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समाचार पत्रों से चयित अंश
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DRDO Technology News

Mon, 23 Aug 2021

India pitches fighter aircraft, anti-tank missiles at 'ARMY- 2021' in Moscow

DRDO is the part of India's pavilion where advanced defence technologies and systems will be displayed along with Indian Defence Industries namely Goa Shipyard Limited (GSL), Ordnance Factories and Bharat Earth Movers Limited (BEML) etc.

India has pitched its indigenously built fighter aircraft LCA Tejas, Anti Tank Guided Missiles, Arjun Main Battle Tank (MK1A) at the International Military-Technical Forum "ARMY-2021" in the Moscow region. "In Army 2021, we are participating to showcase our export products some of them are LCA Tejas, Airborne Early Warning and Control System (AEW&C), 8x-gun which has the longest range around 48 kilometers, Arjun Tank mark 1A, Helina and Nag, Surveillence Radar Rohini and Fire control radar. We are also displaying the Akash missile also. Carbine JVPC is also on display," said Dr NK Arya, Director, Directorate of Public Interface (DPI) at DRDO.

India pitches fighter aircraft, anti-tank missiles at 'ARMY- 2021' in Moscow. Image Source : PTI/REPRESENTATIVE

He further elaborated that India has a huge potential in terms of the export of defence systems.

"Defence Exports from India has huge potential to grow further. We have just started. DRDO being a developer of most of the indigenous systems and it is acknowledged that DRDO should be presenting various products and various systems to the world. I am sure this step will go a long way to take Indian exports further," states Arya.

Talking about the aim of DRDO in "ARMY-2021", Arya said, "Many people are not aware that India can export such defence systems and that awareness will be created. Hopeful that some business deals may be started based on this as per past exhibitions. This will be a definite start of the new deal and showcasing the product to make people aware."

DRDO, the R&D Arm of the Ministry of Defence, is participating in the International Military-Technical Forum "ARMY-2021" at Kubinka, Moscow from August 22-28.

DRDO is the part of India's pavilion where advanced defence technologies and systems will be displayed along with Indian Defence Industries namely Goa Shipyard Limited (GSL), Ordnance Factories and Bharat Earth Movers Limited (BEML) etc.

DRDO is developing many advanced technologies and systems in areas of missiles, Light Combat Aircraft, Multi-barrel Rocket Launcher, Main Battle Tanks, Radars, Missile-based Air Defence System, Naval Systems and Life Science related products.

DRDO's 11 products which can be exported is displayed at India Pavilion during the event like Beyond Visual Range Air to Air Missile (BVRAAM) 'ASTRA', Anti Tank Guided Missile (ATGM)-NAG and HELINA, Surface to Air Missile (SAM) 'Akash', Light Combat Aircraft

(LCA)-Tejas, Airborne Early Warning and Control System (AEW&C), Identification of Friend and Foe (IFF), Advanced Towed Artillery Gun System (ATAGS).

This list also includes Joint Venture Protective Carbine (JVPC), Arjun Main Battle Tank (MK1A), Rohini Radar and Air Defence Fire Control Radar (ADFCR)-Atulya Radar.

(With ANI inputs)

https://www.indiatvnews.com/news/india/army-2021-india-pitches-anti-tank-missiles-fighter-aircraft-tejas-arjun-main-battle-tank-728314

अमर उजाला

Mon, 23 Aug 2021

डीआरडीओ: मॉस्को में अंतर्राष्ट्रीय सैन्य-तकनीकी फोरम 'सेना-2021' में दिखेगा स्वदेशी लड़ाकू विमानों का जलवा

सार

- ***भारत ने मॉस्को में अंतर्राष्ट्रीय सैन्य-तकनीकी फोरम 'सेना-2021' में कुछ हल्के स्वदेश निर्मित लड़ाकू विमान (एलसीए) तेजस, एयरबोर्न अर्ली वार्निंग एंड कंट्रोल सिस्टम (एईडब्ल्यू एंड सी) को खड़ा किया***

