

Newspaper Clips

April 21-25, 2017

April 25

IIT-Delhi develops cheapest microscope to show blood cells in 3 dimension

<http://www.deccanherald.com/content/608041/iit-delhi-develops-cheapest-microscope.html>



The Digital Holographic Microscope (DHM) has been developed by Professors Kedar Khare and Joby Joseph from Department of Physics at IIT-Delhi and is being commercialized by Holmarc Opto-Mechatronics Pvt. Ltd. based in Kochi.

The Indian Institute of Technology (IIT), Delhi, has developed world's cheapest microscope which can show images of the cells in three dimensions.

One of the potential applications of this microscope is that it can and also help detect cancer “at a very early stage.”

The Digital Holographic Microscope (DHM) has been developed by Professors Kedar Khare and Joby Joseph from Department of Physics at IIT-Delhi and is being commercialized by Holmarc Opto-Mechatronics Pvt. Ltd. based in Kochi.

An independent scientist Sarita Ahlawat, who is a PhD in Microbiology from the University of Illinois at Chicago (UIC) is developing bio-medical applications of this microscope with the help of clinicians from the All India Institute of Medical Sciences (AIIMS), Delhi.

“Most of the microscopes used in the current biomedical laboratories require staining or labelling of the cells thus potentially damaging them. With the use of DHM, cells can be seen in three dimensions with high accuracy. No other equipment available in the world can match its performance,” Khare told DH.

When light waves interact with transparent label-free cells they are not absorbed but get a phase imprint. The phase of light waves cannot be measured directly but can be recovered using the principle of interference.

“A few years ago, our research work at the IIT-Delhi on interferometric phase measurement led to a novel methodology that can break the traditional limit on single shot resolution and noise performance of interferometric imagers,”

With the application of this methodology, the DHM has been developed.

“This has made our equipment not only very precise in showing results but also highly cost effective. While microscope of this specification may cost at least Rs 1 crore European companies, our DHM would cost between Rs 10 lakh to 15 lakh. Moreover, the performance of the microscope available will be from competitors is poorer than that of our DHM,” Khare said.

Ahlawat said that the equipment can be used in early detection of cancer or assessment of blood quality.

“Currently, there is no equipment available in the world which can detect cancer at an early stage,” she added.

To make the DHM market-ready for its use in patho-labs, Ahlawat said, the device has to be fed with adequate size of data on cancer patients.

“We have collected data of some 100 patients so far,” she added.

These are IIT Delhi's Star Entrepreneurs

<http://bwdisrupt.businessworld.in/article/These-are-IIT-Delhi-s-Star-Entrepreneurs/24-04-2017-116913/>

Isn't there anything IIT-ians can't do? These budding entrepreneurs just got prizes worth a million dollars



It indeed takes a build what you dream, and IIT Delhi believes in rewarding those risk takers.

Building India Inc is an annual flagship event by Department of Management Studies (DMS) at IIT Delhi. The business plan competition at Building India is called Aarambh.

Some of the prizes at Aarambh were AWS credits to top 21 finalists; mentorship by IIT mentors to the top 6 finalists; benefits worth a million dollars from F6S alpha card to the winning team; cash prizes worth 50,000 to the winning and runners up team and coworking space opportunity from 91springboard.

The winning team – the smart textile makers

Yatee Gupta and Abhishek Sahgal are cofounders of SmarTees Innovations, The winner of this year's Aarambh. This is what Yatee said when we caught up with him.

“Our Team is "SmarTees Innovations". The team currently consists of 6 members with founders from IIT Delhi working for the last 1.5 years on developing a high-end product with a unique amalgamation of technology and art.

We are a manufacturer of smart textiles in India. Our aim is to rejuvenate the textile industry of India by incorporating

the cutting edge technologies with the contemporary knowledge and create huge employment opportunities.

We are quite excited to win this prestigious competition. Getting recognition, mentorship and credibility from a reputed management institute like DMS is truly encouraging. In the entrepreneurship journey, it feels incredible to see support from people who also share the same vision and dream like us.”

Only the top six finalists presented their business plans at Aarambh held at IIT Delhi over the Easter weekend. The runner up was a team called Torch – It.

The deserving participants even attracted interest from VCs and angels on Aarambh’s judges’ panel.

Dipika Agarwal an organizer of Building India Inc., said Aarambh is about recognizing the individuals who have the drive to innovate, experiment, lead and inspire. The budding entrepreneurs, those who believe in contributing towards the Indian economy.

New and impacting business ideas are an impetus to a growing country marred by economic slowdowns. These ideas become more imperative for a developing country, like India. Where there are challenges, lie opportunities. It takes a lot to build what you dream.

'IIT Ropar to get new campus by 2019'

<http://timesofindia.indiatimes.com/city/chandigarh/iit-ropar-to-get-new-campus-by-2019/articleshow/58354862.cms>

CHANDIGARH: Starting from a scratch to a Rs 1,700-crore campus, the IIT Ropar has come out of its incubation and is all set to lay out technological advancement for the state, institute's director Prof Sarit K Das tells Manish Sirhindi.

IT Ropar started functioning from a transit campus eight years back, how far the institute has come and what is your vision for it?

The first session of IIT Ropar started on the campus of IIT Delhi. All eight new IITs that were set up in 2008 had been allocated Rs 760 crore each for developing infrastructure. In the first six years of its existence, IIT Ropar could only spend Rs 294 crore even though it had Rs 760 crore. It took more than two and a half years to appoint architects and start construction of a new campus, which is spread over 500 acres, on the outskirts of the town. We lost a lot of time. When I came here two years back, it was a do-or-die situation. I took the bull by the horn. I have set the target of shifting the institute to the new campus and we are going to meet that deadline.

