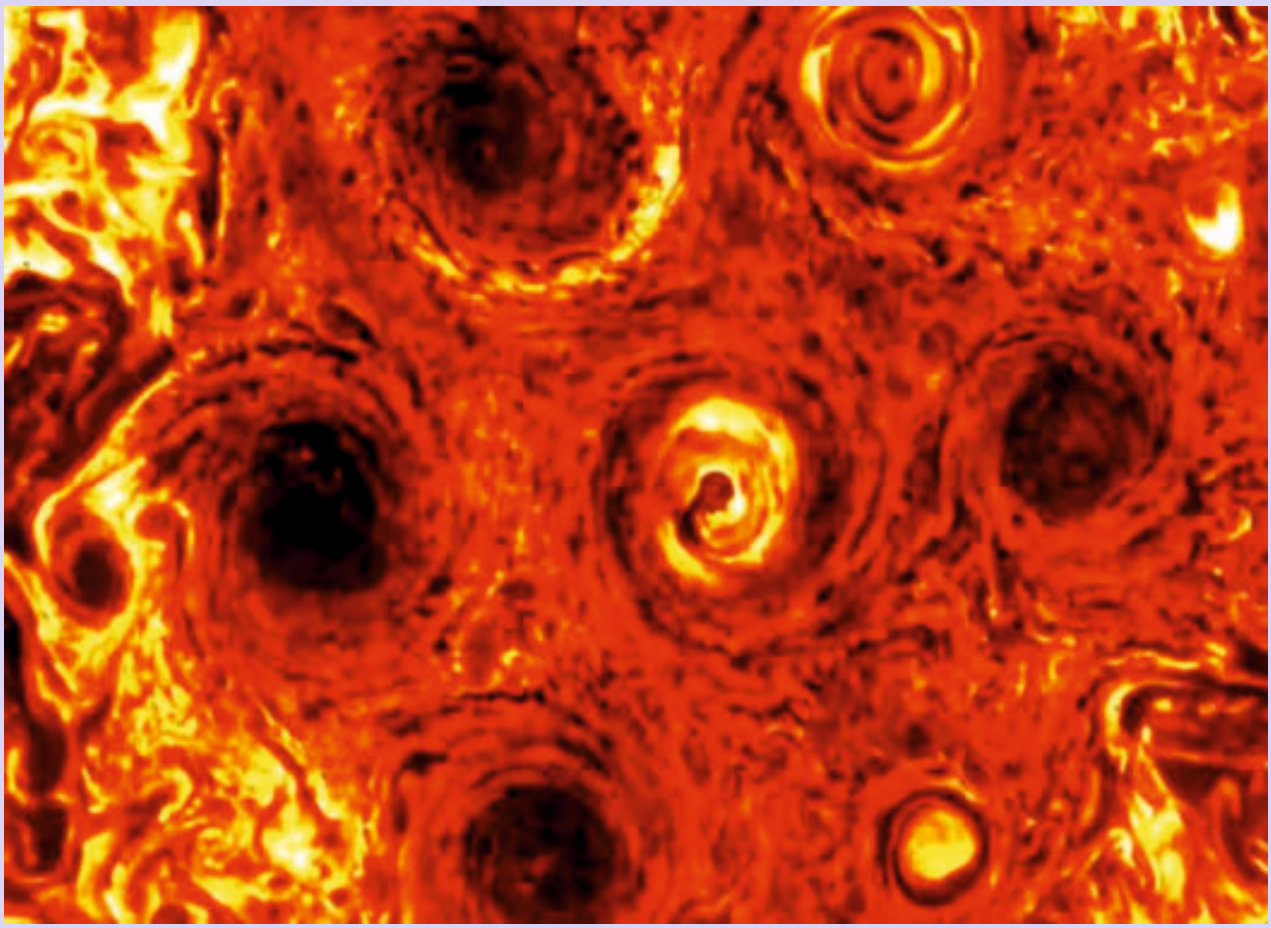
ISSN 2277-8950

Bulletin of

THE INDIAN ASSOCIATION OF PHYSICS TEACHERS

A MONTHLY JOURNAL OF EDUCATION IN PHYSICS & RELATED AREAS

VOLUME 14 NUMBER 10 OCTOBER 2022



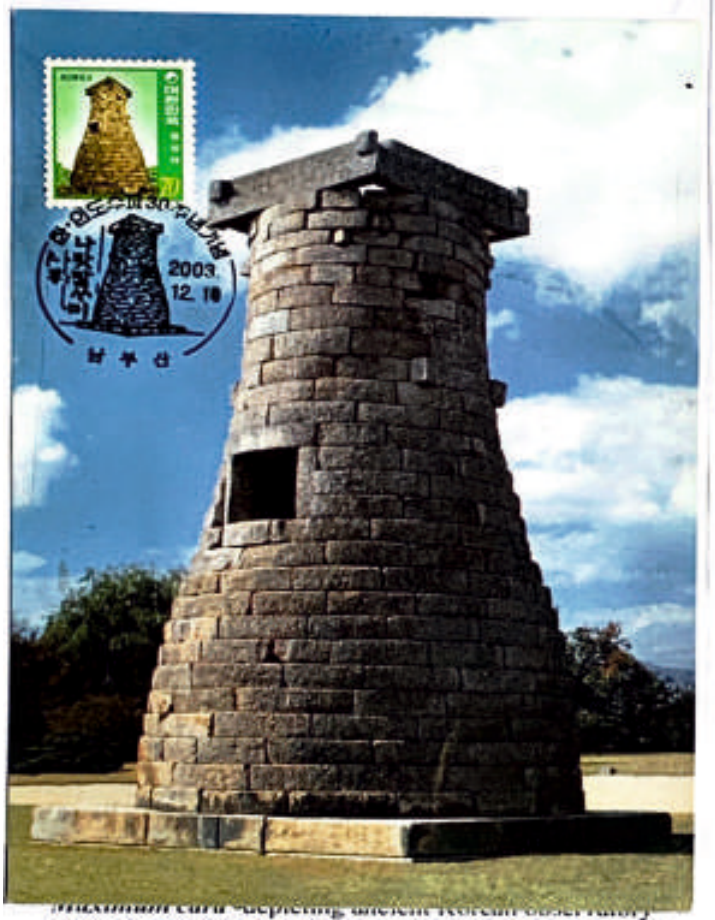
The giant polygon-shaped cyclone systems at Jupiter's north and south poles have baffled scientists with how they maintain their bizarre but beautiful geometric shape for years. Hurricane-force storms — each the size of the continental United States — have remained inexplicably stable in their strange configurations since they were first discovered by the Juno spacecraft in 2017.At the gas giant's north pole, the spacecraft spotted a giant cyclone surrounded by eight smaller cyclones that appear to be moving around it. At the South Pole, a similar structure of cyclones exists in a hexagonal shape. Now at the California Institute of Technology's Andrew P. A group of scientists led by Ingersoll said they may have found some explanation for the strange phenomenon on the planet – the largest in the Solar System. Scientists found that it appears to be "an anticyclonic ring" between the main cyclone and smaller cyclones, which is keeping the clusters in their unique polygonal patterns, as in the new study on the North Pole vortex. published Wednesday in Nature Astronomy. The image above shows the polygon shaped cyclone formed at Jupiter's poles. (https://darik.news/usa/science/scientists-stunned-by-mysterious-cyclones-at-jupiters-poles.html)

The Story of Cosmology thorugh Postal Stamps-26

OBSERVATIONAL ASTRONOMY

OBSERVATORIES

Observatories are the structure used for observation of terrestrial or celestial phenomena. In past observatories were mainly focused on tracking movement of the Sun or Moon or some planets for the purpose of time keeping. calendrical or religious or astrological purpose,P



Chomsongdae (star gazing platform) 7th century, oldest surviving observatory. Central window separate body into 12layers of stones symbolizing months in a year

Joint issue of Setanent pair of India & Korea- depicting oldest astronomical observatories- Jantar Mantar- India and Chomsongdae -Korea

Ulugh Beg Observatory Samarkand (1420) made great contribution in mathematic and Astronomy also published ***Zij-i-Sultani***, astro tables and star chart

Jantar- Mantar-Jaipur (1734), consist architectural astro. Instruments, is an example of Ptolemic positional astronomy

Red Cross Surcharge Round Tern Observatory, Copenhagen (1642)

BULLETIN OF
INDIAN ASSOCIATION OF PHYSICS TEACHERS
http://www.indapt.org **(ISSN 2277-8950)**

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The Bulletin is the official organ of the IAPT. It is a monthly journal devoted to upgrading physics education at all levels through dissemination of didactical information on physics and related areas. Further, the Bulletin also highlights information about the activities of IAPT.

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Let Us Plan Actions Not Results!

IAPT as an organization supposed to trigger actions for raising the quality of Physics Education, through its vast network of Regional Councils in almost all states and union territories of the country, for planning more and more student and teacher oriented one day programs, 2–3-day conventions at the regional council level, expert lectures and focused workshops of 15 or 20 days targeted towards specific audience at schools, colleges and Universities. It is heartening to note that we have started adopting hybrid strategy for such programs. At the local level, audience can join in an offline mode and also bring outstation audience to join through online mode. Some quality actions of these kinds have emerged with a grand success in the last 9 months, which is indeed encouraging. These were course oriented, research oriented, skill development oriented and standardized examinations oriented. However, such actions are still very sparse and more actions from of the RCs are still awaited.

