

Newspaper Clips
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Hindustan Times ND 22/01/2015
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ONGC, IITs collaborate for bolstering Make in India campaign



Responding emphatically to Prime Minister Narendra Modi's 'Make in India' initiative, India's foremost energy major Oil and Natural Gas Corp Ltd (ONGC) and Pan-IIT entered into a Memorandum of Collaboration (MoC)

recently in New Delhi to work towards a collective R&D programme for developing indigenous technologies to enhance exploration and exploitation of hydrocarbons and alternate sources of energy.

Give report on vacant IIT seats: HC to HRD ministry

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New Delhi: A division bench of Delhi high court, headed by chief justice G Rohini, directed the HRD ministry on Wednesday to submit a status report about its directions last August on the issue of vacant seats in IITs. The ministry has been asked to file the status report before the next date of hearing on February 4.

While the HRD ministry and IITs have agreed for a common counseling for NITs and IITs for 2015-16 academic session, the Joint Admission Board (JAB) of IITs is not in favour of recommending conversion of SC/ST category vacant seats into general category on account of applicable rules and rulings by the Supreme Court. JAB had also not agreed for lateral entry from NITs and other engineering colleges into IITs in the second year on the ground that it may require another entrance test at the end of the first year, in addition to addressing the common first year curriculum, credit transfer, etc. which are in the purview of the individual senates of IITs. JAB felt that lateral transfer will have no material effect on reducing the vacancies as it only amounts to movement from one institute to another. This point was made in a report by the ministry but since it was not on affidavit, HC has asked for a status report. Last August, HC had told HRD to sort out the process for counseling for admissions to NITs and IITs and ensure the process is implemented for admissions from the academic year 2015-2016.

IISc: Repurposing existing drugs to fight TB

Small changes to the molecules can turn them into effective TB drugs

R. PRASAD

A proof-of-concept study has successfully identified two small molecules (imipramine and norclomipramine) that can arrest the growth of TB bacteria and hence have the potential to be used as anti-TB drugs once the chemical properties are altered to make it more effective.

Interestingly, one of the small molecules (imipramine) is already in clinical use as an antidepressant while other is a metabolite of antidepressant clomipramine. But, they have never been used as antibacterials.

The two small molecules work by targeting the Topoisomerase I enzyme of the TB bacteria. This enzyme is essential for controlling the coiling (winding) and uncoiling (unwinding) of the bacterial DNA. The results of the study were published recently in the journal *Antimicrobial Agents and Chemotherapy*.

"We have for the first time found the inhibitors that prevent the enzyme from functioning. The inhibition of the enzyme arrests the growth/division of the bacteria and eventually causes death," Prof. V. Nagaraja of the Department of Microbiology and Cell Biology, Indian Institute of Science (IISc), Bengaluru and the senior author of the paper told this Correspondent. He led the team that identified the inhibitors.

Though the two molecules inhibited cell growth by preventing DNA coiling, the potency was not high enough. "The inhibition is not as effective as drugs that are already being used as anti-TB



MISSION SUCCESS: Adwait Anand Godbole (foreground) and Wared Ahmed were part of the team that identified the inhibitors of Topoisomerase I enzyme.

— PHOTO: SPECIAL ARRANGEMENT

drugs," he said.

He has been working on this enzyme for a long time. This class of enzyme is found in all bacteria and even in higher organisms like mammals and humans. But human Topoisomerase I enzyme has properties and functions that are very different from that of bacteria. And inhibitors for human Topoisomerase I enzyme have already been identified and successfully 'exploited,' as in the case of cancer drugs. "But there has been no such progress in the case of bacteria, as inhibitors of bacterial Topoisomerase I enzyme were not identified so far," Prof. Nagaraja said.

Even in the case of bacterial Topoisomerase II enzyme, inhibitors have long been identified and clinically-

validated drugs such as ciprofloxacin and other members of the fluoroquinolones are widely in use today. Since the small molecules studied are being routinely used as antidepressants, it may not be possible to use them as anti-TB drugs in the current form.

However, small changes in the chemical entity of the molecules can change the properties and activities dramatically. "This has to be done in this case," he said. "The current study only highlights the potential of repurposing or redesigning existing drugs that are not antibacterials as anti-TB drugs."