The classes for the first session were held at IIT Delhi in 2008. When do you plan to shift to the new campus?

We are going to shift to the new campus in 2019. Work is going on at full swing on the banks of the Satluj, where the campus is coming up at a pristine location. Ropar IIT has been allocated Rs 1,668 crore, which is to be spent by March 31, 2019.

There is a proposal to increase the student strength to 2,500 in next two years. How do you plan to do that?

As of today, we have 800 students in various courses. This number is going up in the next session. IIT Ropar has been allocated maximum number of seats from the JEE for the 2017-18 session. Come July, we will have more than 1,200 students studying here. We put in place a systematically plan to take the number to 2,500 by March 2019. We are adding two new departments to the institute and subsequently the number of students would also increase.

What are the key areas that you are focusing on in terms of research and development of technologies?

In case of IIT Ropar, we are concentrating on water resources management and cancer research, which are two very important issues for Punjab. Besides, we are also working on to improve local power grids.

The institute was picked up as Technologically Business Incubation Unit (TBIU). What is it about?

The institute was picked up as TBIU, under which we are going to pass on the technological advancements to the local manufactures and support their start-ups.

What about the faculty? Are you able to attract the kind of talent which is of the level of IITs?

As of today the institute has around 65 faculty members, which is all set to go up to 230-250 if we want to have a 2,500-plus student in the next two years. We decided to recruit retiring professors from other top IITs of the country. IPS officer S K Asthana has made a strong comeback with additional charges of IG (modernization) and IG (IT&T).

April 24

Soon JEE Advanced test will be possible over mobile phone; click here to know more

<http://www.newsnation.in/education/higher-studies/soon-jee-advanced-test-will-be-possible-over-mobile-phone-click-here-to-know-more-article-169351.html>

Over 1.3 million students take the JEE Mains test Exam every year out of which less than 10% digitally at present. Of these, two lakh qualify to take the advanced test.



To get into country's premier Indian Institute of Technology (IIT) a committee has suggested the JEE Advanced test (Final round) to be conducted through mobile phones.

The proposal of conducting the gruelling round came up to reform the Advanced test round. In a recent meeting of the Joint Admission Board (JAB) and will now this suggestion will be taken up by the IIT Council (The Apex decision-making body).

Aspiring engineering students need to clear the JEE Mains exam before qualifying for the JEE Advanced. According to the official the JEE Advanced test is suggested to be introduced so that the interest of marking logistics and evaluation becomes easier.

According to a senior official, the suggestion also included the formation of a panel to focus on the development and testing of the online platform for JEE Advanced before it is adopted. "There are many issues that have to be looked into before implementing it," said the official, who is a member of the committee."

Over 1.3 million students take the JEE Mains test Exam every year out of which less than 10% digitally at present. Of these, two lakh qualify to take the Advanced test.

The issues also include lack of computer awareness in candidates hailing from impoverished or rural backgrounds. The report also recommends computer-adaptive tests, which change the difficulty level based on the examinee's ability.

Ashwagandha may be drug candidate to treat aggressive cancer

<http://economictimes.indiatimes.com/news/science/ashwagandha-may-be-drug-candidate-to-treat-aggressive-cancer/printarticle/58339333.cms>



The research groups from IIT Delhi and AIST, Japan have been working together in collaboration on natural drugs for more than 7 years now.

Latest research conducted by scientists at IIT Delhi and Japan indicates that Ashwagandha (or *Withania somnifera* - an Ayurvedic herb) can be a potential drug candidate for treating an aggressive form of cancer.

A number of studies in the recent past suggested that Withanolides, Withaferin-A and Withanone, have multi-modal anticancer activities, according to a release issued by IIT Delhi.

Department of Biotechnology, India, National Institute of Advanced Industrial Science & Technology (AIST, Japan), International Laboratory for Advanced Biomedicine (DAILAB) led by IIT Delhi's Professor D. Sundar and Biomedical Research Institute, AIST's researchers-Renu Wadhwa and Sunil Kaul have together conducted this study.

"We jointly investigated the effect of Withaferin-A on isogenic telomerase positive and ALT cells and found that Wi-A caused inhibition of ALT mechanism. Utilizing bioinformatics and experimental assays, we found that it causes strong telomere dysfunction and upregulation of DNA damage response in ALT cells suggesting that Wi-A is a new candidate drug for ALT cancers," said Sundar.

Sundar, the coordinator of DAILAB at IIT Delhi and other authors recommend in the study, "While effective chemotherapeutic drugs for ALT cancers are yet awaited, bioactives from Ashwagandha leaf powder offer candidates for further research and development of new drugs for cancer treatment."

The research groups from IIT Delhi and AIST, Japan have been working together in collaboration on natural drugs for more than 7 years now. The agreement for collaboration for academic cooperation between IIT Delhi and AIST had

provided an opportunity for IITD faculty and AIST scientists to bring complementary expertise and innovative problem solving capabilities by leveraging the infrastructure/expertise at both the institutions.

IITs may expand courses in aerospace engineering

<http://www.dnaindia.com/academy/report-iits-may-expand-courses-in-aerospace-engineering-2413486>



Interest in aerospace has increased because it provides a multi-disciplinary approach

Aerospace engineering as a career option has seen an increased interest from students with a technical background. Sensing this demand, the Indian Institutes of Technology (IITs) plan to expand in the field.

Currently, there are only over 200 seats for aerospace engineering, which is an option available only in four IITs across India. However, the premier institute plans to increase the number sensing a keen interest from students. Aerospace engineering is currently available in IIT Kharagpur, IIT Madras, IIT Kanpur and IIT Bombay.