There is almost no response from Odisha, Tamil Nadu & Pondicherry and Bihar.. We are very keen to meet them and request them to come forward and plan activities. Programs which touch university students are also very few, particularly to expose them to exciting areas of research and allied areas which require physics training in areas such as quantum computing, machine learning, artificial intelligence and their application in various areas of physics and beyond. For this a suggestion during one of the meetings with Regional Councils was put forward to create a directory of eminent resource persons to start a **Physics Orbit series of lectures** in collaboration with the institutes where they are serving.

In the official WhatsApp group, V in IAPT, lot of new ideas keep on emerging, we need to take a step forward to innovate such programs. IAPT would like two or more than two RCs also to join hands to organize such programs together for the benefit of both students and teachers by hand holding such activities.

IAPT is acting on bringing out good resource material generated in the last many years as e-publications. Thanks to Prof. Santosh Joshi that collection of awarded essays in National Competition of Essay Writing in Physics 2019 to 2021 is just out, entitled *An Ensemble of Surround Physics*. We have also initiated a plan to e-publish the awarded innovative experiments in National Competition Innovative Exper iments in Physics. Currently a workshop on Moodle is going on for creating a question bank for Mock Tests for secondary students studying in far flung areas of the country in online mode. For this we are looking forward to volunteers to come forward and join hands, volunteerism is at the heart of all the activities of IAPT and the need of the hour is for this spirit to prevail in all our actions.

It is action on our part which will bring our students, teachers and people who love physics. In the beautiful words of Hermann von Helmholtz: **Iron (student) which is brought near a spiral of copper wire (mentor), traversed by an electric current (knowledge of Physics), becomes magnetic (enlightened), and then attracts other pieces of iron (students), or a suitably placed steel magnet (already suitably enlightened persons). If you have an action plan, share and let us push it together.** Get ready we are very soon planning to have a brain storming session to share our ideas for a beautiful journey which awaits us.

P. K. Ahluwalia

PHYSICS NEWS

Giant magnon spin wave conductance in ultrathin insulators surprises researchers

When you make conducting wires thinner, their electrical resistance goes up. An important exception is at very low temperatures, where the mobility of electrons increases when wires become so thin that they are effectively two-dimensional. Now, University of Groningen physicists, together with colleagues at Brest University have observed that something similar happens with the conductivity of magnons, spin waves that travel through magnetic insulators, much like a wave through a stadium. The increase in conductivity was spectacular, and occurred at ambient room temperature.

Motivated by the increase of electron mobility in 2D materials, his group decided to test magnon transport in ultrathin (nanometers) YIG films.Van Wees explains. The measurements, performed by Ph.D. student Xiangyang Wei, produced a surprising result: The spin conductivity went up by three orders of magnitude, in comparison to YIG bulk material.And as magnons are bosons, it might be possible to create a coherent state comparable to a Bose-Einstein condensate.This might even produce spin superconductivity.

Read more at :https://phys.org/news/2022-09-giant-magnon-ultrathin-insulators.html

Original paper : Nature Materials(2022). DOI: 10.1038/s41563-022-01369-0

Constraining the nucleon size with relativistic nuclear collisions

Based on a state-of-the-art model for the colliding nuclei and the hydrodynamic evolution of the quark-gluon plasma produced in the collision, a recent Physical ReviewLetters studydemonstrates that specific observables are strongly sensitive to the size of the protonsandneutrons inside the colliding nuclei.Comparison of the model with data from experiments also indicates that the gluon distribution inside protons and neutrons is rather lumpy.

Identifying and precisely measuring factors that are sensitive to nucleon size will help physicists more accurately describe the quark-gluon plasma (QGP). This knowledge can eliminate significant uncertainties about the initial state of the produced QGP. Knowing more about the initial state of QGP provides input for the model calculations that scientists use to infer the viscosity and other properties of the QGP. The results also add to measurements of proton size based on the distribution of quarks inside the proton.

Read more at :https://phys.org/news/2022-09-constraining-nucleon-size-relativistic-nuclear.html

Original paper : Physical Review Letters (2022). DOI: 10.1103/PhysRevLett.128.042301

Physicists make molecular vibrations more detectable

Physicists at Kiel University (Christian-Albrechts-Universität zu Kiel, CAU) have now invented a method with which the vibration signals can be amplified by up to a factor of 50. Furthermore, they increased the frequency resolution considerably. The new method will improve the understanding of interactions in molecular systems and further simulation methods.

The discovery relies onquantum mechanical effect of "inelastic tunneling. Electrons that pass through a molecule on their way from a metal tip to the substrate surface in the scanning tunneling microscope can release energy to the molecule or take energy up from it. In order to amplify the measurement signal and simultaneously achieve a high frequency resolution, the team of the CAU used a special property of molecules on superconductors they had previously discovered.

Read more at :https://phys.org/news/2022-09-physicists-molecular-vibrations.html

Original paper : Physical Review Letters (2022). DOI: 10.1103/PhysRevLett.129.116801

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ARTICLE

Molecular Dynamics Simulations:To Study Various Properties of Metals at Nanoscale

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Abstract

Molecular dynamics is the technique for computer simulation of complex systems modeled at atomic level. Molecular Dynamics (MD) Simulation is an invaluable technique to study a variety of complex physical, chemical, and biochemical systems. The ability of MD to built observations across length scales based on the data at atomic level has enhanced its spectrum of applications. It has been seen that the thermal and mechanical properties of various noble and transition metals shows quite well agreement with the experimental data. In this article there will be a brief description about MD simulations, software that can be used for MD Simulations i.e. LAMMPS, and advantages of MD Simulations over other methods like Monte Carlo (MC) Sampling, disadvantages and Applications as well.

1. Introduction

Recent development of low dimensional materials including nano-sized particles, nanometer thick thin films, nanowires, nanotubes, and nanograined polycrystalline solids, presented many novel properties and performance that are attractive to technological applications. Especially these low-dimensional materials brought unique opportunities to examine the role of surfaces, interfaces and atomic arrangements as well as the size effect on their deformation and melting kinetics.

It has been observed that metal nanostructures offer a high yielding strength as compared to their bulk counterparts, which is attributed to the absence of dislocations in these nanostructures. This property makes their use appropriate in the applications where mechanical stability is crucial (like in soft wearable electronic devices). Results on mechanical properties of various metal nanostructures, will be useful for a user planning to design a nanoscale system. Thermal characteristics of nanostructures are important because due to high current density inside a nanoscale interconnect joule heating may result in a significant increase in its resistance. Increase in temperature may also result in increased material diffusion, which may initiate local discontinuities the nanostructures geometries. These geometric discontinuities may further converted into localized hot spots in the nanostructure. These hot spots increase the material diffusion. An accurate monitoring of melting process in nanostructures is important for their subsequent design and development of nanoelectronic systems.

With the help of molecular dynamics, we can simulate a nanostructure of a desired dimension and design, and perform a "computational experiment" where we can change the parameters like stress, strain, temperature, strain rate, number and type of atoms, heating rate and many more.

T. Çağın G. Dereli, M. Uludog˘an, and M. Tomak (1999)studied the temperature dependence of thermodynamics and mechanical properties of six fcc transition metals such as Nickel (Ni), Copper (Cu), Silver (Ag), Gold (Au), Platinum, Rhodium (Rh) by using molecular dynamics (MD) simulations[1].

S J A Koh and H P Lee (2006) have studied the molecular dynamics simulation of size and strain rate dependent mechanical response of FCC metallic nanowires[2].

Linxing Zhang, Qibin Li, Sen Tian, and Guang Hong (2019) have adopted molecular dynamics simulation technique to investigate the evolution process of nanostructure during the sintering of Cu and Au nanoparticles[3]. They have observed the changes in crystalline during the nanosintering process and the radial distribution function of atoms, the shrinkage ratio, and the sintering neck of the system.

Jan Herman, Marko Govednik, Sandeep P. Patil and

Bernd Markert (2020) have investigated the mechanical properties of nanocrystalline body-centered cubic (BCC) iron with an average grain size of 10Å using molecular dynamics simulations[4].

S.K. Joshi, Kailash Pandey, Sanjeev K. Singh, and Santosh Dubey (2019) have investigated the behavior of deformation behavior of such nanowires due to tensile loading using Classical molecular dynamics simulations using Large-scale Atomic/Molecular Massively Parallel Simulator (LAMMPS).They have discussed deformation mechanisms as well as the effect of strain rate and temperature on the yield strength of the Au nanowire[5].

E Ahmed, JI Akhter, M Ahmad (2004) have investigatedthermal properties of Ag and Au by using Molecular dynamics simulations. They have calculated the lattice parameter, energy per atom, mean square displacements and radial distribution function for the metals Au and Ag by using EAM potential. With the help of these calculated parameters they have deduced the thermal properties like specific heat, thermal coefficient of linear expansion and melting temperature and compared the calculate results with experimental data[6].

