



Embassy of India, Berne

# INDIA SCIENCE AND INNOVATION WEEKLY

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

## IISc and BFI Collaborated to Accelerate Biomedical Innovation

During Indian Institute of Science (IISc) and Blockchain For Impact (BFI) collaborated under the BFI-Biome Virtual Network Programme to accelerate biomedical innovation. BFI aims to allocate USD 1 million over the course of three years, for the BFI-Biome Virtual Network Programme and support collaborative projects aimed at translating research outcomes into tangible healthcare solutions. Under the partnership, BFI-Biome would support selected research projects in life sciences from IISc faculty. The partnership marks a significant step towards accelerating transformative healthcare solutions through cutting-edge biomedical innovation.

## IASST Developed Novel Method for Directly Synthesizing CNTs on Glass Substrates

Institute of Advanced Study in Science and Technology (IASST), an autonomous institute of the Department of Science & Technology (DST), developed a novel method for directly synthesizing CNTs on glass substrates at a temperature of 750 °C. The experiment is performed using the Plasma Enhanced Chemical Vapour Deposition Technique. This new method could be useful for rechargeable batteries & flexible electronics and could help energy research, biomedical fields, and optoelectronics. Carbon nanotubes (CNTs) are pivotal in advancing modern technology by showcasing extraordinary properties.

## IIT Madras to Develop Smart Ammunition

The Indian Institute of Technology Madras in collaboration with Munitions India, a defence public sector enterprise, to develop 155 mm smart ammunition. The aim is to ensure the ammunition has 50% better accuracy than existing shells and improved range. Munitions India, under the Ministry of Defence, is India's biggest manufacturer and is engaged in not only production but also testing research, development and marketing a range of ammunition for the military and paramilitary forces. Some of the key characteristics of the smart ammunition are that it will be launched from 39 and 45 calibre-155 mm artillery guns without any changes in the gun system. It would have the Indian regional navigation satellite system (IRNSS)-guided GPS back-up (NAVIC is the primary guidance system that would make the guided ammunition completely independent of any foreign agency involvement).

## IITM Indigenously Developed State-of-the-Art Earth System Model (ESM)

Indian Institute of Tropical Meteorology (IITM) under the Ministry of Earth Sciences, indigenously developed a state-of-the-art Earth System Model (ESM) known as the IITM-ESM at its Centre for Climate Change Research (CCCR). This is the first ESM from India and the climate change assessment carried out using IITM-ESM. It was also used in the latest Sixth Assessment Report prepared by the Intergovernmental Panel on Climate Change (IPCC). Funds has been allocated to IITM-CCCR for Monsoon Convection, Clouds and Climate Change (MC4) sub-scheme during the period 2017-2023 for the development of climate forecasting system.

## Special Update: India's First Hypervelocity Expansion Tunnel Test Facility

Ministry of Science & Technology proudly announced the India's first Hypervelocity Expansion Tunnel Test Facility to be successfully established and tested by Indian Institute of Technology, Kanpur (IITK). This is a major achievement that puts India amongst a handful of countries with this advanced hypersonic testing capability. The facility is capable of generating flight speeds between 3-10 km/s, simulating the hypersonic condition. Named S2, it was indigenously designed and developed and is a valuable test facility for ongoing missions of ISRO and DRDO including Gaganyaan, RLV and hypersonic cruise missiles. The facility consists of 4 major sections--free piston driver, compression tube, shock /acceleration tube and test section with high vacuum system for generating and sustaining the hypersonic flow. Hypersonic research activities are fast growing in India and the implementation of Hypersonic Test Facility in India would enable more aerospace engineers and researchers to pursue hypersonic research.