According to IIT faculty, interest in aerospace has increased because it provides a multi-disciplinary approach to students. "It allows for systematic thinking," says Dr PVM Rao, Head, central workshop and IDD centre, IIT Delhi. "The aerospace sector has seen an increased demand for qualified engineering talent in the past few years," he said.

"The best thing about a career in aviation is that students from diverse streams like Chemical, Mechanical, IT have a chance. Because there are many things that go into making of aeroplane and then into its maintenance," said Professor Rao.

Students showed their interest at the recently held finals of the aero-modelling competition — Boeing -- IIT National Aeromodelling Competition at IIT-Delhi. About 800 students from 300 engineering colleges across the country participated in the event, of which 28 made it to the finals held on Saturday. The three winners will get a first-hand experience of the aviation industry.

"The number of students who participate and the sheer talent on display is testimony to the immense potential of India's engineering sector. Initiatives like these will help shape the coming generations to be the innovators, who drive India's aerospace industry," said Pratyush Kumar, president, Boeing India.

Talking about how competition provides practical experience to students, Professor Rao said, "Platforms like these will motivate students to explore avenues of innovation."

IIT Madras and Harita Seating Systems launch 'Intelliseat' to curb road accidents caused by driver fatigue

<http://www.enaindia.in/news/newsdetails/category/technical/iit-madras-and-harita-seating-systems-launch-intelliseat-to-curb-road-accidents-caused-by-driver-fatigue>



IIT Madras and Harita Seating Systems launch 'Intelliseat' to curb road accidents caused by driver fatigue

IIT-M and Harita Seating Systems Limited (HSSL) have joined hands to curb road accidents by collaboratively developing viable and cost effective products to enhance road safety using the technology and knowhow developed by the Rehabilitation Bioengineering Group, Department of Engineering Design, IIT Madras. First of the products in this initiative, Intelliseat™ has been developed and is being launched on this occasion for commercial use.

According to National Crime Research Bureau (NCRB, 2016) report, there were about 4,64,674 cases of road accidents reported in India in 2015. Quite high considering the wide roads in many of the cities across the country. Of these, 4,82,389 persons suffered injuries and 1,48,797 deaths were reported. Deaths, due to road accidents, had increased by about 5.1% over the preceding year.

The conclusion of a report by the Union Ministry of Road Transport and Highways (MoRTH, 2016) shows that more than 40% of such deaths occurred due to human error or driver fatigue. Majority of the road accidents which amounts to 53.2% have taken place on National and State highways.

Dr. Darez Ahmed, IAS, MD, National Health Mission, Tamil Nadu, while addressing the gathering at the institute said, “We need to work together and address a key sustainable development goal of 50% reduction in trauma deaths by 2020, which is a task that can be achieved only by joint effort. Leveraging technology to tackle a big problem of ‘driver error’ leading to accidents is a welcome step.”

Driver fatigue can be described as decline in driver’s performance. A driver’s performance and behavior is greatly influenced by physical and perceptive factors. Its involvement in individual cases is hard to measure post-facto and therefore is often difficult to determine the cause of accident. Consequently, it is important to know about driver’s behavior, fatigue, and performance to give appropriate interventions to avoid road accidents.

Intelliseat™ is an IoT (Internet of things) device that monitors the driver 24×7 and is confined within the existing footprint of regular seats. This system operates independently and can be used for in-vehicle information of status as well as help a central tracking by fleet owners. It can also be used for driver training and fleet risk evaluation, which would eventually have a bearing on the overall fleet insurance and ownership cost. Highlighting the significance of the product, Prof. Venkatesh Balasubramanian, Department of Engineering Design, IIT Madras said, “In this endeavor with HSSL, we have been in a position to translate conceptual work performed in the lab to a viable product that is road ready. This system can not only make the roads safer but can also have a big impact on driver benchmarking/training, fleet insurance, etc.”

IIT-Gandhinagar to hold crash course on Bapu

<http://timesofindia.indiatimes.com/city/ahmedabad/iit-gn-to-hold-crash-course-on-bapu/articleshow/58332738.cms>

In a first, the Indian Institute of Technology, Gandhinagar, (IIT-Gn) is launching a crash course titled 'Mahatma Gandhi'.

Open to all students of the institute, the course, to be conducted from April 28 to April 30 at the Palaj campus of the institute will carry one credit for students who pass.

During the course, references from Gandhi's books, Hind Swaraj and My Experiments with Truth, along with Bidyut Chakrabarty's Social and Political Thought of Mahatma Gandhi will be studied. The film, 'Gandhi', by Richard Attenborough where the lead was played by Ben Kingsley will also be screened.

The course is under the Social Movement Class begun at IIT-Gn from last December. It will cover thoughts of Gandhi on topics such as trust, non-violence, frugality, environment, sex, simplicity, khadi and village industry, parliamentary democracy, communal harmony, Satyagrah, Gram Swaraj and caste.

The aim of the course is to enlighten students about Gandhiji's philosophy and the contemporary relevance of his thoughts.

Professor Sandeep Pandey, a Ramon Magsaysay award winner and a visiting faculty member of the IIT-Gn, said that the whole idea was to introduce the students to the core thinking and ideas of Mahatma Gandhi. He also said that he is thinking of organizing a course on the basic principles of the Indian Constitution, including secularism, socialism, sovereignty, equality, liberty and fraternity.

Credits acquired through short courses are counted towards graduation requirements at the institute.

April 23

Will an India-centric ranking help?

<http://www.thehindu.com/education/will-an-india-centric-ranking-help/article18190127.ece>

A mandatory NIRF for all institutions and a list based on specific parameters can improve the quality of higher education.