QiupingBian, S.K. Bose, R.C. Shukla (2008) have provided the systematic validity of EAM potentials via a completestudy of the vibrational and thermodynamic properties of the isoelectronic transiton metals (Ni, Pd, Pt) and noble (Cu, Ag, Au) metals[7]. They have found the temperature dependence of the lattice constants, coefficients of linear thermal expansion, isothermal and adiabatic bulk moduli, heat capacities at constant volume and constant pressure, Debye temperatures and Gru¨ neisen parameters and compared with the experimental results.

2. **Molecular dynamics simulation**

A Molecular Dynamics (MD) Simulation method, which describes the equilibrium and the dynamic properties of a solid/ liquid/ gaseous system, generates configurations of the system by integration of Newton's second law to calculate the time dependence of the molecular system. As a result the information at the microscopic level – atomic positions and velocities can be derived. The connection between microscopic simulations and macroscopic properties is made via Statistical Mechanics, which studies a macroscopic system from a molecular point of view. The distribution of the system within these statistical ensembles follows Boltzmann distribution law. Molecular dynamics is the technique for computer simulation of complex systems modeled at atomic level. It was first introduced by Alder and Wainwright in 1950's to study the interaction between the atoms that interacts through perfect collisions and the first simulation was carried out by Rahman in 1964 for liquid argon. MD has become essential tool in the theoretical study of the properties of materials at finite temperatures. The equations of motion are solved numerically for the time evolution of system and derivation of kinetic and thermodynamic properties of interest is done by means of "computer experiments".

2.1 Historical background

The molecular dynamics simulation was first introduced by Alder and Wainwright [8-9] in the late 1950's and early 1960's to study the interactions between the hard spheres. The major advance was in 1964 when Rahman carried out the first simulation in using a realistic potential for liquid argon [10]. The first molecular dynamics simulation was done by Rahman and Stillinger [11] in their simulation of liquid water in 1974. Now a day there are many specialized techniques for particular problems including quantum mechanical-classical simulations. Molecular dynamics simulation technique is widely used in experimental procedures like X-ray crystallography and NMR structure determination.

2.2 Physical conditions for md simulations

A set of physical information is needed that contains temperature, pressure, heat, compressibility, relaxation times which gives the information about the simulation whether it will be at constant temperature or pressure and force-field used to evaluate the interactions within a molecule and between molecules. One should also be familiar with the ensembles. There are three types of ensembles: the microcanonical ensemble, the canonical ensemble and the isothermal-isobaric ensemble.

The microcanonical ensemble maintains constant number of particles (N), constant volume (V) and constant total

energy (E), so it is also known as the NVE ensemble. The canonical ensemble keeps a constant number of particles, constant volume and constant temperature (T), so it is also called the NVT ensemble. The isothermal-isobaric ensemble keeps constant number of particles, constant pressure and constant temperature, so it is also known as the NPT ensemble.**[**Ref. **Victor M. Rosas-Garcia and Isabel Saenz-Tavera]**

2.3 Potentials used in md simulations

There are various types of Potentials field[33] that are used in MD simulations. Some of them are as follows:

- EAM (Embedded Atom Method) [12]
- Morse[13]
- Lennard Jones[14-15]
- Airbo[16-17]
- Brownian Dynamics[18]
- COMB[19]
- Simple Harmonic [20]
- Rebo[21-22]
- Tersoff [23-24]

2.4 Software that implements md simulations

MD simulation helps to study the motion of particles predent in the system based on the Newton's second law. There are various softwares available now a days that implement MD Simulations. Among these the popular Softwares are LAMMPS[25],AMBER [26], GROMACS [27],CHARMM [28] and GROMOS [29].Here we will give some brief description about LAMMPS.

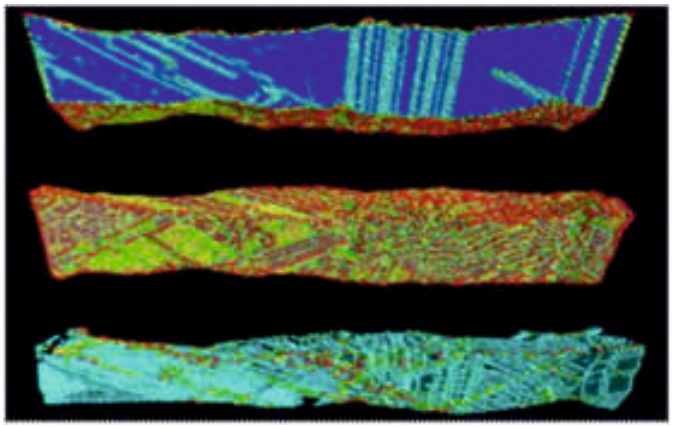
LAMMPS:LAMMPS is an acronym for *Large-scale Atomic/Molecular Massively Parallel Simulator*. Large-scale Atomic/Molecular Massively Parallel Simulator is an open-source classical molecular dynamics code, developed by **Sandia National Lab (USA)[www.sandia.gov].** This is the basic code required to do materials simulation.

- It can model Ensemble of particles in a liquid, solid, or gaseous state
- It can also model Atomic, polymeric, biological, metallic, granular, and coarse-grained systems
- Uses a variety of force fields and boundary conditions
- Open source, easy to use code
- C++ based, can easily be compiled in almost any OS
- Can run on serial or parallel processing platforms
- makes use of MPI(Message Passing Interface) for parallel communication and is free, open-source software, distributed under the terms of the GNU General Public License [25].
- Anywhere from a few hundred to a few billion atoms.

VMD:VMD is a molecular visualization/graphics program designed for the display and analysis of molecular assemblies.

- VMD can simultaneously and spontaneously display any number of structures using a wide variety of rendering styles and coloring method [30].
- VMD provides a complete graphical user oriented interface for program control, as well as a text interface using the Tcl embeddable parser to allow for complex scripts with variable substitution, control loops and function calls[30].
- It is open source code.

Pictures from MD Simulation using LAMMPS and VMD: (www.lammps.org)



Fig(a) The effect of tensile stress at varying strain rates on single-crystal Cu nanowires of varying dimensions

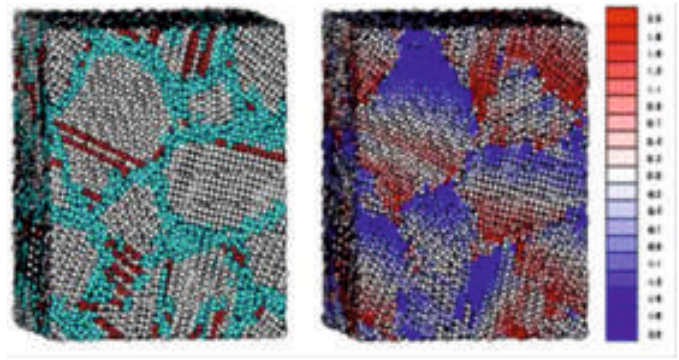


Fig (c) Deformation of nanocrystalline copper [32] **[Schiotz et al. PRB (2001)]**

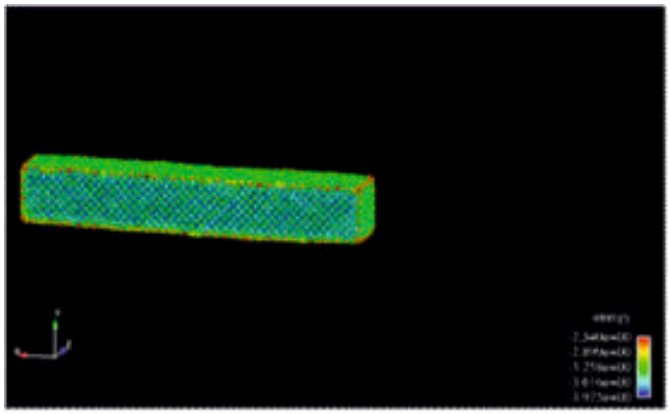


Fig (b) Au nanowire formation and extension [31] **[Harold S. Park and Jonathan A. Zimmerman (2005)]**

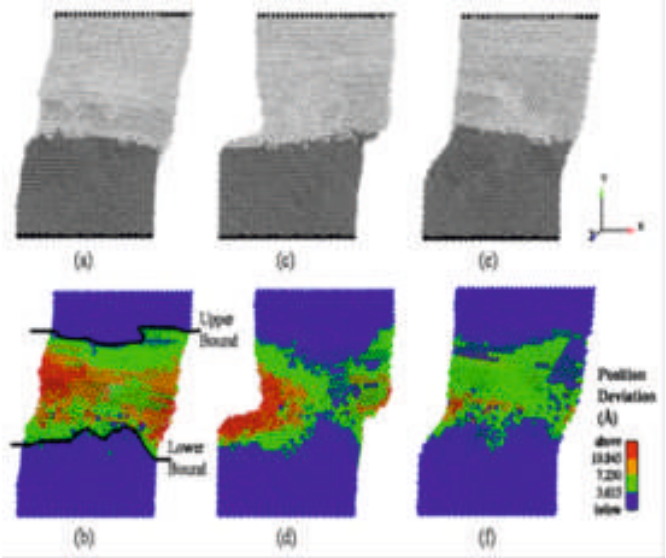


Fig (d)Shear of Cu bicrystal **[Spearot et al. 2005]**

3. Advantages of md simulation

MD simulations has numerous advantages over the other simulation methods like Finite Element, Monte carlo simulation. They are listed below:

- The major advantage of the MD simulation is: only input for MD is inter-atomic potential and atomic position. It can solve Newton's equation of motion from the above information and determine the subsequent trajectory of the particles.
- It has a great advantage over Monte Carlo (MC) sampling because in MD at every step force on each atom is computed in parallel while in Monte Carlo (MC) it is done only for a single particle at a time.
- It can sample large and complex molecules.
- One of the great advantage is that no assumption is made about the system to be investigated.
- MD simulation provides all the detail information of the atomic/molecular processes.
- MD provides multi-scale modeling.
- MD simulation can handle high strain rate mechanics problems which are not doable in continuum methods.

