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INDIA SCIENCE AND INNOVATION WEEKLY

Ask the right questions, and nature will open the door to her secrets
- Dr. C.V. Raman, The Nobel Prize in Physics 1930

IITians design AI-based system to detect colorectal cancer

Researchers from Indian Institute of Technology Guwahati (IIT-Guwahati), with help from multi-institutional researchers, have designed an automated Artificial Intelligence-based system to detect colorectal cancer, which is the third most common type of cancer among men and women in India. The team evaluated the statistical significance of the abnormal tissue growth, such as shape, surface area, contour and color components through artificial intelligence algorithms using different filters followed by feature selection, classifier selection based on six measures, and cross-validation.

ARIES researchers make optical spectrograph to detect faint light

Researchers from Aryabhatta Research Institute of observational sciences (ARIES) have indigenously designed and developed a low-cost instrument named Aries-Devasthal Faint Object Spectrograph & Camera (ADFOSC), which can locate sources of light with a photon-rate as low as about 1 photon per second and can be used to locate sources of faint light from distant quasars and galaxies, regions around supermassive black-holes around the galaxies, and cosmic explosions. Just like the ADFOSC, more complex instruments such as spectro-polarimeter and high spectral resolution spectrograph will be planned to commission on the 3.6-m Devasthal telescope shortly.

Global BioIndia 2021

The second edition of Global BioIndia is being held virtually from March 1-3, which brings together the key stakeholders from the start-up ecosystem to the national platform of Global BioIndia 2021.

Dr. Tessy Thomas

Dr. Tessy Thomas is a scientist at the Defence Research and Development Organisation (DRDO) and is known as the 'missile woman' of India. She served as the Project Director for the Agni IV and V missiles, making her the first woman to lead missile teams in India. She was awarded Lal Bahadur Shastri National Award by President Pranab Mukherjee.

IITians establish aerosol monitoring facility in Western Ghats

Indian Institute of Technology Madras has established a state-of-the-art Natural Aerosol and Bioaerosol High Altitude Laboratory at Munnar, Kerala, in the Western Ghats, which will host state-of-the-art high-end aerosol, gas-phase and atmospheric measurement instruments. It has been set up in collaboration with the College of Engineering Munnar and Department of Environment and Climate Change, Government of Kerala, with support from Sharp Business System (India) Pvt. Ltd. IIT Madras intends to open this facility to the national and international community to perform the measurements of their interest. IIT Madras further plans to strengthen the use and the facilities at this laboratory by establishing collaboration with reputed national and international institutions and universities known for climate change and Earth system science studies.

IISc researchers shed light on the effectivenss of multi-layer masks

Team of researchers from the Department of Mechanical Engineering at the Indian Institute of Science (IISc.) have, with the help of a high-speed camera tracked the impact of individual cough-like droplets on protective wear and concluded that hat multilayer masks are the most effective. The team used a custom droplet dispenser to measure droplets ranging from 200 microns to 1.2 mm in size, that mimicked human cough and found out that triple-layer masks, even those made of cloth and N-95 masks, as opposed to single-layer and double-layer masks were the most effective in successfully preventing atomisation, where droplet transmission and generation was wither negligible or zero, thus offering the best protection. Further studies on understanding atomisation wil be conducted to propose more robus models.

IITian researchers develop fertilizer application

Researchers from IIT, Kharagpur, have explored an alternate method of creating a soil nutrition map, aimed towards efficient use of Nitrogen, Phosphorous and Potash (NPK) for automated soil nutrition management , that can be accessed in real-time through differential global positioning system for variable rate application. This technology would be able to reduce 30% of fertilizers used in manual methods thus ensuring substantial savings in resource applications.

Special Update: Wildlife Institute of India

Established in 1982, Wildlife Institute of India (WII) is an internationally acclaimed Institution, which offers training program, academic courses and advisory in wildlife research and management. The Institute is actively engaged in research across the breadth of the country on biodiversity related issues. Three six aims and objectives of WII are to build up scientific knowledge on wildlife resources; train personell at various levels for conservation and management of wildlife; carry out research relevant to management including the development of techniques appropriate to Indian conditions; Provide information and advice on specific wildlife management problems; Collaborate with international organizations on wildlife research, management and training; and develop as a regional centre of international importance on wildlife and natural resource conservation.

Further details can be found at:
https://www.wii.gov.in/