A few days after the Times Higher Education World University Rankings (THEWUR) 2014 released, in an article titled 'What ails higher education?' (The Hindu, October 13, 2014), I highlighted that not a single university from India could make it to the list of top 275 universities in the world and not a single institute of engineering and technology figured in the top 100 institutes in the category. In his response to the article, a well-known educationist reacted by saying that India should have its own system of ranking educational institutions based on certain India-specific parameters.

The National Institutional Ranking Framework (NIRF), launched in 2015 by the Ministry of Human Resource Development (MHRD), released its second rank list recently. The five broad parameters considered for ranking are "Teaching, Learning and Resources", "Research and Professional Practices", "Graduation Outcomes", "Outreach and Inclusivity" and "Perception". The Indian Institute of Science (IISc), seven Indian Institutes of Technology and two universities, Jawaharlal Nehru University and Banaras Hindu University, found their place in the top 10 educational institutions in the country. The Indian Institute of Science bagging the numero uno position for the second time in a row did not surprise anyone as it was the first Indian educational institution to make it to the list of top 100 universities, according to the THEWUR, for engineering and technology in 2015-2016 by securing the 99th position.

Priorities

Now, the most important question is whether the indigenous India-wide and India-centric ranking system, an annual exercise, will help improve the quality of higher education system in India.

If the intent of the government is to improve the quality of higher education and encourage our premier institutions to compete with top world-class universities that figure frequently in THE and QS rank lists, the government should be really sincere and vigorous in translating its intent into reality. To make its vision to be reflected in its mission, NIRF should prioritise its goals.

The government should make NIRF mandatory for all higher education institutions. By encouraging institutions to participate in the NIRF ranking system, the government can make them realise the need to improve their quality and academic performance and the importance of being accountable to the stakeholders.

The government should categorise institutions and disciplines as Central universities, State universities, government-funded/aided engineering and technology universities/colleges, private engineering and technology universities/colleges, government-funded/aided arts and science colleges, private arts and science colleges, and so on, and a separate ranking list should be prepared based on the parameters specified.

It is unfair to make a tiger (institutions that are funded by the government and well-established) to compete with a cat (self-financed institutions that have certain limitations); though, it is a fact that some private educational institutions are far better than government-run institutions in terms of infrastructure, faculty, quality of education, and so on.

The data and information provided by the institutions that apply for ranking should be verified thoroughly and MHRD should not hesitate to name and shame the institutions that provide false data. Verifying the data is the responsibility of the organisation that scrutinises the applications.

Teaching, learning and resources: Not all teachers with educational qualifications can become good academics. Teaching and learning will be effective if educational institutions have qualified, resourceful, experienced and committed teachers.

In many private educational institutions, including professional ones, the quality of teachers is not up to the mark. One of the reasons for this is most teachers are not paid on par with their counterparts working in government or government-aided institutions. Expecting a poorly-paid person to be a good teacher and researcher is like expecting a miracle.

Research and professional practices: It is not the quantity but the quality, originality, relevance and usefulness of research papers that matter. Of late, there has been unhealthy competition among educational institutions to produce as many research papers as possible. Focus on quantity will result in poor quality, characterised by manufacturing of data, plagiarism and academic dishonesty.

The conventional view that all teachers at the tertiary level should also be researchers should be looked at critically. It is good if teachers are active researchers too. What is desirable is always not possible. Forcing teachers who do not have inclination for research to produce research papers will have an adverse effect.

Outreach and inclusivity (OI): This parameter includes continuing education, service, percentage of women students and faculty, percentage of economically and socially disadvantaged students and facilities for physically-challenged students. OI is an important parameter and educational institutions should follow it in letter and spirit. It is the view of many international educationists and thinkers that educational institutions should pay more attention to community engagement. Stuart Laing, former deputy vice-chancellor and emeritus professor at the University of Brighton, says in an article, "Working in our local areas is much more than charity for higher education institutions." Just like Corporate Social Responsibility (CSR), Institute Social Responsibility (ISR) should be emphasised.

How great it will be if each educational institution adopts a few villages! When the faculty and students interact with the villagers and impart their knowledge and skills to the rural people, they will learn many useful lessons in the process and thus will contribute to nation building.

In the words of Martin Luther King Jr., "The function of education is to teach one to think intensively and critically. Intelligence plus character – that is the goal of true education."

IIT-KGP outreach programme to enable students combat stress

http://www.business-standard.com/article/pti-stories/iit-kgp-outreach-programme-to-enable-students-combat-stress-117042300136_1.html

Aiming to raise happiness levels among students, IIT-Kharagpur has devised a set of outreach programmes to promote positive attitude in them and encourage them to interact with counsellors.

"The counselling centre at IIT-KGP has formulated programmes on gratitude, kindness, environment friendliness to promote positive attitude among students and help them before they reach any point of desperation or depression," Prof Sangeeta Das Bhattacharya, faculty in-charge of Counselling Centre at IIT-KGP, said today.

The programmes at the centre are being developed by clinical psychologists, psychiatrists, psychological counsellors and spearheaded by Prof Bhattacharya.

Some of these programmes are part of the course curriculum at the Rekhi Centre for Science of Happiness at IIT-KGP which treats happiness from a scientific point of view.

The programme being held in April is 'Life under Canopy' which encourages students to locate specific trees around the campus thus helping them to connect to nature, be attentive to one's surroundings and taking out time to pursue something beyond regular routine or hobby.

"Plants are the biggest example of resilience and this programme is aimed at motivating students to be resilient which is a critical factor in countering depression, anxiety and other mental health issues," Bhattacharya said.