4. Disadvantages of md simulations

- Inter-atomic potentials used in MD is classical in nature which doesn't represent the quantum mechanical reality.
- Newtonian atomic motion
- One of the major limitations of Molecular Dynamics simulations is that for a valid average property prediction, the time step of MD is around 1 femto seconds. Therefore in order to reach the microscopic time scale, it would require huge time for the completion of the simulation. It may take few hours or days as well.

5. Applications and uses of md simulation

- For simulation and study of biomolecular systems like protein synthesis and characterization.
- Designing of drugs in pharmaceutical industry to test properties of a molecule without even synthesizing it.
- Study of the effect of particles like neutrons and ion irradiation on solid surfaces.
- It has wide range of applications in materials sectors too where experiments relating any problem are very difficult to perform in laboratory conditions.
- It is also used to study various properties of metals, nanometals, and alloys like fatigue properties, tensile properties, deformation behavior, higher temperature behavior, high temperature behavior etc.**6. Conclusion**

Molecular Dynamics (MD) simulationsplay an important role to determine the properties of various materials. MD simulations technique has tremendous applications in the Area of Research in Physics, Chemistry, Biochemistry and technology. MD simulation techniques have been applied to analyze structural and dynamical response of polymers, drug delivery and diffusion of small molecules through biological membranes, physical properties of nano-wires, and nanocomposites. The technique provides a computational approach to determine the various thermal and mechanical properties of the various metals at nanoscale that can be used in various nanoelectronic devices of future and the performance of the nanoelectronic devices can also be enhanced by using these properties.

The experimental approach is very expensive and time consuming. The aim of the computational method like MD simulations is to reduce the cost of laboratory experiments, energy consumption, and save the resources for future generation. It has been observed that the computational study provides the results which are in well agreement with the experimental studies.**References**

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Twilight after the Sun set....

Vijay H Raybagkar
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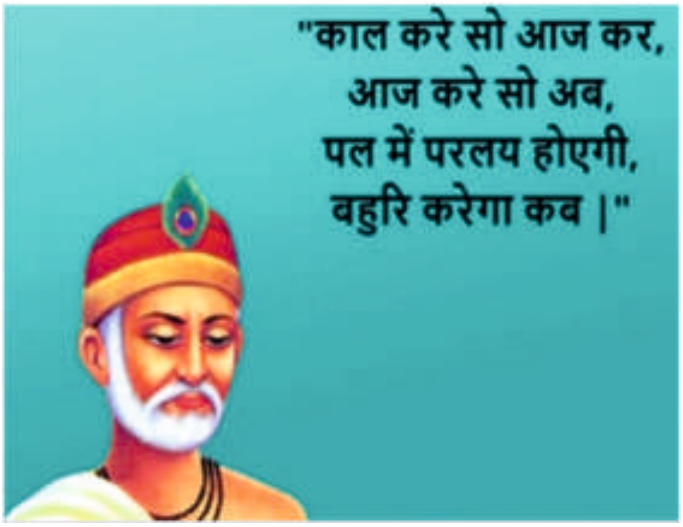
Many of the senior readers might have gone through my article **"A Squirrel's Account of Her Involvement In Rama's Journey Towards the End of Ramayana"** in which I shared my first-hand experiences with my Guru late Prof. D.P. Khandelwal during 1993-96. In a way, this write-up is a continuation of that article with some more observations of the legendary figure. I must thank people like Dr.Mrs.V.A.Joshi, Prof.M.L.Ogalapurkar for drawing my attention to some additional and not-much-known facets of the personality.



One such fact that I observed with Khandelwal sir was his fond of typing. He would often carry a portable typewriter in a case and establish his mini-office on the go in minutes. It appeared so simple and trivial for many but the deep-rooted thought was that he believed in making use of every moment he lived fruitfully till his last day. The small portable typewriter was also a bond that emotionally connected both of us since my father late adv. Hanumantrao had the same habit with his personal Brother portable typewriter – it would save his time while he worked in the Pune court in drafting the urgent communications.

Prof. Khandelwal was extremely prompt in replying to the correspondence received and he would seldom leave any letter unattended for the next day. Looking at his consistent work, one could see a living example of the famous *doha* written by Saint Kabir :

It was this enthusiasm that would automatically transform the mood and environment of other group members including Prof.A.W.Joshi, Agate madam or Nitin Bhamareapart from myself. The enthusiasm was just contagious! I remember that some other members like Professor Vidyasagar or Prof.Tillu would also sometimes peep into the room next to the stairs in the corner opposite the office of the head of the department of Physics; due to ongoing discussions and literally be drawn into it while Prof.Khandelwal made his points.

Whether it was the experiment of collision of metal balls (one rolling down a curved channel and the other stationary placed on a tiny mount ahead of it) quantitatively demonstrating the conservation of momentum or the experiment to study the I-V characteristic of a filament bulb, we would always have a multitude of curious observations which served as the seeds of such scintillating discussions.

One such discussion was about estimating the loss of energy in the form of sound in a collision experiment. It obviously involved articulate calculations of the energy of the rolling ball before collision and the sum of energy of both balls after the rolling ball hit the stationary ball on the mount. In fact, we tried to also check if the nature of curvature and the width of the channels made any difference to the experimental outcome.

The linear air track kept on a long table on the front side of the room could never have skipped the attention of visitors. The track was obviously the center of many activities which were either already done (and reported

in Prof.B L Saraf's book *Physics through experiments*)or suggestions either from some bright visitor or Prof.Khandelwal himself as a reaction to the visitor's argument.

I have not known exactly what prompted Prof. Khandelwal to take a repeated closer look at the concept of moment of inertia and torsional oscillations but remember him discussing related points with Prof.A.W.Joshiwith a meter scale in hand. Such a scale was also used in an experiment changing the distribution of masses for studying the moment of inertia.

As I had completed my post-graduation from the same department, I was used to visiting the Aniket canteen with some friends for snacks/tea at least three-four times a day. This canteen was barely two-hundred meters away from the department; yet Prof. Khandelwal never accompanied us there. He would instead prefer to take out his typewriter and spend next half an hour attending to mail received or editing his previous write-ups. *No waste of time* was the message was delivered to us all without uttering a single word!

Another observation about Prof.Khandelwal was about his simple yet effective organization of documentation. He would always insist on organizing letters, magazines and books in order that such resources should be readily available to anyone and not contribute to delay of work on hand. Prof.Oglapurkar once confirmed with me personally that Prof.Khandelwal had the habit of preserving previous issues of the bulletin of IAPT using traditional binding technique.

What I noticed of Prof. Khandelwal was that he had completely dissolved his ego for the benefit of physics teachers' community at large. I am a witness to his long and patient wait outside the cabin of a head of Physics department of a college to meet him in connection with examinations although the head could have (and should have!) immediately invited him in. Later when I opened that topic with him while he rode my moped as a pillion rider, he just said “it's alright. What matters is the work ...it must go ahead.” Of course, this did not mean that he was a person with dried emotions. Once I also heard a rather caustic remark from Babuji **‘‘आपके ...लोग भी बड़े अजीब हैं ! यहाँ काम कोई करता है और उसका क्रेडिट कोई और खा जाता है!’’**

I would often wonder how he could be so efficient in dealing with so many people with totally diverse nature simultaneously. Somewhat hesitatingly, I asked him once while we were travelling towards my college. “You don't get locked in mind about them,Raybagkar” he said “Just respond as soon as you can and move on.”

“Don't you feel troubled with some people?” Once I asked. “Yes, I do. There are some of my friends who do not submit their chapter's accounts in time in spite of repeated calls” he said, “but we cannot set them aside. That will cause harm to our work in the long run.” Perhaps it was this acute sense of priority that made him successful in achieving goals which even government funded esteemed organizations could not attain – a nation-wide networking of physics teachers, students and enthusiasts.