विस्तार

मॉस्को में अंतर्राष्ट्रीय सैन्य-तकनीकी फोरम 'सेना-2021' में भारत में निर्मित लड़ाकू विमानों का जलवा दिखेगा। अंतर्राष्ट्रीय सैन्य-तकनीकी फोरम में डीआरडीओ भी अपनी प्रदर्शनी लगाएगा।

रक्षा अनुसंधान और विकास संगठन (डीआरडीओ) में पब्लिक इंटरफेस निदेशालय (डीपीआई) के निदेशक डॉ एनके आर्य ने कहा कि 'हम अपने निर्यात उत्पादों को प्रदर्शित करने के लिए अंतर्राष्ट्रीय सैन्य-तकनीकी फोरम 'सेना-2021' में भाग ले रहे हैं। जिसमें भारत ने कुछ हल्के स्वदेश निर्मित लड़ाकू विमान (एलसीए) तेजस, एयरबोर्न अर्ली वार्निंग एंड कंट्रोल सिस्टम (एईडब्ल्यू एंड सी) को शामिल करेगा।

डीआरडीओ, डीपीआई के निदेशक डॉ. एनके आर्य - फोटो : twitter@ANI

आर्मी-2021 में नए उत्पाद होंगे पेश

रूस का कलाश्निकोव समूह अंतरर्राष्ट्रीय सैन्य-तकनीकी फोरम आर्मी-2021 में नए उत्पाद को पेश करने के लिए तैयार है। कलाश्निकोव समूह के पहले उप मुख्य कार्यकारी अधिकारी एंड्री सेमेनोव ने कहा कि सेमी एक्टिव होमिंग हेड के साथ एस -8 एल से लैस मिसाइल का उपयोग विभिन्न वाहक द्वारा किया जा सकता है, जिसमें सभी प्रकार के हेलीकॉप्टर या विमान, साथ ही यूएवी भी शामिल हैं।

HEF वारहेड के साथ उन्नत 80-mm S-8L लैस मिसाइल को स्थिर और गतिमान दोनों, हवा और जमीनी लक्ष्यों को संलग्न करने के लिए डिजाइन किया गया है। S-8L को B8V20 या B8M1 रॉकेट लॉन्चर का उपयोग करके हेलीकॉप्टरों और हवाई जहाजों से लॉन्च किया जाता है। रॉकेट की फायरिंग रेंज 6 किमी तक है। यह हल्के बख्तरबंद लक्ष्यों को प्रभावी ढंग से निशाना बना सकता है।

भारत भी कर रहा है अपने रक्षा उपकरणों को प्रदर्शित

भारत ने मॉस्को क्षेत्र में अंतर्राष्ट्रीय सैन्य-तकनीकी फोरम आर्मी-2021 में स्वदेश निर्मित लड़ाकू विमान एलसीए तेजस, एंटी टैंक गाइडेड मिसाइल, अर्जुन मेन बैटल टैंक (एमके1ए) को प्रदर्शित किया है।

डीआरडीओ के निदेशक डॉ एनके आर्य ने कहा कि हम अपने निर्यात उत्पादों को प्रदर्शित करने के लिए भाग ले रहे हैं, उनमें से कुछ हल्के लड़ाकू विमान (एलसीए) तेजस, एयरबोर्न अर्ली वार्निंग एंड कंट्रोल सिस्टम (एईडब्ल्यू एंड सी) हैं। उन्होंने आगे विस्तार से बताया कि रक्षा प्रणालियों के निर्यात के मामले में भारत के पास बहुत बड़ी संभावनाएं हैं।