As no X-ray crystal structure and, hence, atomic details of the enzyme is available, a 3D structure of the enzyme was modeled by

the co-author Dr. Sean Ekins of Collaborative Drug Discovery, a company based in California.

The molecules that can be likely candidates were first identified through virtual screening of many compound libraries. Further studies were then carried out in the laboratory of Prof. Nagaraja to find their inhibiting properties.

The identification of the two small molecules was part of the TB consortium project "More Medicine for TB's" (MM4TB) with the larger goal of screening small molecules as potential anti-TB drugs. The MM4TB is an international consortium that has been assembled by the EU to discover new treatment methods to combat TB.

Asian Age ND 22/01/2015

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Slew of MoUs to deepen educational partnership

NITIN MAHAJAN
NEW DELHI, JAN. 21

A partnership in the field of education is expected to be high on the agenda during the three-day trip of the US President Barack Obama to the country. With Prime Minister Narendra Modi already prioritising education sector and skill development, it is expected that the two nations may also sign a number of MoUs to deepen the partnership between the educational and technical institutions.

"The two leaders are expected to take up research and innovation

partnership, institutional partnership and skill development. The two may also discuss promotion of community colleges in India and technology-enabled education including massive open online courses," HRD ministry sources said.

India and the US may also take up linkage between the industry and the academia and faculty development. Indian students studying in the US number 1.34 lakh — the second largest population of foreign students after China.

They are also expected to take up issues like

post-doctoral research and co-operation in training for school teachers. MoUs between Indian and US higher education institutions are also likely to help enable open online course platform. The intended outcome also includes two-way students' mobility from India to the US and vice-versa. HRD Ministry and the US government had over the past several years discussing linkages and collaborations in the field of higher education. The educational relations between India and the US has intensified since Manmohan Singh visit to the US.

Student body to highlight placement issues at IIT-B

Hindustan Times (Mumbai)

MUMBAI: After the placement season at IIT-Bombay, there are rumblings among the students and the alumni criticising the process.

As students comprise a major chunk of the placement committee, students feel there could be a potential misuse of power.

The institute's student media body, Insight, has initiated a survey to find out the problems faced by students during the placement.

According to Chirag Chaddha, chief editor of Insight and a dual degree student at IIT-B, the survey seeks to explore only the potential abuse of power by students involved in the placement process.

“The placement committee has students and there are chances of conflict of interest. There is no concrete proof, but we are exploring the possibilities,” said Chaddha.

A survey form has been forwarded to more than 800 final year students who appeared for placement process in December last year. “The Insight team will analyse the data in the next 15 days,” said Chaddha.

Students in the placement committee having access to other students' job application forms and resumes are a major concern. The team has viewership and editing rights for resumes, statements of purpose and other application specifics with placement managers having the maximum access.

“The committee members have access to all our resumes and can edit them without anyone even noticing,” said a final year student.

There were complaints about resumes not reaching the right companies. This led to a lot of confusion and issues during interviews, students said. The complaints are not new.

In 2013, an article on placement committee gave solutions for making the process more transparent. Some of the suggestions were that the portal design should disallow viewership of all documents submitted by students and that resume verification be done offline.

The idea of an honour code, which must be signed by every team member of the placement office, was also floated. However, students said none of the suggestion has been followed.

The survey, however, has left students and professors involved in the placement drive disgruntled. “The placement process is extremely tough, competitive and requires meticulous detailing. The team is handpicked after exhaustive rounds of interviews and ethics remains the top most criteria for selection. The survey will only lead to negativity on campus,” said Moha Mehta, placement manager for BTech students.

Rs. 1,200 cr scheme, 5,000 students, but no DU seat

<http://www.hindustantimes.com/greatcareers/rs-1-200-cr-scheme-5-000-students-but-no-du-seat/article1-1309091.aspx>

Is the ministry of human resource development unaware of the plight of hundreds of talented students, many of them toppers, from Jammu and Kashmir (J&K), selected for the Prime Minister's Special Scholarship Scheme (PMSSS)? The students were promised admission in prestigious institutes around the country (see HT Education's story dated Nov 5, 2014) but when questioned in Parliament in the Lok Sabha in its last winter session as to why any scholarship-winning student had not been admitted to Delhi University (DU) colleges, the MHRD responded that it had no data.