"Spending time in nature is good for the brain. It reduces stress. The Japanese have a word for this Shinrin-yoku (forest bathing). This forest bathing programme is already being practised in Japan as part of its National Health Programme," Bhattacharya said.

'31 days of Gratitude' programme was conducted in January, while in February it was '28 Things of Random Act of Kindness' and for March it was 'What are you proud of'.

Bhattacharya said while incidents of depression among students are being reported by the media and institutional administration questioned, in society there is lacuna in identifying and accepting abnormalities in mental health as just another disease.

On an average, the counsellors handle 3,000 appointments by students in a year and till now have been able to help over 400 cases of extreme psychological disorders, she said.

The centre has also launched a Facebook page wherein students' requests for assistance are responded to in less than 24 hours.

"We have appointed a social worker as well to keep tab on the students visiting us and follow it up with their health status and well-being. We also involve parents and peers in the counselling process," she said.

IISc team unravels how vitamin C helps kill bacteria

<http://www.thehindu.com/todays-paper/tp-features/tp-sci-tech-and-agri/iisc-team-unravels-how-vitamin-c-helps-kill-bacteria/article18193563.ece>



Vitamin C inhibits the synthesis of a molecule essential for bacteria survival

That vitamin C, an anti-oxidant agent, boosts and strengthens immunity is well known. Its ability to speed-up recovery from tuberculosis and impede the TB causing bacteria from causing disease, and even kill the bacteria in culture at high concentration are also known. Now, a study by a team of researchers at the Indian Institute of Science (IISc), Bengaluru has found the molecular mechanism by which vitamin C impedes and even kills *Mycobacterium smegmatis*, a non-pathogenic bacterium that belongs to the same genus as the TB-causing mycobacteria. The results were published in the journal FEMS Microbiology Letters.

Stress response

During times of stress or hostile conditions, such as increased temperature and presence of antibiotics, bacteria tend to come together and form a biofilm to protect themselves. The stress response pathway is crucial for bacteria to survive during hostile conditions. So blocking this pathway is a sure way of killing the bacteria.

In mycobacterium, the (p)ppGpp (Guanosine pentaphosphate or Guanosine tetraphosphate) is a key molecule in the stress response pathway. The (p)ppGpp is synthesised by Rel protein, which in turn is made by the Rel gene.

The team led by Dipankar Chatterji from the Molecular Biophysics Unit at IISc looked at the effects of vitamin C on the stress response pathway. “We chose vitamin C because its structure is similar to (p)ppGpp,” says Prof. Chatterji. “So we hypothesised that vitamin C should be competing to bind to the Rel enzyme and inhibiting (p)ppGpp synthesis.”

To test their hypothesis, the researchers conducted experiments using *M. smegmatis*. *M. smegmatis* is used as a model organism for TB-causing *Mycobacterium tuberculosis*.

Role of vitamin C

In vitro studies showed “significant” inhibition of (p)ppGpp synthesis in the presence of vitamin C. The inhibition level was seen to increase as the vitamin C concentration increased. The more the vitamin C concentration, the greater the possibility of vitamin C binding to the Rel enzyme, thus inhibiting (p)ppGpp synthesis. At about 10 mM concentration, the synthesis of (p)ppGpp molecule was completely inhibited.

The binding of vitamin C to the Rel enzyme is weak and this explains why high concentration of vitamin C is needed to inhibit (p)ppGpp synthesis.

“Using Mycobacterial cells we found that 1 mM of vitamin C produced 50% inhibition in (p)ppGpp synthesis. Vitamin C is able to get inside cells and inhibit (p)ppGpp synthesis,” says Kirtimaan Syal from IISc, the first author of the paper.

When 2 mM of vitamin C was added, “significant” defect in biofilm formation was seen. There was more than 50% reduction in viability of cells in a matter of four days when *M. smegmatis* was treated with 2mM of vitamin C. The viability of cells reduced even further with time, raising the possibility of therapeutic implications.

Therapeutic potential

“This suggests that vitamin C can act as a precursor for more potential inhibitors; it can be chemically modified into more potential derivatives,” they write. “Vitamin C is natural, and it can form one of the nutrient-based treatments of the disease. Vitamin C is water soluble and has no toxic effect,” says Dr. Syal.

“We are trying to synthesise derivatives of vitamin C to enhance inhibition of (p)ppGpp synthesis even at lower concentration,” Dr. Syal says.

April 22

‘Challenge is to have skilled labour force for aerospace manufacturing

<http://www.sundayguardianlive.com/business/9148-challenge-have-skilled-labour-force-aerospace-manufacturing>



Zonal finalists along with Pratyush Kumar, President, Boeing India, at the Boeing-IIT National Aero-modelling Competition.

Pratyush Kumar, President, Boeing India, talks about Boeing’s future plans for the country.

Boeing and the Indian Institute of Technology (IIT) brought hundreds of young Indian engineers together here to compete in the fourth annual Boeing-IIT National Aero-modelling Competition. The competition which saw the participation of over 800 engineering students from 300 colleges, encourages innovation in aerospace among the next generation of engineers.

Professor P.V.M. Rao from the department of Mechanical Engineering, IIT Delhi, said that a total of 28 zonal finalists advanced to the national-level finals. “Platforms provided by aerospace giants such as Boeing inspire and motivate students to explore avenues of innovation while honing their skills towards a future in aviation,” said Rao.

On the sidelines of this event, The Sunday Guardian spoke to PRATYUSH KUMAR, President, Boeing India, on Boeing’s future plan in India and the future of aerospace engineering. Excerpts:

Q. Boeing is getting into the defence sector. What are the challenges for you?

A. Well, so as to “Make in India”, we have to invest in skills in factory, in quality system and in support; so we are doing that. The first step towards that is to have the manpower and what you see here today is very critical. It is all about capturing the best talent and capturing the hearts and minds of the young talent that will run through this whole aerospace vertical.