आगे कहा कि डीआरडीओ अधिकांश स्वदेशी प्रणालियों का विकासकर्ता है और यह स्वीकार किया जाता है कि डीआरडीओ को दुनिया के लिए विभिन्न उत्पादों और विभिन्न प्रणालियों को प्रस्तुत करना चाहिए। मुझे यकीन है कि यह कदम भारतीय निर्यात को और आगे ले जाने के लिए एक लंबा रास्ता तय करेगा।

https://www.amarujala.com/india-news/drdo-dr-nk-arya-says-indias-fighter-aircraft-are-also-participating-in-the-international-military-technical-forum-army-2021

THE TIMES OF INDIA

Sun, 22 Aug 2021

Tirupati: DRDO Chairman G Sateesh Reddy inaugurates bio-degradable laddu bags counter at Tirumala

By Sandeep Raghavan

Tirupati: The Defence research and development organization (DRDO) Chairman G Sateesh Reddy along with Tirumala Tirupati Devasthanams executive officer Dr KS Jawahar Reddy inaugurated a biodegradable laddu bags counter at Tirumala on Sunday.

TTD was one of the biggest distributors of single-use plastic covers prior to 2019.

Speaking to reporters later, DRDO Chief said "Our advanced systems laboratory located at Hyderabad has been doing a lot of research and inventing ways to find out the best environmentally friendly replacement options for the hazardous plastic. To minimise the usage of single-use plastic covers, DRDO has come out with eco-friendly biodegradable and compostable bags made of starch and corn which degrades naturally within 90 days and is also not harmful even if the stray cattle consume it," added Sateesh Reddy.

TTD was one of the biggest distributors of single-use plastic covers prior to 2019. Between 2014-2018, TTD procured and distributed 9.63 crore polythene laddu covers to the visiting devotees.

TTD used to procure polythene covers with above 50 microns thickness, 35 x 48 cm in size, migration as per IS-10146 which shall not extend 10 Mg per DM/sq. The film used was with virgin HM HDPE food-grade material and free from any objectionable odour. Ghee-oil-moisture proof to hold 10-15 laddus to hold at least 4 kgs of weight.

The new trust board under the chairmanship of YV Subba Reddy which realized that the institution would be causing severe damage to the environment if it continued to promote the use of polythene laddu covers among the visiting devotees, imposed a blanket ban on the use of single-

use plastic covers in 2019 and has now tied up with DRDO to supply biodegradable bags to the visiting devotees to carry back home the most revered Tirupati Laddu prasadams in these compostable bags instead of plastic carry bags.

A dedicated sale counter has been set up by the TTD near the Laddu counters adjacent to the Tirumala temple where the devotees can first buy these bags before heading to laddu counters to buy the prasadams.

TTD's polythene laddu covers procurement figures in the past

12/2012 to 04/2014 - 2,30,00,000 (Nos) @ Rs.1.20
04/2014 to 04/2015 - 2,30,00,000 (Nos) @ Rs.1.38
05/2015 to 08/2016 - 2,50,00,000 (Nos) @ Rs.1.46
08/2016 to 10/2017 - 2,50,00,000 (Nos) @ Rs.1.56
10/2017 to 04/2018 - 1,06,00,000 (Nos) @ Rs.1.79
05/2018 to 11/2018 - 1,12,73,000 (Nos) @ Rs.1.90

TTD's polythene laddu covers consumption figures

2014-15 - 1,96,61,430 (Nos)
2015-16 - 1,93,72,750 (Nos)
2016-17 - 2,16,86,100 (Nos)
2017-18 - 3,56,00,000 (Nos)

Between 2014-2018, TTD had procured and distributed 9.63 crore polythene laddu covers to the visiting devotees.

https://timesofindia.indiatimes.com/city/amaravati/tirupati-drdo-chairman-g-sateesh-reddy-inaugurates-bio-degradable-laddu-bags-counter-at-tirumala/articleshow/85531938.cms

THE HANS INDIA

Mon, 23 Aug 2021

Tirumala: Bio-degradable laddu bag counter inaugurated

By Sridhar

Highlights

- ***A measure to reduce single use plastic-DRDO Chief***
- ***An eco-friendly initiative by DRDO-ttd eo***

Tirumala: The Defence Research and Development Organisation (DRDO) has come out with an eco-friendly Bio-degradable Laddu Bags for TTD.