Gopalakrishnan Chinnaraj, an AIADMK MP, had questioned Smriti Irani, HRD minister, in Parliament on DU colleges not admitting a single student under the PMSSS and wanted to know why this had not been done. The MHRD then sent a mail to the University Grants Commission (UGC) "to furnish the reply in soft copy to the ministry immediately." UGC wrote to the dean of colleges and registrar, DU, and all the affiliated DU colleges to "send the reply to MHRD directly through fax/email under the intimation of this office (UGC)."

<h3>PM'S SCHOLARSHIP SCHEME THAT NO ONE'S AWARE OF</h3>			
<p>5,000 students from Jammu & Kashmir were to be sent to other states over the next five years for higher studies in August 2011 under PMSSS. Students eligible for the scheme are those who have passed Class 12 from the J&K Board or an equivalent examination</p>	<p>4,500 scholarships are for general degree courses, 250 for engineering and 250 for medical studies. The income-ceiling to avail the scheme is ₹4.5 lakh per annum</p>	<p>51 students were issued provisional admission certificates for 41 Delhi University colleges. However, No student was admitted to any DU college</p>	
<p>₹1,200 CR was the total cost of the scheme with each candidate's yearly expenditure being: ₹1.3 lakh for general degree, ₹2.25 lakh for engineering course, ₹4 lakh for medical studies</p>	<p>4,000 students were admitted in 2013, majority to private universities which wooed the students allegedly to access the government grant</p>	<p>2014 was the year when AICTE restricted two admissions to one college. AICTE held counseling in September 2014 and granted provisional admission certificates to 2102 students</p>	<p>■ HT Education had carried a story on November 5, 2014 highlighting the plight of the students selected for the Prime Minister's Special Scholarship Scheme</p>
<p>➤ THE SCHEME IS FOR WEAKER SECTIONS. HOWEVER, EACH STUDENT, WHO WENT TO DELHI, SPENT ABOUT ₹50,000 TO MEET VARIOUS EXPENSES</p> <p>KANCHAN BALA, student, jammu</p>		<p>➤ THE UNIVERSITY OF DELHI HAS REPORTED THAT THE PRIME MINISTER'S SPECIAL SCHOLARSHIP SCHEME HAS NOT BEEN DEALT BY THE UNIVERSITY. HOWEVER, COLLEGE RELATED INFORMATION, IF ANY, IS NOT AVAILABLE/MAINTAINED IN A CONSOLIDATED MANNER BY THE UNIVERSITY</p> <p>SMRITI IRANI, hrd minister</p>	

Irani's response in Parliament to Chinnaraj's question finally was that "the University of Delhi has reported that the Prime Minister's special scholarship scheme has not been dealt by the University. However, college related information, if any, is not available/maintained in a consolidated manner by the University."

A UGC source told this correspondent, "41 DU colleges, asked by UGC to furnish information on PMSSS admissions, informed the MHRD, UGC and DU that they had not admitted any such student. A majority of colleges wrote that they were not aware of any such scheme."

“It would have been embarrassing for the HRD minister to admit in Parliament that PMSSS had not been implemented in DU colleges even though it runs under the aegis of the Prime Minister of India and is supervised by an inter-ministerial committee chaired by secretary, higher education, with top representatives of various other ministries. So the minister (HRD) said that the ministry did not have the ‘complete data’,” adds the source.

AICTE, the PMSSS implementing body, has confirmed that no DU college has reported to it for any grants against the admission of J-K students, which itself indicates that no college has admitted any scholarship winner from J-K.

“AICTE wrote several times to the UGC asking for help to get the students admitted to various colleges. Even Jaspal Singh Sandhu, secretary, UGC, wrote quite a few times to the vice chancellor, Delhi University, requesting him to look into the matter but there was no response. Till today, DU has not issued any direction to any college about the matter. Colleges affiliated to DU only take instructions from the University,” says a DU college principal.

Major changes were incorporated in PMSSS, which was launched in 2011, after AICTE realised that private universities were, out of greed, luring hundreds of J-K students to access as much of the government’s grant as possible. So, in September 2014, AICTE held counselling sessions and allotted colleges to students.