In terms of this, there is no such investment that is there, the challenge is skilled work force, to have a skilled workforce for aerospace manufacturing. Aerospace is not just one system, for that you need to build an engine, the avionics, the radar system, and then there are other appliances and there is a full eco-system to this. So we are tracking that one at a time and we are confident that in the near future, India will be a force to reckon with in the global world.

Q. You have been in this position since 2012 and you have seen the way UPA worked and you have also seen the way the present NDA is functioning. Do you see any major changes in terms of working now?

A. At a high level, I would say that the “Make In India” branding is great, because it simplifies my company’s performance strategy. In terms of intent and decision making, we have seen more speed and velocity now than that we have seen in the past. Ease of doing business is also a work in progress — some promise has been made.

Q. In the Commercial Aviation Sector, India is an emerging market. Where does Boeing see itself in the Indian market?

A. India is the fastest growing commercial aviation market in the world with over 20% traffic growth. If you look at the fundamental forces, the demographics, the movement in GDP, it all points towards a secular continued growth of the century. With that growth also comes the obvious challenge of infrastructure. We built some airports a few years ago and they are already running at full capacity. When you try to land to Mumbai, you have to circle for a while, even Delhi has that problem. We are at full capacity both on the ground and at the air. So probably working with the government will help create more capacity and once the aircraft comes in, on an average, you need about seven engineers attending to that aircraft, that skilled workforce is not available. We are working with the government and the industry. Those are the challenges, but the opportunity is tremendous.

We are continuing to grow our footprint in India. We have tripled our activities in India in the past three years. This year, our target is to source services and components in India, which is worth over Rs 4,500 crore. We are launching our joint venture with the Tatas this year.

Q. What are the factors that could promote aerospace technology in India?

A. Multiple steps are required. The first one is capturing the young talent and mostly high school students and early college students. Then, it’s all about giving them the right curriculum so as they can be ready for the industry. It’s all about giving them on-the-job practical training so as to make them ready for an aerospace career in the market as it is an exciting career.

Q. What are Boeing’s evolving partnerships with regards to academics and industries in India?

A. The partnership with educational institutions is a must to get ready and develop the talent we need for the market. The number of students who participate and the sheer talent on display is a testimonial to the immense potential of India’s engineering sector. As you know, aerospace is a sunrise sector in India and we are hiring ourselves in India in leaps and bounds. Our goal is to build a set of 2,000 engineers and we are also getting into the process of hiring people for manufacturing aerospace components, systems sub systems and for that you need a flight path for students. So it’s all about having the right curriculum and also about having the right practical experience on the job before they show up for full-time work. We had a good history of partnership with five IITs. IIT Delhi is a new edition and I am an alma mater of IIT Delhi so, of course, I am interested in making sure that it takes off from here.

Need Interest Free Loan, Not Fee Waiver: IIT Chiefs

<https://techfactslive.com/need-interest-free-loan-not-fee-waiver-iit-chiefs/26939/>

The IIT directors, consider replacing fee waiver for economically backwards students with free interest loans. They are introducing one year executive '**M.Tech**' programme and 'IIT Extension Centres' in engineering education to share best practices. On April 28, the council is slated to meet in Mumbai. It is apex coordination body for all **23 IITs** (Indian Institute of Technology). It is expected to deliberate on four changes to the concessions introduced for special category students in the year 2016. Along with the announcement to increase the annual fee from **Rs.90,000 to Rs 2 Lakh per year**.

The IIT directors are learnt to have collectively sought:

- Reimbursement from HRD Ministry for the complete tuition fee waiver announced for SC, ST and physically challenged students. The reimbursement should be made in shape of maintenance grants.
- "**Liberal education loans**" to replace the complete fee waiver for undergraduate candidates whose annual family income is less than Rs 1 lakh a year and the waiver of two-thirds of the tuition fee for students whose family income is between Rs 1 lakh and Rs 5 lakh a year. The IITs have volunteered to fund the interest subvention on these loans for a maximum of five years from their fee revenue.
- The IITs have also volunteered to continue interest subvention on education loans taken by undergraduate students who continue to pursue postgraduate studies at the institutes.
- Strengthening of merit and means scholarship.

During **Smriti Irani's** tenure as the HRD Minister, the changes have been proposed on the ground that the defeat of the fee hike and will lead to a fall in revenue for the 17 premier engineering institutes. This concern is first raised during the IITs council meeting called by Irani's successor, **Prakash Javadekar**, last year August. Again meeting was held on September 11 and December 12 last year then this discussion is made by IIT directors in Bhubaneswar and Kanpur.

Now the IIT directors, are also keen on starting one year **M.Tech programme** for working professionals. They decided to charge tuition fee at market rate, and this course is being sponsored by the employer or industry, the institutions will recover the annual cost of education that is Rs 6 lakh.

At present, education at IITs is subsidised. A student of undergraduate, for instance, he/she pays Rs.2 Lakh per year as opposed to spent Rs 6 Lakh on education. The reason behind to launch this one-year executive programme is to increase revenue and make IITs more financially independent.

One more proposal to increase **IITs alumni** outreach by setting up a society dedicated for the purpose linking of National Research Laboratories under the Ministry of Science and Technology to the IITs. The council wants to establish the extension centres to share best practices with other engineering institutes and the Joint Admissions Boards decision to introduce **20 per cent** supernumerary seats for girls to avoid gender balance in UG (undergraduate) admissions.

