RESEARCH SNAPSHOTs

Indian Institute of Technology Bombay
Basic Sciences

**Are we wasting heat?**
Study takes us a step closer to harvesting electricity from heat dissipated from electronic devices.

**Demystifying the mist**
Experimental evidence supports new theory to explain how liquid sheets turn to mist.

**Nanoparticles to ‘sniff’ cancer, explosives and more**
Researchers develop a system for fast and accurate detection of molecules.

**The desirable wrinkles**
Study shows how crystallisation can be used to shape materials.

**Attosecond laser pulses can distinguish right from the left**
A study to help determine properties of substances at the molecular level.

**Understanding the evolution of underground geysers**
Researchers find evidence of high potential geothermal systems existing on the west coast of Maharashtra.

**Unravelling the secret behind the identities of Chimera**
Undergraduate Student reveals the origin of the ‘chimera state’ in coupled oscillators.
Dumping the dump
Integrated waste management can reduce pollution caused by open dumping, says study

Force behind the changing Netravati
Urbanisation and agricultural intensification alter rainwater draining and soil movement, says a study

Reaping profits from microalgal biorefineries
Scientists assess the impact of market demand for coproducts and carbon capture on the profitability of microalgal biorefineries

Technology to tackle the toxic Arsenic
Researchers build low cost, easy to maintain arsenic filters for rural communities

There is more to pomegranate than just the juice!
Researchers propose an easy method to extract nutrient rich oil, protein and fibre from pomegranate seeds

Ecology & Environment
Energy & Climate

Cities punch holes in the blanket of fog
The persistence of fog over urban areas is suppressed due to increase in land surface temperature, reveals study

Climate change affects ports in India
Researchers use simulations to predict future shoreline changes in Paradip Port of Odisha, India

Dealing with cracks in India's solar dreams
Study finds factors responsible for degradation of photovoltaic modules

Ensuring enough electricity for all
Researcher surveys strategies for applying game theory to distribution of electricity

Fuel cell electricity from landfill waste
Power generation using landfill leachate can prevent pollution and serve as alternate source of electricity, say researchers

India’s Farmlands Vulnerable to Climate Change
The variability of monsoon rains due to climate change affects Marathwada and Vidarbha regions the most, says a district level study

Rueful rainfall linked to aerosols
Study finds that airborne pollutants affect the water available for agriculture

Will global warming affect wind energy generation?
A study predicts Indian offshore wind farms will benefit from rise in sea temperatures

Wise choice of battery now made easy
Researchers suggest a method for comparing battery systems as power backup in India

With air conditioners, energy efficiency is the star!
Indian consumers are willing to pay more for air conditioners with higher energy efficiency, says research
Combining forces to battle tuberculosis
Scientists show how using drugs in combination can help treating tuberculosis caused by drug resistant bacteria

Count your copper!
Researchers develop a handheld sensor to measure copper concentration in blood and environmental samples

Lost in transition
Urban-rural transition zones are a breeding ground for unexpected changes in resources and livelihood, shows study

Nanobubbles to aid drug delivery to tumours
Scientists develop a carrier that can deliver drugs more efficiently when triggered by ultrasound

Redesigning chawls to allow fresh air
Researchers study the effects of poor ventilation on occupants of low-income households

Sweet news for diabetics
Researchers create a polymer-based bioartificial implantable pancreas for producing insulin

Health & Livelihood
A new approach to classify urban coastal areas
Study proposes to account for ecological sensitivity to help developmental and planning authorities

Atomic hydrogen to help make graphene
Scientists devise a method to grow nanographene on copper using atomic hydrogen at lower temperatures

Crop planning using chaos
Adding chaos helps finding better solutions to multi-reservoir irrigation systems, says study

Cutting into titanium and its alloys
Researchers are working on methods to ease the machining of titanium through annealing

Driving and texting? Stop it, now!
Study reveals how detrimental the use of mobile phones is while driving in India

Going green by reclaiming green sand
Researchers develop a highly effective solution for recovering green sand in small and medium foundries

Losing the purpose of satellite towns
Satellite towns near Mumbai and Kolkata are ineffective in addressing the housing crisis, says study

Playing the shots right
Researchers design a badminton training system using wearable technology

Spintronics: using electron spin to power devices
Researchers demonstrate a method to turn heat into usable spin current

Thermal design for reusable hypersonic vehicles (RHV)
How basic academic research in the country can help in realizing the dream of designing a reusable hypersonic aircraft
Earthquake or a flood? Software comes to the rescue!
Researchers propose a system to enable faster search of satellite images to help in rescue operations.

Graphene for faster and compact electronics
Researchers fabricate highly efficient transistors using graphene nanoribbons.

Now, your computer can tell when you are being sarcastic too. Really!
Researchers survey different approaches to automatically detect sarcastic texts using computers.

Using the crowd to improve location accuracy
Researchers develop a mobile application for better positioning using data from neighbouring mobiles.

Wi-Fi or cellular data? Not your headache anymore!
Researchers propose algorithms for service providers to efficiently manage the choice of the right network for your mobile devices.

Information & Communication Technology
Awards

Drawing blood from veins may not hurt anymore
IIT Bombay student develops a device to locate veins before drawing blood

A window-mounted solar cooker
IIT Bombay student wins the Gandhian Young Technological Innovation (GYTI) Award for window-mounted solar cooker design

Now, your smartphone can help you detect a heart attack
Researchers have developed a new life-saving device that can detect heart attacks early on using a smartphone

Prof. Amit Agrawal awarded the Shanti Swarup Bhatnagar Prize
The award recognises his outstanding contributions to the area of Fluid Mechanics including experimental, theoretical and numerical work in Microfluidic Device

Prof. Chandra M. R. Volla wins the NASI Young Scientist Award
Prof. Chandra M. R. Volla won this award for his work on catalysis

Prof. Vikram Vishal wins NASI Young Scientist Award
Prof. Vikram Vishal won the award for his work on tapping shale gas in India

Prof. Ashwin Gumaste awarded the Shanti Swarup Bhatnagar Prize
Prof. Ashwin Gumaste, Department of Computer Science and Engineering has been awarded under Engineering discipline for the year 2018

AYUSH award for IIT Bombay Research Group
Research group recognised for their work that shows a scientific basis for homeopathic medicines and its connection to nanotechnology

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