AICTE issued letters to the students asking them to join colleges they were qualified to join. DU institutes, which were not under AICTE regulatory purview, however, refused to admit the students and they had to make innumerable rounds of the colleges, and offices of the DU VC, UGC, AICTE and MHRD – but they were all turned away.

College allocated but seat not given

KEEP OUT J&K students counselled by AICTE to join these DU colleges were not admitted

College	Students	Status
Acharya Narendra Dev College	Shafqat Mehraj Shah	No Admission
Aditi Mahavidyalaya	Khawaja Imran Ali	No Admission
Atma Ram Sanatan Dharma College	Fayaz Ahmed	No Admission
Bhaskaracharya College of Applied Sciences	Jasmeet Kaur	No Admission
Bhim Rao Ambedkar College	Umesh Banal	No Admission
Daulat Ram College	Anmol Lekha	No Admission
Deen Dayal Upadhyaya College	Munaza Manzoor	No Admission
Delhi College of Arts and Commerce	Ubaid Ahmad Peer	No Admission
Delhi Institute of Pharmaceutical Sciences and Research	Raqiya Tawfeeq	No Admission
Delhi Institute of Pharmaceutical Sciences and Research	Sahil Rashid	No Admission
Deshbandhu College	Surekha Badyal	No Admission
Deshbandhu College	Asma Jabeen Chonjor	No Admission
Gargi College	Mehak Mahajan	No Admission
Hansraj College	Shobhit Prasher	No Admission
Hindu College	Vanshika Fotedar	No Admission
Indraprastha College	Irtiza Javid	No Admission
Institute of Home Economics	Bisma Mushtaq	No Admission
Janki Devi Memorial College	Zahid Gowher	No Admission
Jesus & Mary College	Supreet Kaur Bali	No admission
Kalindi College	Sonam Sharma	No Admission
Kamala Nehru College	Avantika Dutta	No Admission
Keshav Mahavidyalaya	Syed Gufran Ahmad Byhaqui	No Admission
Kirori Mal College	Azhar Javed	No admission

College	Students	Status
LSR College For Women	Ifra Javeed	No Admission
Maharaja Agarsen College	Lokita Sharma	No Admission
Maitreyi College	Priya Chib	No Admission
Miranda House	Mehak Mubeen Parrey	No Admission
Miranda House	Mousmi Banotra	No Admission
Moti Lal Nehru College	Diksha Verma	No Admission
Raj Kumari Amrit Kaur College of Nursing	Bisma Jan Mir	No Admission
Raj Kumari Amrit Kaur College of Nursing	Meena Kumari	No Admission
Rajdhani College	Nikita Jamwal	No Admission
Ramjas College	Shreya Abrol	No Admission
SGTB Khalsa College	Shamsul Haq	No Admission
Shivaji College	Navin Kaur	No Admission
Shri Aurobindo College	Sahil Mathur	No Admission
Shri Aurobindo College	Shahid Farooq	No Admission
Shri Aurobindo College	Kirandeep Kaur Sethi	No Admission
Shyam Lal College	Muzaffar Ahmed	No Admission
Shyama Prasad Mukherjee College	Ubaid Fayaz Wani	No Admission
Sri Guru Gobind Singh College of Commerce	Zahil Ali Sheikh	No Admission
SRCC	Sunil Kumar	No Admission
Sri Venkateswara	Akash Verma	No Admission
Sri Venkateswara	Kanchan Bala	No Admission
St. Stephen's College	Khan Junaid Ul Islam	No Admission
St. Stephen's College	Zuhaib Jalil Jalil	No Admission
St. Stephen's College	Shabir Ahmad Shah	No Admission
S Shradhdhanand College	Afeefa Majeed Ganai	No Admission
UCMS	Bhat Ab Ubran Bin	No Admission
UCMS	Arifa Hakim Hakim	No Admission
Zakir Husain College	Jahangir Nazir Khan	No Admission

Computer spoilt students' research capabilities, expert says

[M Ramya](#),TNN | Jan 21, 2015, 02.22 PM IST

CHENNAI: Former deputy director of Indian Institute of Science (IISc, Bangalore) A Sridharan on Wednesday called upon students to spend more time in labs than in front of computers.

Speaking as the chief guest at the sixth International Geotechnical Symposium at IIT-Madras, Sridharan said students should at least know the qualitative behaviour of the materials they are working on.