An exclusive counter for the bag sales for pilgrims has been inaugurated jointly by DRDO Chairman Satish Reddy along with the TTD EO Dr KS Jawahar Reddy and Additional EO AV Dharma Reddy at Tirumala on Sunday.

Later talking to media persons outside the Laddu Complex where the new counter was launched, the DRDO Chairman G Satish Reddy said our Advance Systems Laboratory in Hyderabad has been doing lot of research and inventing ways to find best environmental friendly replacement for the hazardous plastic. To minimise single use plastic, we have come out with these eco-friendly bags made of starch of corn which degrades naturally within 90 days and also not harmful even if the cattle consumes them. After a detailed research and rigorous testing of the formula, we have come out with these bags for Tirumala", he maintained.

He also said, "Usually the conventional polyethylene bags made from petrochemicals are toxic to the environment and takes nearly 200 years to degrade. In contrast, these bags would be offered as a 'sustainable, cost-effective and ocean-safe alternative' to such plastic products", he added.

Later the TTD EO said, the launch of Bio-degradable bags by DRDO is a remarkable initiative and an eco-friendly measure. "Products like these are essential for the survival of mankind. After observing the response from the pilgrims for a few days, we are planning to commence its sales in a full-fledged manner", he added.

CVSO Gopinath Jatti, Director DRDO, Ram Manohar Babu, Chief Scientist Dr Veera Brahmam were also present.

https://www.thehansindia.com/news/cities/tirupathi/tirumala-bio-degradable-laddu-bag-counter-inaugurated-702854

Mon, 23 Aug 2021

देश के सबसे प्रसिद्ध मंदिर ने कहा 'No to plastic', अब बायोडिग्रेडेबल बैग में मिलेगा प्रसाद; DRDO ने किया लॉन्च

TTD: तिरुपति में भक्तों को जल्द ही बायोडिग्रेडेबल बैग में प्रसाद दिए जाएंगे।

TTD: **देश के सबसे प्रसिद्ध मंदिर तिरुपति** (Tirumala Tirupati Devasthanam) **में भक्तों को अब प्लास्टिक देखने को नहीं मिलेगा। यहां भक्तों को जल्द ही बायोडिग्रेडेबल बैग में प्रसाद दिए जाएंगे। डिफेंस रिसर्च एंड डेवलपमेंट ऑर्गनाइजेशन यानी** DRDO **ने तिरुपति में बायोडिग्रेडेबल बैग लॉन्च किया है। रक्षा अनुसंधान एवं विकास संगठन** (DRDO) **यहां लड्डू के लिए ईको-फ्रेंडली बायोडिग्रेडेबल बैग लेकर आया है।**

डीआरडीओ ने तिरुमला के लड्डू के लिए बायोडिग्रेडेबल बैग लॉन्च किया है. (फाइल फोटो: जी न्यूज)

DRDO ने किया लॉन्च

डीआरडीओ के अध्यक्ष सतीश रेड्डी के साथ तिरुमला तिरुपति देवस्थानम (TTD) **के कार्यकारी अधिकारी** (EO) **डॉ के.एस. जवाहर रेड्डी और एडिशनल** EO **ए.वी. धर्म रेड्डी ने रविवार** (22 **अगस्त**, 2021) **को यहां एक स्पेशल बिक्री काउंटर का उद्घाटन किया। बाद में लड्डू कॉम्प्लेक्स के बाहर उन्होंने मीडियाकर्मियों से बात की। डीआरडीओ के अध्यक्ष ने कहा कि हैदराबाद में डीआरडीओ की एडवांस सिस्टम लैबोरेटरी खतरनाक प्लास्टिक के लिए बेस्ट एनवायरमेंट फ्रेंडली रिप्लेसमेंट खोजने के लिए बहुत सारे रिसर्च और खोज कर रही है।**