‘Depressed’ IIT Kharagpur 4th-year student commits suicide

<http://www.hindustantimes.com/india-news/iit-kharagpur-student-commits-suicide/story-gfcapDuc19HA9LoZSRAohJ.html>

A fourth-year engineering student at IIT-Kharagpur was found hanging in his hostel room late on Friday night, the latest in a string of similar deaths at premier institutes that have been blamed on high stress and mounting depression.

Sources said Nipin N, a fourth-year student of Aerospace Engineering, allegedly killed himself because of depression. He hailed from Kerala.

The death jolted the institute, considered among the best technical schools in the country that saw a third-year-student's body found besides the railway tracks just last month.

College authorities had said that mental depression drove Sana Shreeraj, a third year student of electrical engineering, to suicide. Shreeraj, 20, hailed from Tekkali of Srikakulam in Andhra Pradesh and stayed at Lala Lajpat Roy hostel in the campus. But his father had said his classmates tortured him, which forced the student to commit suicide.

India's premier engineering and technical institutes have seen a rash of such deaths in the past couple of years, raising questions about the high-pressure environment young students were being subjected to.

In March, a student of IIT Delhi jumped off from the fourth floor of a hostel inside the campus. Nitish Kumar Purti, an engineering physics student had joined IIT Delhi in 2016. Police said Purti was depressed as he was forced to take up the course and was unable to cope with the pressure.

The same month, a final-year engineering student of NIT Warangal in Telangana allegedly committed suicide by jumping from the fifth floor of his hostel building on Sunday evening.

Authorities have tried several measures but have struggled to cope with the rising tide of such deaths, attributed also to the lack of counseling and support services on campus. IIT-Madras instituted a probe last year after two women committed suicide inside campus. Also last year, at least eight students killed themselves in Kota, Rajasthan's entrance test coaching hub.

April 21

Environment warriors: IIT Delhi students organising hackathon on climate change this weekend

<http://www.hindustantimes.com/education/environment-warriors-iit-delhi-students-organising-hackathon-on-climate-change-this-weekend/story-EswUVRECGcrpkEAX5pwu9L.html>



Members of the Electronic Engineering Society participating in a hackathon at IIT Delhi. They'll be organising another one on climate change this weekend with the institute's Sustainability Society

It's just April and northern, central and western India is already in the grip of a severe heat wave – crossing 45 degrees in some places. And it just does not stop at that. Over the next 50 years, in the lifetimes those 40 years old and younger, India's temperature is projected to increase by 3 to 4 degrees Celsius. This could lead to rise in sea levels, submerging 6,000 sq km, mainly in cities like Mumbai, Chennai and Kolkata. This increase will displace at least 60 million lives, and prompt perhaps 125 million from Bangladesh to migrate into India. Yet people are failing to grasp how climate change will adversely affect lives.

Two student groups at IIT-Delhi, the Electronic Engineering Society and the Sustainability Society, are organising a hackathon this weekend for its undergraduate students to use data to create products relevant to climate change.

Students will be expected to build applications using historical and forecasted climate data that impact individual lives – for instance, they'll be answering questions such as: Which of your facebook friends might have to move home because of climate change in the next 20 years? How many more blackouts can we expect if temperatures and power capacity rise at current rates? "Climate Change is going to change people's lives. But people don't seem to care. The goal is to use technology to promote greater awareness of climate change, by building applications that personalise and localise climate change," an event organiser told Hindustan Times.

The venue of the event will be IIT-D, in Lecture Hall 108, from 5 pm on April 22 through 12 pm on April 23. Visitors are recommended to visit on the afternoon of April 23.

Judges include the former head of the Indian Meteorology Department.

The Electronic Engineering and Sustainable societies have been around for about five years, their mission aimed at encouraging interest in hardware technology among students and increasing IIT-D's green footprint.

About 70 to 100 students are expected to participate.

The event is being sponsored by Yobi Tech, which designs and manufactures weather stations and builds weather analytics software, for agri forecasts, insurance, and commodity pricing.

IITs wake up to suicide threats, conduct parent-teacher meets & creative exercises

<http://economictimes.indiatimes.com/news/industry/services/education/iits-wake-up-to-suicide-threats-conduct-parent-teacher-meets-creative-exercises/articleshow/58288682.cms>

A rise in suicides and attempted suicides at India's premier engineering institutes has turned the authorities edgy, forcing them to take a diverse range of measures to help destress students.

The initiatives include parent-teacher meetings — heard of only in schools — at the Indian Institute of Technology Delhi to connecting with nature through tree-hugging campaigns at IIT Kharagpur and counselling at IIT Madras and IIT (Banaras Hindu University) Varanasi. To help students deal with stress, IIT Guwahati has set up a creativity centre where students dance, sing and play instruments.

IIT Bombay is adding two counsellors and a psychiatrist to its staff. Students at these prestigious institutes often spiral into depression on account of daunting academic challenges and expectations and pressure to perform from parents and peers.

Since January 2016, there have been about a dozen suicide deaths and attempts at the IITs.

Coping Mechanism in Place

PROACTIVE STEPS TAKEN BY IITs TO HELP STUDENTS

- IIT Delhi** is increasing interactions with parents
- IIT Madras, IIT Bombay, IIT Delhi and IIT Banaras Hindu University (Varanasi)** are also roping in counsellors & psychiatrists
- IIT Guwahati** has set up a creativity centre where students dance, sing and play instruments

Additional text from infographic: About a dozen cases of suicides/attempts at IITs have been reported over last one year. Students often slid into depression due to academic challenges.