"You [students] should at least know the qualitative behaviour of soil and other materials. For that lab work must continue. Otherwise, you will be spending time on parametric computer generated figures without knowing their properties," he said.

"In some ways, the computer has spoilt our research capabilities. I don't say you should not spend time before computers. But you should spend only around 20% of your time in front of computers," he said.

Dean of academic courses at IIT-Madras K Ramamurthy inaugurated the symposium, which is organized by IIT-M in partnership with the Indian Geotechnical Society. The theme of the two-day event is 'Disaster Mitigation in Special Geoenvironmental Conditions.'

A talk on geotechnical hazards evaluation for the nuclear power plant in Japan by Makato Takao of the Tokyo Electric Power Company is one of the highlights of the event.

The symposium will also have a special session on landslides where leading experts from various countries will present their research outcomes and case studies.

HRD Minister to launch online programmes by IIM, IITs from 2015

<http://www.prepsure.com/news/hrd-minister-to-launch-online-programmes-by-iim-iits-from-2015/>

The Human Resource Development (HRD) Minister Ms Smriti Irani, will launch online free programmes through Indian Institutes of Management (IIMs) and the Indian Institutes of Technology (IITs) in 2015.

Candidates will receive online lectures from IIT and IIM professors with the charge of minimal fee for certification of the online programmes. For SC, ST and challenged candidates the programme would be offered absolutely free of cost.

The IITs and [IIMs](#) are planning to launch the Massive Open Online Courses (MOOCs) soon with the support of government's Swayam Bharat program.

During the budget, Rs 100 crore was allotted for the online education for MOOCs as well as virtual classrooms. Several IITs and IIMs are collaborating with international institutes, government as well as the HRD ministry to deliver MOOCs.

In the year 2013, IIT-B had collaborated with Massachusetts Institute of Technology (MIT) and Harvard to launch Massive Open Online Courses (MOOCs).

[IIT Bombay](#) has developed and deployed training programs, engaging thousands of participants at a time using Information and Communication Technologies.

First nuclear bomb set off the Anthropocene

DIVYA GANDHI

When, precisely, did the 12,000-year-old, Holocene epoch transition into the Anthropocene, an epoch of catastrophic human-led change that threatens Earth's future?

Did it begin several millennia ago with agriculture and altered carbon dioxide levels? Was it spurred by the Industrial Revolution in the early 1800s with the increasing use of fossil fuels?

Now, two recent scientific papers say the Anthropocene could be pinned down to a precise moment on 16, July 1945, the day the world's first nuclear bomb exploded in Alamogordo, New Mexico.

The atomic bomb represents an instantaneous shift into another geological epoch, much the way the Cretaceous-Paleogene boundary is placed at the moment a meteorite impacted the Yucatan Peninsula (triggering, among other changes, the extinction of dinosaurs 66 million years ago), says a paper in the latest edition of journal *Quaternary International*.

The Alamogordo explosion, followed soon by the Hiroshima and Nagasaki bombs in August 1945 and other bombs "detonated at the average rate of one every 9.6 days until 1988" produced markers across the globe in the form of radio-nuclides, found in all continents and in polar ice on both poles.

Physical and chemical markers — especially in deposits in rock strata and their fossil contents — are vital tools in defining epochal boundaries as they signal substantial changes in the Earth system.

The Alamogordo explosion also signalled the beginning of the "Great Acceleration," the phase of massive economic growth and environmental changes post World War II, also associated widely with the beginning of the

Anthropocene.

In another paper in *Anthropocene Review* scientists describe unprecedented global shifts that the mid-20th century Great Acceleration spurred: global average surface temperature increased by nearly 0.9°C; atmospheric concentrations of the three greenhouse gases — carbon dioxide, nitrous oxide and methane — reached levels well above the maximum observed at any time during the preceding Holocene; and biodiversity loss may be approaching mass extinction rates.

The first atomic bomb "provide a unique signal of the start of the Great Acceleration" with the release of radioactive isotopes that spread worldwide and entered the sedimentary record, says the paper. "In little over two generations — or a single lifetime — humanity... has become a planetary-scale geological force," says the paper.

A third paper in *Science* that coincided with these studies, says that in this phase, the Earth crossed four out of nine "planetary boundaries": climate change, loss of biosphere integrity, land-system change, altered biogeochemical cycles (phosphorus and nitrogen).

