The Science and Innovation Club of MTCW

SciNova

Motto : "Fueling Ideas, Shaping the Future"

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About the club

The Science and Innovation Club of Mar Thoma College for Women, Perumbavoor, fosters creativity, critical thinking, and scientific curiosity among students. It aims to develop problem-solving skills, encourage innovative thinking, and provide exposure to emerging trends in science and technology. Although various departments have been organizing activities to foster scientific temperament and innovative thinking for years, the idea of establishing a dedicated club was formally recognized, as suggested by Principal Dr. Letha P. Cheriyan, and it came into being on 20 January 2025.The club organizes brain exercises, innovation exposure presentations, idea booster triggers, hands-on workshops, and design thinking sessions, helping students enhance their analytical and creative abilities. It also observes important scientific days, keeping students engaged with global advancements. The club aims to provide regular updates on competitive exams, results, and admissions, ensuring academic preparedness. Additionally, it promotes product launches, allowing students to showcase their innovations and entrepreneurial skills. Through these initiatives, it creates a vibrant platform for aspiring scientists and innovators, preparing them for future academic and professional opportunities.

It is not solely meant for science pursuers but welcomes anyone with an idea, fostering an inclusive space for creativity and innovation.

Latest News in Science

Maharashtra boy, 14, breaks 6 Guinness World Records with lightning-fast mental math :

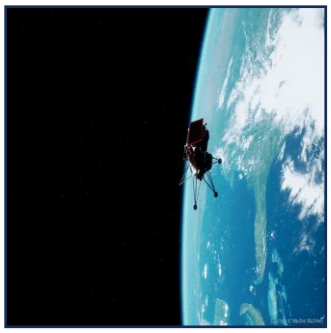
- A 14-year-old boy from Maharashtra, also known as the 'human calculator', broke six Guinness World Records in one day during a mental math competition in Dubai.

- He excelled in mental math, setting records for rapid calculations.
- Daily 5-6 hours practice helps him prepare for competitions.

CU Boulder and NIST Physicists Unveil Breakthrough Laser Device for Gas Analysis

The University of Colorado (CU) Boulder and the National Institute of Standards and Technology (NIST) Physicists has developed a new laser-based device that can take any sample of gas and identify a huge variety of the molecules within it. It is sensitive enough to detect those molecules at minute concentrations all the way down to parts per trillion. Its design is also simple enough that researchers could employ the method quickly and at a low cost in a range of settings, from diagnosing illnesses in human patients to tracking greenhouse gas emissions from factories.

Moon to get mobile network as Nasa launches Nokia aboard Athena on Friday



Nasa is set to launch the Athena lander on Thursday, marking the deployment of the first mobile network on the Moon. This network is designed to withstand the harsh conditions. The mission includes two lunar mobility vehicles. This historic mission is part of Intuitive Machines' IM-2 mission and is made possible through a collaboration with Nokia.

Scientific sensation: Polyoxometalate nanocluster-infused triple IPN hydrogels for excellent microplastic removal from contaminated water: detection, photodegradation, and upcycling

Microplastic (MP) pollution is a growing problem in ecosystems worldwide, caused by improper plastic disposal and the breakdown of larger plastic items into smaller particles. These tiny particles, less than 5 mm in size, are now found everywhere, harming land, freshwater, and marine environments.

Our proposed solution is a special type of hydrogel that can efficiently remove microplastics from water. This hydrogel is made from a combination of three materials: chitosan (CS), polyvinyl alcohol (PVA), and polyaniline (PANI). We have infused it with copper-based polyoxometalate (Cu-POM) nanoclusters, which not only help capture microplastics but also improve the hydrogel's ability to break down plastics when exposed to light. This hydrogel, with its unique structure, provides an effective and sustainable way to clean up microplastics from water, as shown by its ability to absorb microplastics under different conditions, mimicking real-life situations.

Solar-powered device captures carbon dioxide from air to make sustainable fuel using sunlight as the power source

Carbon Capture and Storage (CCS) has been touted as a possible solution to the climate crisis. However, CCS is energy-intensive and there are concerns about the long-term safety of storing pressurised CO2 deep underground, although safety studies are currently being carried out.

Source : University of Cambridge

Dessert stomach emerges in the brain

Researchers have now discovered that what we call the 'dessert stomach' is rooted in the brain. The same nerve cells that make us feel full after a meal are also responsible for our craving for sweets afterwards. Studies were conducted in mice.

Source : Max Planck Institute for Biology of Ageing

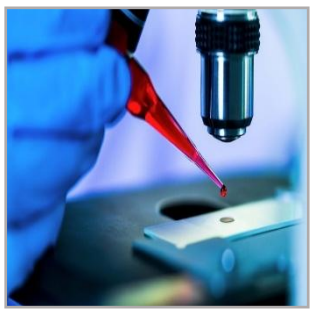
Sunita Williams prepares for fiery return to Earth aboard Dragon

The crew practised re-entry procedures on a computer. Crew-10 is scheduled to launch on March 12 from the Kennedy Space Centre. Crew-9 mission has been extended due to technical issues

Nasa's SpaceX Crew-9 members, comprising Nasa astronauts Nick Hague, Sunita Williams, and Butch Wilmore, along with Roscosmos cosmonaut Aleksandr Gorbunov, recently conducted a refresher session to prepare for their return to Earth.