I learnt that sir never doubted if an IAPT programme would have to be put on hold for want of money. He would always assure the regional organizers of activities about the finances – “the money will come,” he said “that's my responsibility. The confidence in such utterances obviously emerged from his selfless motivation to take all activities to their logical conclusions successfully; even at his own expense, should the situation arise! Sometimes he indeed spent from his own pocket and accepted the subsequent reimbursement rather reluctantly. Later I learnt that at one time, he had prepared to sell his own house in Agra to raise funds for IAPT.

Babuji was a true freedom fighter who would always travel in ordinary sleeper class by railways. Surely, this has set the concrete foundation for innumerous teachers in the country to work for IAPT with the goal of

delivering maximum to the next generations of students with least expenses so that quality education can increase its outreach to augment the formal system of education.

I have already narrated what happened in the last month before Khandelwal sir made a sudden exit from the world. After Babuji left for his heavenly abode, I did not come across any authority that had the courage to stand up and correct a person on the spot in an IAPT convention. Those who have attended the old conventions still remember how he used to carefully listen to an amateur and a distinguished Professor alike. The ability to speak the truth candidly was indeed an outcome of his intense faith in the set of values that he had inherited and showed that he was a selfless Fakeer and also a King at the same time. His invisible throne in the minds of numerous teachers in the country can never be occupied by anyone else.

I offer my most respectful humble tribute to his soul in the following Hindi words –

स्वार्थ-हीन निष्काम साधना, भौतिकिकीनिः सीम आराधना,
जीवन भरकर मार्ग दिखाया उस गुरु को बस एक प्रार्थना।
कृपा करें, अब पुनर्जन्म लें, और चलाएं सबको आगे
शुद्ध करें सबके मन एवं लौटाए स्वर्णिम क्षण जो भागे।।

Prof. Khandelwal, Prof. Jayant Naralikar, Prof. Pandit Vidyasagar and others watching an experiment.

Prof. D.P. Khandelwal Birth Centenary Activity

Organizers: **Maa Sarada Gyana Mandir, Kamptee**.

Activity: **"LEARN by DOING"**Class 4th to 7th Standard

Chief Guest: Dr. AbhaKhandelwal, Retd Head Department of Computer Science Hislop College Nagpur.

Resource Person: Prof Y. K Vijay, Director CIST, IIS University, Jaipur.

Convener: Smt. Shabana Ansari.

Date: 22/09/2022

Prof. Dr. D.P. Khandelwal Birth Centenary activity was conducted at Maa Sarada Gyana Mandir, Kamptee, Nagpur, Maharashtra. On this occasion A program on theme "LEARN BY Doing" was held. The tribute was paid to Dr D. P. Khandelwal by narrating his Life Journey from start to end.

Dr Abha Khandelwal Chief Guest Inaugurated the program. In her introductory speech she briefed about ideology of Dr D P Khandelwal, what it means to be a teacher, how teachers can optimize learning and how sharing fundamental-concepts with clarity with students had large impact on their mind. This was followed by interactive discussion with teacher on physics experiments around concepts like gravitational force and Transformation of Energy.

Prof Y. K Vijay, Director CIST, IIS University, Jaipur conducted seminar for the children from class 4th to 7th. Students participated enthusiastically. They thoroughly enjoyed whole session. They were interactive during the session. He explained many simple experiments on Magnetism, Electricity and light based on Principles of Physics to the students with simple equipments in online Google meet. He also took students to visit Innovation Hub, Jaipur virtually.

Dr. Sunil Khandelwal, Retd Medical Superintendent, Shri Prabhu Navghare, Secretary of Shri Ramakrishna SamskritiPeeth, Kamptee and Mrs. Manju Navghare OSD of Maa Sarada Gyana Mandir, Kamptee, Ms Kundle Madam graced the event with their presence. Mrs. Jayashree Barbate proposed vote of thanks. They also thanked the IAPT for providing opportunity to take part in such activities.

Chief guest Dr. Abha Khandelwal
With Staff Maa Sarada Gyana Mandir, Kamptee

C. K. Majumdar Memorial Workshop in Physics- 2022

(Held at S. N. Bose National Centre for Basic Sciences, Salt lake, Kolkata)

C.K. Majumdar Memorial Workshop, a flagship programme of RC- 15,wasjointly organised bythe S.N. Bose National Centre for Basic Sciences (SNBNCBS) and RC 15fromJuly 12 to July 21,2022. This year the programme was held in a hybrid mode. The number of students who joined in the offline mode was19 and in the online mode 14 from27 institutes from all over India. Students were selected from both B. Sc. 3rd year(Physics Hons.) outgoing batch and 1st year M.Sc.(Physics).

The Director of the SNBNCBS, Prof. TanushreeSaha Dasgupta,inaugurated the program on July 12 and welcomed the students and teachers present.Dr.Surajit Chakrabarti, a senior member of RC 15, then presented a brief introduction of IAPT. Dr. Birendra Nath Das, a veteran teacher, gave a short demonstrationof some simple but thought-provoking physics experiments. After the tea break, Prof. Gour P Das, fromResearch Institute for Sustainable Energy(RISE), TCG, Crest, Kolkata, delivered the keynote address. He talked on how hydrogen has now become the “Holy Grail” for green energy research.

The first talk in the post lunch session was delivered by Prof. Dipak Goswami of IIT Kharagpur, who talked on 'flexible organic electronic devices for smart healthcare technology'. Dr. Surajit Chakrabarti then addressed the students and gave them some papers from journals like The Physics Teacher and American Journal of Physics. The students were asked to decide upon a topic and make a presentation on whatever they understood by reading the papers of their choice. Some students' sessions were included in the schedule for their presentations.At the end of day's programme, a short documentary on the life of Prof. Satyendra Nath Bose was shown.

On the inaugural day, July 12, NASA made public for the first time, some data and photographs from the James Webb SpaceTelescope(JWST). On the next day, July 13, an unscheduled YouTube documentary on JWST was shown. The students enjoyed enormously the remarkable pictures from the Telescope.

Every day, four lectures were scheduled. SNBNCBS made technical arrangements so that online participants could also take part in the discussions. Speakers from various institutes of Kolkata and West Bengal including the home institute, SNBNCBS, delivered talks in the institute hall, FERMION, and some more talks by speakers from other states of India and abroad were arranged in on-line mode. Most of the talks ended with lively sessions of questions from the students and answers from the speakers. Talks were more or less balanced between theory and experiments. Talks were delivered on experiments that could be performed from home using Smartphone sensors. On the basis of these experiments, students were asked to perform some tasks at home. There were discussionson advanced experimentsontopics like optical tweezers and astronomy, based on radio waves from atomic hydrogen of wavelength 21cm and its applications in the study of the cosmos. Talks on theory were delivered on diverse topics like cosmology, astrophysics, black hole information paradox, quantum computing, condensed matter and computational material science, energy research and development of sensors for medical application. All the speakers were considerate enough to scale down their levels of presentation, so that even the outgoingundergraduatescouldunderstanda significant part of the talks. These talks opened up for the students,different directions of modern physics research that they could think of pursuing later in life. Students were instructed to submit at least one write up on any talk they listened to and liked. Organisers are still receivingthe write ups from the students evenafter the end of the workshop.

A number of speakers delivered their talks in the online mode. This included Prof. Dipak Goswami and Prof. Somnath Bharadwaj, IIT, Kharagpur, Prof.Suvrat Raju, ICTS, Benagluru and Prof. A.R.Usha Devi, Bangalore University, Prof. Somnath Bharadwaj from IIT, Kharagpur, Dr. Kausiksankar Das from the University of Maryland, Eastern Shore, USA and Dr. Achintya Pal from Memphis, Tennessee, U.S.A.,Dr. Praveen Pathak spoke from HBCSE, TIFR, Mumbai, and Dr. ChinmoyKumar Ghosh,formerly of IGNOU spoke in the online mode.Post-Doctoral students, Dr.Sridip Pal

from Institute of Advanced Studies, Princeton University, USA andDr. Arka Bandyopadhyay from IISc.,Bengaluru also spoke in online mode. On a particular topic of physics,more than one lectures were organizedso that the students couldget a meaningful glimpse of the topic.Titles of all the talks and the speakers' list can be found in the attached document (Annexure I).

The final day's programme on July 21 had to be shifted to July 22,because of some unavoidable circumstances. On the last day, we had a number of presentations by the students. Most of the students critically went through the papers, suggested by Dr.Surajit Chakrabarti on the first day of the workshop and selected one of the topics of their choice. They delivered good presentations using power point as well as white board and pen. The way they presented their talks on a particular topic in this short time,was really amazing. The teachers were satisfied with their enthusiastic approaches.

After thelunch on the last day, IAPT RC 15 president, Prof. SamitKumar Ray,Professor at IIT Kharagpur,addressed the students in the online mode. After that Prof. Subhash Chandra Samanta, a former GS, IAPT and a long-time Associate of CSC, Midnapore discussed in the online mode on some experiments which the students could perform at home with low-cost simple appliances. After this, the ten-day programme came to an end on a happy note, with the students engaging in a cultural programme. A group photo was also taken for a record. Few photos on various occasions of the programs can be found in the attachment(Annexure II). The students enjoyed the programme enormously. One student,Abhinandita Sinha fromSt.Xavier's College,Kolkata, recorded her appreciation of the whole effort by the organisers in this difficultpost pandemic period, by writinga nice poem in English.