"These transgressions mean that the risk of destabilising the global environment is increasing with obvious risks for human well-being," Will Steffen, professor at the Stockholm Resilience Centre, Stockholm University and the lead author of the second two papers said in an email to this Correspondent.

"We need new technologies to de-couple economic growth from environmental impact. And we need to solve global equity issues, stabilising or reducing consumption in the wealthy countries to allow further development elsewhere to bring people out of poverty," he noted.

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Google funds US firm to 'take internet into space'

Reuters

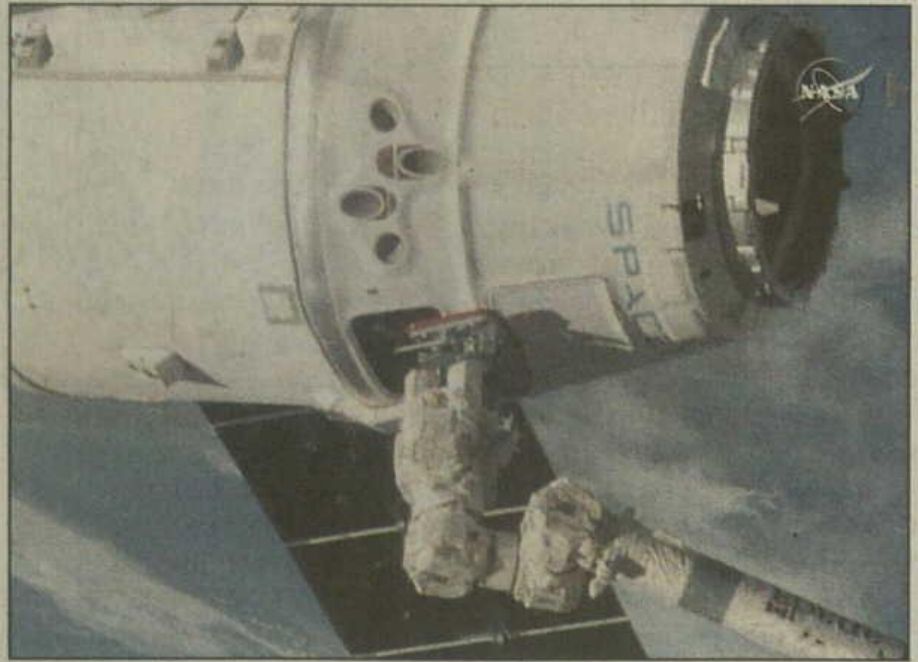
With Fidelity, Pumps In \$1bn Into SpaceX

Quentin Hardy &
Conor Dougherty

San Francisco: Google likes its ambitions sky high. This time, it has gone a little further. The internet giant, along with Fidelity, has invested \$1 billion in Space Exploration Technologies (SpaceX), the private rocketry company founded by Elon Musk.

The move could help Google achieve its aim of bringing satellite internet to remote corners of the world while giving SpaceX more money for its founder to pursue dreams of going to Mars.

In addition to a payoff on its investment, Google may be seeking to put itself into orbit. Last year, Google bought Skybox Imaging, a maker of small, high-resolution imaging satellites, for



A file photo of the SpaceX Dragon spacecraft

about \$500 million. Google already offers satellite imagery in its Google Earth product, but must purchase these images from multiple sources, often receiving what company executives have said is uneven image quality.

Google may also be interested in developing satellites with other kinds of sensors, like infrared detectors that show the health of crops, or lasers that can pierce forest canopies to

show underlying terrain.

Google and Fidelity will together own 10% of SpaceX because of the investment, SpaceX said in a statement. "Space-based applications like imaging satellites can help people more easily access important information, so we're excited to support SpaceX's growth as it develops new launch technologies," Don Harrison, Google corporate development vice president, said. NYT NEWS SERVICE