There's also been an increase in the number of students seeking counselling. Of the total visits made by people aged 18 to 25 seeking help, 70% are pursuing professional courses such as medicine and engineering, according to Cosmos Institute of Mental Health and Behavioural Sciences, a New Delhi-based provider of mental healthcare services.

The number of students visiting CIMBS for counselling has risen by 12.5% in the past year, said Shobhana Mittal, associate consultant psychiatrist and psychotherapist.

It's usually the freshers who face pressure and are prone to stress, having made it into the IITs after sustained efforts, sometimes over a few years, preparing for the joint entrance examination.

"First-year students are often found burnt out. Most students are not well-rounded personalities as a result of 18 hours of coaching for last three years before cracking JEE," said Soumyo Mukherji, dean of student affairs at IIT Bombay.

It's a whole new world for students who enter the IITs after clearing the tough JEE and many are overwhelmed as they find themselves among other high performers. "It is often found that most of the depressed students at IIT Madras were pushed by parents to enter the IITs.

In many cases, it turns out that their interests are different from engineering," said G Ranga Rao, chief advisor of Mitr, a unit that responds to cases of depression among students at IIT Madras.

Last year, IIT Madras split its guidance and counselling unit into Mitra and Saathi, a wing that takes proactive steps to check depression among students.

“Focus here is more on proactive steps as most students do not come forward. We need to catch them,” Rao said. The institute, which already has two counsellors, is now looking at adding three more.

IIT Kharagpur is implementing an innovative idea to reach out to students through programmes with a different theme each month to help them develop a positive attitude.

January was a month of gratitude and in February, students observed 28 days of random acts of kindness. March was about helping students answer the question, ‘What are you proud of?’ “This month it is about connecting with nature and building resilience.

As trees are most resilient, each student will identify special trees and try connecting to them,” an IIT Kharagpur spokesperson told ET.

IIT Kharagpur recently launched a Facebook page especially to respond to students facing pressure.

It has round-the-clock counsellors to take calls, which touched almost 3,000 in the past year. There are over 11,000 students at IIT Kharagpur.

The opening of the creativity centre last year at IIT Guwahati, which has over 1,500 students as of this month, appears to be working.

“In the last one year, IIT Guwahati has not reported any suicide case. There is definitely a dip in depression among students here, especially with the opening up of this centre,” said its director, Gautam Biswas.

With a recent suicide case haunting IIT BHU, the institute kicked off a three-week induction programme in July where students are taught art, music, painting and dance forms by the faculty from Banaras Hindu University. To ensure a smooth settling down, the students are taken around to visit monuments, temples and mosques and taught human values.

“Induction programme helps to open up students and give them a larger view of the world. We try to teach how to embrace failure (including academics) and treat it as a minor hiccup,” said its director, Rajeev Sangal. He added that the institute is hiring counsellors.

IIT Delhi started an academic mentoring this year where low performing juniors get special attention from seniors and faculty members. “We are in the process of formalising a schedule for students to mentor the juniors on a daily basis,” said Sangeeta Kohli, a faculty member involved with student activities at IIT Delhi.

Pravasi Odia Vikash Samiti to celebrate Pana Shakranti at Dogra Auditorium, IIT, Delhi

<https://orissadiary.com/pravasi-odia-vikash-samiti-celebrate-pana-shakranti-dogra-auditorium-iit-delhi/>



Pravasi Odia Vikash Samiti is a registered society based at Delhi for the promotion of Odia Culture, Tradition and heritage. Since last 5 years POVS is engaged in serving the Oriya people in Delhi in various Sectors like providing health service in different hospitals in Delhi. We have a special Programme “Charak” where we have formed a special team under POVS who regularly provide health facilities in different corners of the Delhi.

As more than 15 lakh Odia people residing in Delhi, we do coordinate with all Odia people and other Odia organizations to provide a supporting hand for the Odia people from Odisha. Every month 100s of poor people visits Delhi for treatment of different diseases in various government hospitals. These Odia people needs staying facilities, conveyance, foods, Medicines and most importantly blood at the time of operations of the patients. POVS always lends a helping hand to the poor Odia people who needs help in Delhi.

As Odia are very much acquainted with different cultural programs and festivals, POVS organizes different cultural programs in Delhi to promote the rich Odia culture and traditions.

“Pana Sankranti” and Maha Vishuba Sankranti which is also known as Odia new year is being celebrated by POVS in Delhi Every year as its main function. On this occasion, we do felicitates prominent Odia people who has excelled in their respective field. This year POVS will felicitated Shri Harihar Dev, a physically handicapped choreographer and a recipient of many regional and national awards including from President and Smt. Sailabala Mishra who runs an NGO, dedicated for wellbeing of more than 100 Orphan children in Odisha.

This year on 23rd April, POVS will celebrate its 5th year Pana Shakranti at Dogra Auditorium, IIT, Delhi campus. Shri Dharmendra Pradhan, Union minister for PNG will be the chief guest and Senior RSS Jatiya Karyakarini Sadashya Shri Indresh Kumar will be the chief speaker this year along with Swami Sudhanand Saraswati, founder Srutinyash Vedic Vichar, Odisha. Shri Upendra Tripathy DG international Solar alliance, Shri S K Nanda, IAS (Retired) and Independent Director HUDCO, Prof Chintamani Mahapatra, Rector JNU Delhi will be Guest of Honor at the event.

On this occasion, POVs will serve special Odia Pana to all along with different Odia foods. Various types of cultural event also to be presented. Pravasi Odia Mukhpatra “PRAVASI ODIA” will be inaugurated along with the digital version of the same magazine, to reach out thousands Pravasi Odia brothers across the world. Winners in Quiz competition on Odisha and Painting competition will be honored.