Welcome by Prof. Tanusri Saha Dasgupta, Director, SNBNCBS Dr. Birendra Nath Das in an experimental demonstration

Students' session : Board work by a participant CKMMWP 2022 – A group photo

Saswati Dasgupta,
Surajit Chakrabarti

National Conference on Recent Advancements in Physics

Venue: Hans Raj Mahila Maha Vidyalaya, Jalandhar

Date: 17th September, 2022

Participants: 170 students

One day National Conference on Recent Advancements in Physics was organized by HMV Collegiate Sr. Sec. School in collaboration with RC-02.The objective of this conference was to ignite a spark of curiosity and critical thinking among school and college students. The conference started with lighting of lamp, Gayatri Mantra and DAV Gaan. Principal Prof. Dr. (Mrs.) Ajay Sareen welcomed the Chief Guest Prof. Vinod Kanaujia, Director N.I.T.,Jalandhar. Conference Convener Mrs. Meenakshi Sayal briefed about the conference and said that this conference is organized to provide a platform to budding scientists to interact with peer group and exchange their ideas. It will unlock the young minds to showcase their potentials. National Awardee Dr. Jaswinder Singh, President RC-02 while addressing the students, said that the objective of IAPT is to enhance the quality of Physics teaching in Schools, Colleges and Universities through different endeavors. Principal Dr. Ajay Sareen said that science is inseparable part of all the logical things. Science represents our mental capability and gives a new dimension to our thoughts.Prof. Kanaujia, said that we should always focus on innovation and invention for the development of our nation. He encouraged the students to recognize their capabilities and to be self confident. During the conference, 7 parallel Technical Sessions were organized in which 170 students from 36 institutions of various districts like Bathinda, Barnala, Ferozepur, Muktsar, Ludhiana, Nawanshahar, Amritsar, Kapurthala, Gurdaspur, Patiala, Pathankot and Hoshiarpur participated. They presented papers and posters on various topics like Physics in Medical diagnosis and therapy, Physics in robotics, Applications of Nanotechnology, Physics in Kitchen, Physics and Spectroscopy, Applications of Optics, Physics in Mobile Technology, India Myth and Physics, Applications of Physics in Forensic Science, Role of ISRO in development of India. Prof. Rajesh Kumar, Physics Department, Lovely Professional University, Dr. Manoj Kumar, Asstt. Prof. in Physics, SD College, Barnala, Dr. Sharanjit Sandhu, Associate Professor in Physics DAV College, Jalandhar , Mrs. Seema Chopra ,Principal, Govt. Girls. Sr. Sec. Smart School, Uggi , Mr. Ashish Kapoor ,DAV Public School, Ludhiana, Mr. Rajan Tandon , PGT Sain Dass A.S. Sr. Sec. School, Jalandhar, Mr. Ashish Arora, Police DAV Public School, Jalandhar, Mr. Nawneet Angara, PGT Anand Public School, Kapurthala chaired various sessions and adjudged the participants. Online Technical Session was also conducted which was chaired by Dr. K.S. Mann, Physics Department, DAV College, Bathinda and Dr. Asha Rani, Dev Samaj College for Women, Ferozepur. During the valedictory session Major Amit Sareen, ADC (General) Jalandhar was the Chief Guest. While addressing the students said that development of Science is the symbol of development of nation. He appreciated the creativity of students. Prof. P.K. Ahluwalia, President IAPT interacted with audience through online mode. Vote of thanks was presented by Conference Convener Mrs. Meenakshi Sayal. Stage was conducted by Dr. Anjana Bhatia. In Poster Presentation, Budding Scientist Category Prabhnoor Basra got 1st prize, Sahibjot Singh got 2nd prize, Ramneek Kaur and Komal Mehra got 3rd prize and Gurjot Singh got Consolation prize. In Emerging Scientist Category, Muskan, Jiya, Siddhanth Shishodia got 1st, 2nd and 3rd prize respectively. In Paper Presentation Emerging Scientist Category, Sonampreet got 1st, Krishan Kumar got 2nd and Prabhjot Kaur got 3rd prize. In Budding Scientist Category, Arjunvir Singh got 1st, Mahima and Sahejpreet Kaur got 2nd prize, Khushmehar Sandhu and Jessica Kaur got 3rd prize. Consolation prizes were given to Arpit Sharma and Archana Mishra. The winners were honored with certificates and trophies. The conference ended with National Anthem.

Meenakshi Sayal
EC Member

Maharashtra Regional Council-RC-08

1. **Name of the activity:**"Training of Science Teachers from rural area of Dhule District".
2. **Date / Duration:**Sept.19, 2022, One day.
3. **Venue of the activity:** Yashwant Vinayan Mandir, Nakane, Road, Deopur, Dhule (Maharashtra).
4. **Organizing institute along with collaborations, If any:** IAPT RC – 08 with collaboration of Dhule District Science & Mathematics Teachers Association and Education Department, Zilha Parishad, Dhule.
5. **Sponsors, if any (IAPT, RC-08 or any other funding agency):**IAPT, RC-08 and Dhule District Science &Mathematics Teachers Association.

Summary of the activity: While the Amrit Mahotsav of India is being celebrated all over the country, respected Dr. D. P. Khandelwal birth centenary year, many activities are being conducted by our association. As a part of the same IAPT–RC 08 (Maharashtra) in association with Dhule District Science and Mathematics Teachers Association and Education Department, Zilha Parishad, Dhule organized a one day training workshop for science teachers of Dhule District especially rural, remote and tribal area. New Education Policy (NEP) 2020 is coming soon. We organized this training so that teachers should be ready to face it. The training workshop was held at Yashwant Vinayan Mandir, Deopur, Dhule on September 19, 2022from 10 am to 5 pm. Despite the flood-like situation of sudden heavy rain fall in Dhule city at night, holiday announced by District Collector, Dhule for schools and colleges of Dhule city, more than 270 teachers from remote, tribal areas responded overwhelmingly.

The workshop was inaugurated by Hon. Shri Mohan Desale (Educational Officer, Zilha Parishad, Dhule). Presided over by Hon. Shri Sanjay Pawar (President, Dhule District Science and Mathematics Teachers Association) Resource person Dr. R. M. Shewale spoke with audio visual aids on "Olympiad examination, various career opportunities available after 10th and 12th as well as various institutes available to students for higher education studies and research in the country". As another resource person Shri V. Y. Dabke guided on "Innovative Experiments to be conducted at School Level".Also another resource person Mr. Suresh Patil guided the teachers through various posters prepared on the topic "Environmental studies". Shri. V. D. Patil, the last resource person delivered his in-depth presentation on the topic "INSPIRE AWARDS" through a power point presentation.

President IAPT RC 08was the coordinator of the program.The participation of the teachers was commendable despite the flood-like conditions in Dhule city, after the overnight heavy downpour, which was "Nah Bhuto Na Bhavishati" for the success of the

progra
m. All the teachers took full advantage of all the lectures from the beginning to the end. Thecoordinator of the program expressed his thanksto all participating teachers. For the success of the said workshop, Education Officer (Secondary), Zilla Parishad, Dhule, Dhule District Science and Mathematics Teachers Association and Shri Kishor Patil (President ,Yashwant Vinayan Mandir, Deopur, Dhule), Principal of the school and his fellow teachers and non-teaching staff received valuable support. Feedback about the workshop was taken in written form from all the present teachers. A detailed report of the workshop and the feedback analysisis sent to IAPT and the Education Officer, Dhule, The program ended after tea.

Coordinator
R. M. Shewale, President, IAPT RC 08
Mob. Number: 9423916066

Workshop on

App based experiments in Physics

Organized by: Mumbai SRC -08 in association with KET's V.G. Vaze college of Arts, Science and Commerce (Autonomous)

Dated: 7th September 2022

Participants: 23 Teachers from 17 colleges

Venue: Vaze college auditorium and E-leaning Lab.

The workshop was inaugurated at 9: 30am by Principal of Vaze College Prof. (Dr). Preeta Neelesh . Dr. Suresh Kadam , HOD , Physics department ,Vaze college, welcomed the guests. Dr. P.D. Lele inspired the audience by his encouraging words. Ms. Rekha Ghorpade , GS, IAPT gave a brief introduction of IAPT activities and various examinations and competitions conducted by it for the students and the teachers at school , Junior college and degree college levels. Dr. Shyamala Bodhane, treasurer, SRC-08 briefed the participants on the role of these apps in class room teaching as well as in simulating the experiments before performing them in labs .

The first session was conducted by Dr. Leena Joshi from St. Xavier's College Mumbai on the topic "Physics experiments with Tracker software". She shared with participants her experience during pandemic when she gave assignments and projects to her students based on the use of tracker software. She said the software motivated students to have group discussion among themselves about the experiment and also to try it on experiments from different fields of physics . She demonstrated how Tracker software can be used in experiments in optics and mechanics with one example for each : Single slit diffraction pattern and simple pendulum. It was followed by practice session where all the participants got an opportunity to work with Tracker software to analyse the diffraction patterns obtained by different set ups and also to work on data for simple pendulum.