Hindu ND 22.01.15 P-16

Why stars feast and fast partly resolved

SHUBASHREE DESIKAN

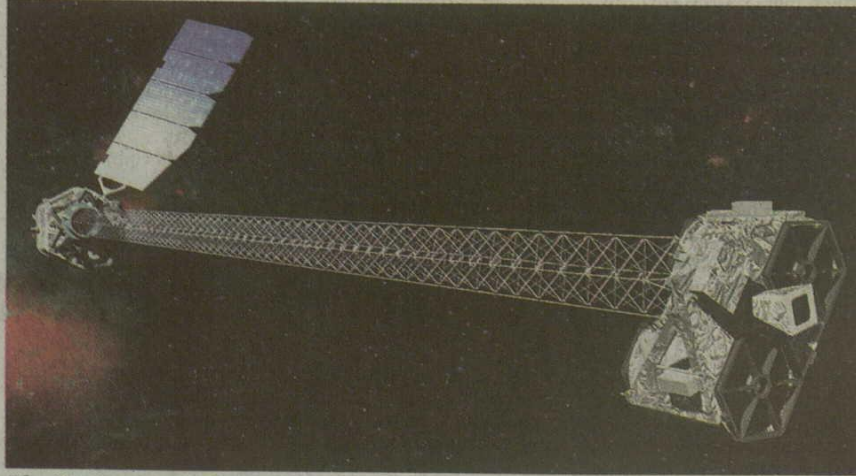
Supergiant fast x-ray transients (SGXT) are in the news. SGXT is the name for a certain type of binary star — a pair of stars revolving around each other.

To be specific, they are a pair in which one partner is a big bright star and the other is a highly condensed dark companion — a black hole or a neutron star — which attracts mass from the bright star.

As the material spirals into the dark star, it emits x-rays. Hence, it appears to the on-looker that they are shining brightly in x-rays.

Suddenly, without warning, the pair dims to a fraction of its brightness within minutes. This behaviour of shining and dimming, called “fasting” and “feasting” has puzzled astronomers for a decade now.

This puzzle has now been partly resolved by means of a breakthrough, thanks to the work of an international team led by Varun Bhalerao of the Inter University Centre for Astronomy and Astrophysics, Pune. The results were published recently in the journal *Monthly Notices of the Royal Astronomical Society*.



The NuStar team observed the magnetic field of the dark companion of the binary and actually measured it, finding it to be too weak for the damming mechanism to work. — PHOTO: AFP

There were several competing theories as to why the fasting and feasting behaviour happens. One is that the large star gives out a clumpy wind, and when this wind hits the dense star, it would glow.

The other theory is that the dense star has a high magnetic field and this served as a barrier that would dam the wind until the pressure built up and broke the “dam” and the matter carried by the wind would suddenly fall into

the compact star, causing a glow.

Varun Bhalerao’s team observed the magnetic field of the dark companion and actually measured it, finding it to be too weak for the damming mechanism to work. “We knew that the key to the puzzle was to measure the neutron star’s magnetic field,” he says.

Dr. Bhalerao’s team observed the binary using a space x-ray telescope known

as NuStar, a NASA space mission. It is the first x-ray space telescope that can focus on very high energy x-rays.

NuSTAR is used to study the most extreme environments in the universe, which emit x-rays.

“The x-rays that NuSTAR is sensitive to are similar to the x-rays used in hospitals for diagnoses. Astronomers call them ‘Hard x-rays’. During my Ph.D at Caltech [California Institute of

Technology], I was part of the team that built NuSTAR’s detectors,” he says.

The actual star-pair they observed, IGR J17544-2619, is an example of such an SGXT. It is a binary located about 12,000 light years away from the earth. It contains a supergiant star, about 25 times as massive as our Sun, and a compressed dead partner, about twice as massive as the Sun but compressed to a diameter of just about 30 km. The stars orbit around each other in 4.9 days.

The binary shines in x-rays and over a period of months can sporadically become bright or faint. The brightest known state was about one lakh times brighter than the dim state.

The discovery of the mechanism of fasting and feasting process is the breakthrough that many were looking forward to and has given important inputs for further theoretical understanding of these binaries. Says Dr Bhalerao: “This allows us to better understand how massive stars form, to study how binaries evolve and to calculate details of supernova explosions, where a neutron star is born in the death of a massive star.”

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Deadly TB strains emerged in Asia over 6,000 years ago

In a path-breaking find, an evolutionary geneticist from the National Museum of Natural History in Paris has decoded the tuberculosis (TB) genome, suggesting that a pernicious family of the strain emerged in Asia over 6,000 years ago.