The crew practised re-entry procedures on a computer, ensuring they are well-equipped to safely renter the Earth's atmosphere aboard the SpaceX Dragon crew spacecraft.

Scientists develop 3D microscope to create map of all molecules in a cell



A team led by Indian scientists at the Marine Biological Laboratory (MBL) have developed a hybrid microscope capable of simultaneously imaging the full 3D orientation and position of molecules, such as labeled proteins inside cells.

Bill Gates advice the future generation to focus on coding and math skills for jobs:

Bill Gates stresses that coding and math skills are crucial in understanding AI. Despite AI's rapid growth, grasping the fundamentals of algorithms and mathematics will help you stay relevant and engaged with the evolving technology in 2025 and beyond.

Artificial intelligence (AI) is evolving rapidly, but don't be misled by its impressive capabilities. While AI systems can perform many tasks with remarkable efficiency, Bill Gates emphasizes that mastering math and coding remains essential. In fact, these foundational skills are crucial to understanding how AI works and how to interact with it. Here's why coding and math matter more than ever in this AI-driven world.

New fossil discovery rewrites the history of how dinosaurs evolved

Palaeontologists have discovered new fossils that could rewrite the history of how dinosaurs evolved and travelled across Australia. The details of the fossils of the world's oldest known megaraptorid and the first evidence of Carcharodontosaurus have been detailed in a study in the Journal of Vertebrate Palaeontology.

These findings rewrite the evolutionary history of theropod dinosaurs. Three of the fossils were uncovered between 2022 and 2023. These fossils offer new insights into Victoria's ancient ecosystem.

Did Isaac Newton really predict the end of the world? Legendary apocalypse letter resurfaces.

Over three centuries ago, in a time before trains, pianos, and guillotines, Isaac Newton—yes, the same Newton behind the laws of motion—made a prediction about the end of the world. A letter penned by the legendary physicist and mathematician in 1704 has now resurfaced, revealing his theory about when humanity's days may be numbered. And the date? Surprisingly, it's not some far-off dystopian future. It's 2060—just 35 years from now.

Isaac Newton predicted that 2060 marks a spiritual reckoning, not a catastrophic end. Rooted in the Book of Daniel, his calculations suggest a shift from chaos to peace. Newton saw this year as the second coming of Jesus, envisioning a new era of harmony.

PG ASPIRANTS, TAKE NOTE! IMPORTANT ENTRANCE EXAM UPDATES YOU CAN'T MISS

Exams:

1. CUET PG – Exams from 13 March to 1 April 2025

2. Banaras Hindu University postgraduate entrance test (BHU- PET) - Exam on 17 March 2025

Registration ongoing/ upcoming:

1. Graduate Aptitude test in Biotechnology (GAT-B) - Registration ongoing.

2. Forest Research Institute admission test - Registration ongoing

3. National Brain Research Centre - Registration ongoing

4. CSIR- UGC- NET- Registration from 8 March 2025

PG/Integrated PhD Entrance Tests Registration dates expected soon:

1. Allahabad University PGAT

2. Tata Institute of Fundamental research GS

Dates of result declaration

1. IIT- JAM : 19 March 2025

Club Exclusives

Ocean Acidification: A Growing Threat to Our Oceans

Article by **Dr. Anu Joy, Department of Chemistry**

Oceans cover more than 70% of our planet, providing half of the oxygen we breathe, regulating the climate, and serving as a vital source of food, livelihoods, and recreation for billions of people. They also support an incredible range of marine life, from tiny plankton to massive blue whales, and play a crucial role in Earth's ecosystem. However, our oceans are facing an increasing threat: ocean acidification. This happens when the ocean absorbs excess carbon dioxide (CO2) from the atmosphere, causing its pH levels to drop and become more acidic.

The increased acidity harms marine life, particularly organisms with calcium carbonate shells, such as corals, shellfish, and certain types of plankton. Ocean acidification has far-reaching consequences, including a decline in biodiversity, loss of coastal protection, impacts on fisheries and the livelihoods of people who depend on them, and a decrease in ocean productivity, which affects the global food chain. Recent studies have shed light on how ocean acidification is impacting marine ecosystems and human communities, and how it is linked to climate change. These findings highlight the need for a comprehensive approach to tackle the problem.

To combat ocean acidification, we must take action on multiple fronts: transitioning to renewable energy, improving energy efficiency, and investing in carbon capture and storage technologies. In addition, restoring coastal and marine ecosystems, implementing climate policies, supporting international cooperation, and integrating ocean acidification into marine conservation efforts are crucial steps to reducing CO2 emissions.

Ocean acidification is an urgent issue that demands our attention. By understanding its effects and taking effective action, we can help protect the health of our oceans for future generations.

Sketch by Ms. Nanda Anish III IP

Poem by Ms. Reemy Sara Mathai, Department of Zoology

Sustainability on call

A tomorrow bright, a future fair,
The path we choose, with sustainability to share.

Progress calls, we move ahead,
But balance keeps our planet fed.

Think green, think new, innovate with care,
Conscious views, for a brighter air.

Nature's wisdom, science's might,
Hand in hand, building a better sight.

From tiny cells to cosmic flight,
Progress shines, but not too bright.

With every spark of thought we sow,
May harmony and wisdom grow.

Let's choose the path, that's wise and true,
Sustainability, for me and you.