Next session was conducted by Dr. Shyamala Bodhane on "Simulator for Electronics Experiments". She demonstrated how a circuit can be built up using thecomponents available in the App or how to use a readymade circuit and how to simulate these circuits using PhET Simulators , Flash Animations for Physics, Tinkercad and Multisim. During the practice session the participants familiarized themselves with these circuit simulators by building up their own circuits on Tinkercad and Multisim and running simulations.

The last session for the day was conducted by Dr. Praveen Pathak from HBCSE-TIFR on "Physics Experiments using smart phone" . Using phyphox App or wave editor for android he demonstrated how the smart phone which is just a phone with camera for most

of us can be used as an accelerometer, magnetometer, light sensor and many more. He gave a very lively demonstration of measurements of frequency of beats using wine glass , frequency of singing rods , height of a building , change in frequency due to Doppler effect. The participants thoroughly enjoyed the practice session where they tried in groups using their smart phones all the experiments assigned to them.

As a concluding part of the workshop Mr. Mahesh Shetti, made his observations that each session will benefit the participants in classroom teaching and assigning projects to students. He also mentioned that we can reach to students in their own language and liking through these apps. It will also help to attract more students to physics measurements without many instruments. Certificates were awarded to all the participants. The program came to an end with Dr. Suresh Kadam delivering vote of thanks. Dr. Hemlata Deshpande from SRC-08B, coordinated the workshop.

K. G. Bhole
Secretary

To our readers

For change of address and non-receipt of the Bulletin, please write (only) to:
our New Address :

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Dr D P Khandelwal

My first interaction with Dr Khandelwal happened in early sixties when he was in the department of Physics, Rajasthan University, Jaipur. As a young lecturer at Subodh College, Jaipur, I used to meet Dr Khandelwal for a better understanding on some current topics of physics. Dr Khandelwal was very generous and used to devote time with me. He was a great teacher and philosopher and loved in conveying most intricate concepts of physics in simple words. He was very precise in his explanation. DPK's fascination with physics and its teaching to young college scholars was immense. His communication of the subject in brief and with clarity was very impressive. This culminated in his very popular book on 'optics and atomic physics'.

In late seventies at the 'Rajasthan University' period was for DPK a time of intense and varied activities related to teaching and laboratory practices. DPK along with Professor Saraf brought revolutionary changes in the course contents of physics syllabi based upon Berkeley Physics course and Feynman lectures. He along with Professor B. L. Saraf encouraged university/college teachers to introduce these experiments for undergraduate students. In order to activate college teachers, I remember, that Professor DPK wrote a letter to all teachers to test the working of all the experiments developed at RUJ and send their comments to him directly. Their findings along with their comments were supposed to be sent to him directly within stipulated time, in most colleges this letter went unnoticed. In those days I was away and could not participate in this academic activity of physics. When this letter came to my knowledge, it was very late and our comments on these experiments could not be accepted. However, Dr DPK allowed me to submit our results. I along with my colleague Profess R K Tiwary sent our actual performance of the ULP developed experiments and a note further suggesting new experiment. Under ULP many remarkable experiments in the fields of coupled oscillators were developed. However, there was no experiment suggesting parametric resonance. I made a brief write-up of a simple pendulum with periodic variation of its length and resulting resonance. DPK liked its teaching value and encouraged by a symbolic financial award.

Dr Khandelwal was a revolutionary figure for the cause of education in science. In addition to being a devoted teacher, scientist, he made revolutionary changes in the course contents of physics subject first in Rajasthan then spread all over India.

I found him very simple and a determined person for the cause of education. Anyone could meet him- it was sufficient to ring him up for an interview.

K.P. Maheshwari
(Formerly) Professor & Head
School of Physics,
Devi Ahilya Vishwavidyalaya, Indore

IAPT Essay competition NCEWP – 2022

Category-A, Students: Final results

Student Code	Name and address of Student	Total Marks (out of 300) from three evaluators	Rank
A-28	MrudulaPatil Pace Junior Science College, Thane(Maharashtra)	**249**	**FIRST**
A-26	Nandan B Mishra Institute of Excellence in Higher Education, Bhopal(MP)	**239**	**SECOND**
A-30	KashishKansara Shri PM Patel College of Electronics and Communication, Anand, Gujarat	**239**	**SECOND**
A-2	Yashika Rainbow International School, NagrotaBagwan,Distt. Kangra, HP	**234**	**THIRD**
A-12	Satyam Priyanshu Nilambar- Pitambar University, Medininagar(Daltonganj) Palamu, Jharkhand	**234**	**THIRD**

This time in the Students' category, **30 Essay entries** were received. The essays were evaluated by three experts and aggregate marks were considered towards the final results. All entries were checked for plagiarism by **Dr. S. K. Joshi (Ratlam)** and negative marks up to a maximum of 12 were assigned by the evaluators for copy-paste instances.

We are happy to thank the expert evaluators **Prof. S. B. Welankar (Indore), Dr. A. P.Deshpande (Nagpur) and Dr. Usha Singh (Indore)** for their voluntary services in this competition.

The prizes, according to IAPT norms will be distributed in the Annual IAPT Convention to be held at Patna - December 02 to 04, 2022. For details of Convention, Venue etc., contact the Organizing Secretary Dr.Himanshu Pandey, Mob.9308006056

S. K. Joshi

Coordinator NCEWP 2022

ANNOUNCEMENT

Dr. Naveen Kumar Nischal,
Dept. of Physics, IIT Patna

It gives me great pleasure to inform you that you have been awarded the prestigious IAPT DinabandhuSahu Memorial award -2022 jointly with Dr. Pankaj Nagpure, Shri Shivaji Science college, Amravati, Maharashtra. Please accept heartiest congratulations from Indian Association of Physics Teachers.

IAPT-DinabandhuSahu Memorial Award (DSMA) is instituted to recognize a Physics Teacher for significant contribution to Undergraduate Physics Teaching.

You have shown high level contribution in some of the areas in Physics teaching for which judges have considered to honour you with this award.

In your 15 years of teaching career at UG level, you have sincere involvement at +2 level students, motivating them to pursue careers in science and particularly in Physics. You are not only guiding students from your own institute but also from other institutes in the field of Optics and Photonics. You provide guidance in how to write good scientific papers and how to give scientific seminars. As an active IAPT member you have been a very strong resource person at various programmes organized by IAPT.

Under your mentorship, students at IIT Patna have established a student chapter of OPTICA, USA, earlier known as Optical Society of India.We appreciate your commitment to student-centric activities.

You are a reviewer to Journals by Elsevier, IEE, IEEE, IOP, OSA, SPIE, Springer, CSIR.

Once again, I congratulate you on behalf of IAPT. I am sure your contribution to IAPT activities will continue and take IAPT to new height.

Wish you all the best for your future endeavors.

Rekha Ghorpade
General Secretary,
IAPT

ANNOUNCEMENT

Dr. Pankaj Nagpure,

Dept of Physics, Shri Shivaji Science College,

Sant Gadge Baba University, Amravati, Maharashtra.

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IAPT-DinabandhuSahu Memorial Award (DSMA) is instituted to recognize a Physics Teacher for significant contribution to Undergraduate Physics Teaching.

In your 18 years of teaching career, you have encouraged students to design and fabricate the experimental kits, do the innovations in experiments, and engaged them in experimental problem solving, making good use of ICT in classroom teaching.

You are involved in the activities for simulating genuine interest and triggering fascination for research careers in Physics students, encouraging students to opt for post-graduation in Physics, providing guidance for PG entrance exams and several students are admitted in reputed institutions.

You are encouraging and preparing students from rural area to participate at various competitions, quizzes,

workshops, etc. and organized summer school.

These are few contributions which judges considered you to honour with IAPT DSM Award-22.

Once again, I congratulate you on behalf of IAPT. I am sure your contribution to IAPT activities will take IAPT to new height.

Wish you all the best for your future endeavors.

Rekha Ghorpade
General Secretary,
IAPT

ANNOUNCEMENT

IAPT Essay competition NCEWP – 2022

Category-B, Teachers: **Final results**

Name and address of Teacher	Marks (out of 300) Total from three evaluators	Rank
Sonika Jindal, DAV Public School ,BRS Nagar, Ludhiana, Punjab.	**257**	**FIRST**
Vandana Luthra, Physics Department, Gargi College,Siri Fort Road, New Delhi	**245**	**SECOND**
Shyamvant Purohit, Retired Principal, Government Higher Sec. School, Jadwasakhurd, Dist.Ratlam (MP) ---------- V K Gupta, Physics Department, Govt.	**217** ---------- **217**	**THIRD** ---------- **THIRD**

This time in the Teachers' category,**11<u>Essay entries</u>** were received. The essays were evaluated by three experts and aggregate marks were considered towards the final results. All entries were checked for plagiarism by **Dr. S. K. Joshi** and negative marks up to a maximum of 12 were assigned by the evaluators for copy-paste instances.