एनवायरमेंट फ्रेंडली बैग

उन्होंने कहा कि सिंगल यूज वाले प्लास्टिक को कम करने के लिए, हम कॉर्न के स्टार्च से बने इन एनवायरमेंट फ्रेंडली बैग लेकर आए हैं जो 90 **दिनों के अंदर अपने आप खराब हो जाते हैं। ये नुकसानदायक भी नहीं होते हैं, भले ही इन्हें जानवर खाएं। डिटेल रिसर्च और सूत्र के कठोर परीक्षण** (Hardness test) **के बाद हम तिरुमला के लिए ये बैग लेकर आए हैं। उन्होंने बताया कि पेट्रोकेमिकल्स से बने पारंपरिक पॉलीथीन बैग पर्यावरण के लिए जहरीले होते हैं और इन्हें खराब होने में लगभग** 200 **साल लगते हैं। इसके उलट इन बैगों को ऐसे प्लास्टिक प्रोडक्ट्स के लिए एक परमानेंट, कॉस्ट इफेक्टिव और सी-सेफ** (ocean-safe) **ऑप्शन के रूप में पेश किया जाएगा।**

बायो-डिग्रेडेबल बैग की शुरुआत बड़ी पहल

टीटीडी के ईओ ने कहा कि, डीआरडीओ द्वारा बायो-डिग्रेडेबल बैग की शुरुआत एक बड़ी पहल और ईको फ्रेंडली उपाय है। उन्होंने कहा कि, इस तरह के प्रोडक्ट्स मानव जाति के अस्तित्व के लिए जरूरी हैं। कुछ दिनों तक श्रद्धालुओं की प्रतिक्रिया को देखने के बाद, हम इसकी बिक्री पूरी तरह से शुरू करने की योजना बना रहे हैं।

https://www.zeebiz.com/hindi/india/ttd-tirumala-tirupati-devasthanams-said-no-to-plastic-drdo-launched-biodegradable-bags-in-temple-56426

THE HINDU

Sat, 21 Aug 2021

DRDO to take up collaborative research with AU

Will extend help to incubation centre, says Chairman

By Harish Gilai

Visakhapatnam: Chairman of Defence Research & Development Organisation G. Sathish Reddy said that DRDO would take up collaborative research with Andhra University in the areas of artificial intelligence and cybersecurity. He was addressing the officials of Andhra University at the varsity senate hall here on Friday.

DRDO Chairman G. Satish Reddy speaking in a programme at the Academic Senate Hall of Andhra University in Visakhapatnam on Saturday.

Expressing happiness over the academic excellence of Andhra University, Dr. Satish Reddy said that the DRDO would involve Andhra University in its research projects and would extend its help to the Food Research Lab and Incubation centres of Andhra University. He also advised varsity officials to enter into a Memorandum of Understanding (MoU) with the Food Testing Laboratory of DRDO in Mysore.

He also said that the Incubation centre of Andhra University can collaborate with DRDO and assured that the Centre for Defence Studies of Andhra University would be given support for its activities. Dr. Satish Reddy also advised the faculty to apply for defence research projects with DRDO.

AU Vice-Chancellor Prof. P.V.G.D. Prasada Reddy said that DRDO's assurance would give a fillip to research projects. He added that the varsity is setting up food testing, genetic testing and pharma testing labs. With the support of NASSCOM, the varsity is also setting up Centre for Excellence in Artificial Intelligence, he added.

Earlier, Dr. Satish Reddy had paid floral tributes to AU founder vice-chancellor Sir C.R. Reddy on the varsity campus.

Rector K. Samatha and Registrar V. Krishna Mohan were present.

https://www.thehindu.com/news/national/andhra-pradesh/drdo-to-take-up-collaborative-research-with-au/article36026018.ece

THE HINDU

Sun, 22 Aug 2021

DRDO, Nasscom to support AU in taking up research activities

DRDO to extend help to food research, testing facility coming up in the varsity

By Summit Bhattacharjee

Visakhapatnam: In tune with the new National Education Policy (NEP)- 2021, Andhra University is teaming up the Defence Research Development Organisation (DRDO) and the National Association of Software and Service Companies (Nasscom), to take forward its research endeavours.