The study of nearly 5,000 samples of *Mycobacterium tuberculosis* from around the world showed how a lineage of the bacterium that emerged thousands of years ago in China has since become a global killer, widely resistant to antibiotic drugs, the *Nature Genetics* reported.

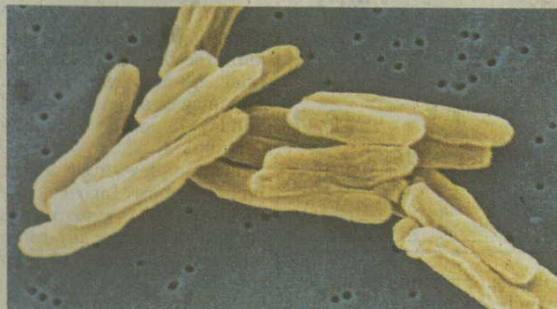
The evolutionary geneticist Thierry Wirth and his team analysed 4,987 samples of the “Beijing lineage” from

99 countries, fully sequencing the genomes of 110 of them and more limited stretches of DNA in the rest.

The researchers then used the information to date the expansion of the lineage and show how the strains are related.

“Consistent with its name, the “Beijing lineage” did emerge near north-eastern China. And it did so around 6,600 years ago which coincides with archaeological evidence for the beginnings of rice farming in China’s upper Yangtze river valley,” Wirth noted.

Although *M. tuberculosis*, probably, first emerged some 40,000 years ago in Africa, the disease did not take hold until humans took to farming



The “Beijing lineage” of TB bacteria did emerge near north-eastern China. — PHOTO: AP

with the consequent settling down.

“The grouping of people in settlements made it easier for the respiratory pathogen to spread from person to person,” Wirth pointed out.

Of all the *M. bacterium* strains circulating today, few strike more fear in public-health officials than the Beijing lineage.

First identified in greater Beijing in the mid-1990s, this

lineage now circulates throughout the world and many strains are resistant to drugs that vanquish other types of TB. The increasing availability of antibiotics in the 1960s, meanwhile, coincides with a fall in the numbers of the bacterium.

The lineage rebounded, however, in the late 1980s and early 1990s.

Since it emerged, the “Beijing lineage” has become much more infectious, Wirth says, so it out-competes other strains of the bacterium.

His team identified mutations related to antibiotic resistance, metabolism and evasion of immune responses that may have contributed to the success of the “Beijing lineage”. — IANS

IIT-M students unhappy with CCTV cameras

<http://www.thehindu.com/news/cities/chennai/iitm-students-unhappy-with-cctv-cameras/article6810122.ece>

Allege invasion of privacy in hostels after classes; officials cite security reasons

Indian Institute of Technology-Madras (IIT-M) has started installing closed circuit television (CCTV) cameras in its hostels and premises.

On Wednesday, they began with Sharavati Hostel. IIT-M officials have said the CCTV cameras will be installed in public spaces and the feed will be accessed by the security officer in his office.

The move has not gone down well with a group of students who have written to the authorities fearing invasion of privacy.

Sources said the students and hostel wardens were notified of the CCTV installation through a mail on Tuesday. Some of the cameras have come up right outside rooms in the hostel corridors.

According to Sivakumar Srinivasan, dean of students, the decision to install the cameras has been taken with the consent of hostel wardens and the student body general secretary.

“It is about security and not moral policing. We will post instructions on surveillance. The records will be with the security officers and used if necessary,” he said.

Director Bhaskar Ramamoorthi said the move is in the wake of repeated complaints of thefts.

“Students leave the doors to their rooms open and then complain bitterly of theft when their laptops and mobile phones go missing. We are installing a minimum number of cameras as of now,” he said.

However, a few students and professors, requesting anonymity, said there was much opposition to the CCTV idea when it was first mooted last year.

“When the CCTV issue came up at a meeting last year, a sizeable number of students opposed it, as they did not want constant monitoring of what they were doing in the hostels. The rooms are supposed to provide privacy, as a living quarter, after classes. But this time, the mail came suddenly and now, the cameras have been installed,” a source said.

At a meeting of the student body on Wednesday, a number of students voiced their opposition to installing the cameras.

IIT-M officials said further discussions will be held with students to reassure them there will be no infringement of their privacy.