We are happy to thank the expert evaluators **Prof. V. N. Potbhare (Vadodara), Dr. D. A. Deshpande (Nagpur) and Dr.Sapna Sharma (Shimla)** for their voluntary services in this competition.

The prizes, according to IAPT norms will be distributed in the Annual IAPT Convention to be held at Patna - December 02 to 04, 2022. For details of Convention, Venue etc., contact the Organizing Secretary Dr.Himanshu Pandey, Mob.9308006056

S. K. Joshi
Coordinator

Celebration of International Year of Glass (IYoG)
National Conference on Functional Glasses(NCFG-2022)

Nov 14, 2022(& Pre conference Poster session to students on Nov 13)

Organized by Indian Association of Physics Teachers, Karnataka (IAPT- RC-12) with District Science Center Kalaburagi

In Association of Karnataka Science and Technology Academy (KSTA)and Karnataka State Council for Science and Technology (KSCST)

Venue: District Science Center Auditorium, Kalaburagi Number of beneficiaries: 200, Mode: Hybrid

Convener: Dr M. S .Jogad

About Conference: Glass is one of the most ancient materials known and used by mankind. Glass, existing for millions of years, has fascinated and attracted enormous interest both scientifically and technologically, where and when glasses first appeared is not exactly known. The United Nations proclaimed Year 2022 as an International Year of Glass (IYoG), in its General Assembly on 18Th May 2021, to throw a light on the role of glass in our societies and show how technologies like glass can contribute to sustainable development.

To commemorate this event Karnataka RC-12 will be organizing a 2 day National Conference on Functional Glasses in Hybrid mode, during November, 13-14, 2022. Invited talks by speakers/experts in glass science and technology from various institutions in India and contributed preconference poster session will be broad frame work of the conference.. Since there are research and development efforts going on in different laboratories/Institutions and industries in the country on glass/glass-ceramics, this conference will provide a common platform for different researchers. Teachers, researchers and students shall be invited to participate.

Resource Persons: 4

1. Dr G P Kothiyal,
   Former Head Glass and Advanced Ceramics Division, BARC, Mumbai and Chairman MRSI Mumbai Chapter
2. Dr B.B. Kale
   Director General, C-MET, Pune
3. Dr M S Jogad
   EC Member IAPT, Ex KSAWU,EX Principal SB College, KSCST, SSSUHE
4. Sri P S R Krishna,
   BARC/Dr Rashmi P Salagare, SSSUHE, Kalaburagi & Dr. B.S Krishnamurthy

L A Udachan, President
Science Center Officer

S M Khened, Secretary
R Bharadan, District

UGC-DAE CSR announces Call for Collaborative Research Proposal on "Utilization of In-house and DAE Mega Science Facilities"

UGC-DAE Consortium for Scientific Research

UGC-DAE Consortium for Scientific Research (UGC-DAE CSR), an Inter-University Centre established by the University Grants Commission (UGC), provides specialized training and advanced characterization facilities to researchers and also makes some facilities of Department of Atomic Energy (DAE) accessible to them

UGC-DAE CSR invites research proposals from faculty members of Universities/Colleges and Research Institutions under 3 years Collaborative Research Scheme (CRS) for utilization of the Mega Science Facilities of the DAE (Synchrotrons at RRCAT, Dhruva reactor at BARC, and Cyclotron at VECC) and the advanced research facilities at our Indore-, Mumbai-, Kolkata- Centres and the Kalpakkam-Node. The broad objective of the Collaborative Research Scheme is to promote research in frontline areas of science & technology in Indian Universities/Colleges and Research Institutes by providing high-end research facilities.

CRS projects are sanctioned normally with a student fellowship along with travel and local hospitality to avail experimental facilities. For more details, please visit CRS user portal <https://csruserportal.com>.

KEY AREAS OF RESEARCH Proposals from broad areas of research covering Physical, Chemical, Biological, and Engineering sciences are invited. Details of all the in-house experimental facilities and DAE Mega Science facilities can be found at http://www.csr.res.in

WHO CAN SUBMIT?

- Permanent faculty members/scientists from all UGC-approved/NAAC-accredited universities, affiliated colleges and other GOI recognised research institutes are eligible to submit proposals as a principal investigators.
- Researchers from more than one university/institute are permitted to submit a joint proposal if they wish. The Principal Investigator may also consider the involvement of an industry partner for value addition to the proposal.

Visit our website for details

- About "UGC-DAE CSR "
- What is CRS ?
- Who are eligible?
- DAE facilities under CRS
- UGC-DAE CSR facilities
- Format of the proposal

HOW TO SUBMIT? Detailed proposal including a brief Introduction/Origin of the proposal, Objectives, Novelty of the work, and Methodology should be submitted online through CSR user portal. A researcher is eligible to submit only one proposal during this call.

Important dates

Online portal for submission opens: Oct. 11, 2022
Last date for submission of proposals: Nov. 22, 2022

Portal for proposal submission:
https://csruserportal.com









XXXVI IAPT ANNUAL CONVENTION : 2022

Organized By

College Of Commerce, Arts and Science, Patna
(Patliputra University, Patna)
&
Indian Association of Physics Teachers (RC-19)

THEME - EXPLORE ARYABHATTA

Sub Themes

(i) A revisit to the endeavours of Indian Astronomy, Sciences & Mathematics
(ii) Advancements in Innovative Sciences and Research
(iii) Recent trends and pedagogies in Physics Teaching & Learning
(iv) Attracting school students in 6-12 Physics and Experiments

Date : December 02nd-04th, 2022

Venue: College of Commerce, Arts & Science, Patna
(Patliputra University, Patna)
Opposite Rajendra Nagar Terminal, Kankarbagh Main Road, Patna, Bihar - 800020

Registration:

Participants/Delegates are requested to register through the
website - https://iaptbihar.org Direct Link - https://bit.ly/3qgYFHQ

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Dr. Himanshu Pandey
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Dr. Pramendra Ranjan Singh

President, IAPT RC- 19, Bihar
Dr. Amarendra Narayan

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- Prof. P K Ahluwalia (President, IAPT)
- Prof. Rekha Ghorpade (General Secretary, IAPT)
- Prof. Vijay A Singh (Ex President, IAPT)
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Patron

- Prof. Indrajit Pd. Roy (Principal, College of Commerce, Arts & Science, Patna)
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INDIAN ASSOCIATION OF PHYSICS TEACHERS

(Registered under Section XXI of Societies Act 1860, Regd. No. K 1448)

Membership Form

(PLEASE FILL IN CAPITAL LETTERS)

To,
Secretary IAPT
Regd. Office
Kanpur-208017

Date.....

Dear Sir,
I wish to join IAPT as a

1) Life Member 2) Annual Member 3) Student Member 4) Institutional Member 5) Library

I am remitting a fee of Rs.....through Cheque/DD/UTR No.....

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Sincerely yours

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(i)	**Life Membership**		**:**	**Rs. 2000/=**	**(US $ 460)**
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The Story of Cosmology thorugh Postal Stamps-27

OBSERVATIONAL UNIVERSE

NEW GENERATION OBSERVATORIES

Development of high-quality reflectors and refinement of instruments and invention of new technology favours the setup of new observatories. Modern observatories are equipped with catadioptric telescopes with larger reflectors and Active Optics or uses robotic controlled Adaptive Optics for optical aberration free view of sky.

Over Print CFA (Communaute Financielle Afrcaine) with surcharge in new currency- depict **Pic du Midi Observatory** (1882) France, fitted with Bernard Lyot Telescope

Felix Aguliar Observatory, (1951) Argentina fitted with Ritchey Ceretien reflector with double astrograph

Helsinki Geomagnetic and astronomic Observatory (1834)

Bosscha Observatory, Indonesia. with double Zeiss Reflector

Corro Tololo Observatory, Chile (1965), fitted with 1.3m SMART Cassegrain reflector

Roque de Los Muchachos Observatory (1985) Canary island equipped with world largest single aperture optical telescope with adaptive optics

Padova INFA Observatory (1779)- research, educational and out reach activities

Unperforated miniature Sheet depicting **Observatoire de Paris** (1667), and commemoration of arrival of Halley's comet

Postal Regd. No. Kanpur City-28/2021-23 Date of printing 02-10-2022 Date of posting 08-10-2022 RNI No. UPENG/2009/29982

BULLETIN OF INDIAN ASSOCIATION OF PHYSICS TEACHERS

FOUNDED BY (LATE) DR. D.P. KHANDELWAL

VOLUME 14 NUMBER 10 OCTOBER 2022

IN THIS ISSUE

If underlivered please return to :

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Managing Editor

Flat No. 206, Adarsh Complex,

Awas Vikas-1, Keshavpuram, Kalyanpur, Kanpur-208017

Published by R.N. Kapoor on behalf of Indian Association of Physics Teachers. For circulation amongst IAPT members/subscribers only.
L-117/302, Naveen Nagar, Kanpur-208025, Ph. 9415404969. Printed at Sharda Graphics Pvt. Ltd., 123/766, Factory Area, Fazalganj, Kanpur-208012, Ph. 9336845329
Chief Editor: Prof. U.S. Kushwaha