The building being constructed for research and testing in food, pharma and genetics on Andhra University campus in Visakhapatnam on Saturday. | Photo Credit: K.R. Deepak

The DRDO has already agreed to support the AU in its effort for supporting and mentoring its food research and testing laboratory.

DRDO Chairman G. Sateesh Reddy, during his visit to AU on Friday, agreed in principle to support the food research and testing facility, that is coming up in AU under RUSA (Rashtriya Uchchatar Shiksha Abhiyan) phase-II.

Giving details on the project, AU Vice-Chancellor P.V.G.D. Prasad Reddy said that based on Dr. Sateesh Reddy's commitment, the Director of Defence Food Research Laboratory Anil Dutt Semwal has already been in touch with the AU and discussion for collaboration is on. Initially, the research would focus on preservation and packaging of local products such as Araku Coffee, pineapple and jackfruit, Prof. Prasad Reddy said.

The research labs, which are coming up with the RUSA Phase-II funds, will be housed in a three-storied building that is coming up at a cost of ₹9 crore.

The RUSA has also sanctioned another ₹9 crore for purchase of the required research equipment. In total, ₹18 crore has been sanctioned.

According to Prof. Prasad Reddy, the building is nearing completion and will be ready for occupation in about two to three months.

"On one floor we will have a research and testing lab for food, and in the other two floors we will have research and testing facility for pharma and genetics," he said.

For genetics, the Visakhapatnam Steel Plant had already sanctioned ₹65 lakh for equipment from its CSR funds. "For pharmaceuticals, we are trying to tie up with local pharma companies and we have already signed an MoU with Purdue University, USA," he said.

"The MoU is for one year and will include joint research activity and mentoring.The DRDO has also agreed to support AU in startup incubation centre. The 35,000 sft spread across five floors building has already come up in the AU College of Engineering campus and is being mentored by the STPI. The DRDO will also act as mentor and support financially. The idea is encourage entrepreneurship under the NEP," said the V-C.

The Nasscom has already entered into an understanding with the State government to set up a Centre of Excellence in AU and the project cost is ₹27 crore, spread over five years.

According to Prof. Prasad Reddy, the CoE will fund research in the areas of artificial intelligence and machine intelligence. This centre is also coming up in AUCoE campus at a sprawling three-storied building with a built space of 30,000 sft.

"We are just waiting for the COVID-19 pandemic to subside to get the CoE operational," he said.

https://www.thehindu.com/news/national/andhra-pradesh/drdo-nasscom-to-support-au-in-taking-up-research-activities/article36039003.ece

THE TIMES OF INDIA

Mon, 23 Aug 2021

Solar cells by Hyderabad Scientists to make waves

By Preeti Biswas

Hyderabad: In the backdrop of Indian government's plan set to launch deep ocean mission in 2022, researchers from Birla Institute of Technology (BITS), Pilani (Hyderabad campus) have found that submerged solar cells could be potentially used in monitoring sensors and for other commercial and defence applications such as submarines and marine investigations.

Image used for representational purpose only

As part of a funded-project by the Defence Materials and Stores Research and Development Establishment (DMSRDE), Defence Research and Development Organisation (DRDO), researchers at BITS, Pilani, Hyderabad along with those from Indian Institute of Technology, Kanpur, studied 'underwater characterisation and monitoring of silicon solar cells in diverse water settings'.

"Essentially, sufficient solar energy is available underwater that is enough to run self-powered submarine equipment. The purpose of the study was to develop some capabilities and data repository from various kinds of solar cells for its usage underwater," said Sudha Radhika, assistant professor, department of electrical and electronics engineering, BITS, Hyderabad.

For this, the researchers tested different solar cells coated with polydimethylsiloxane (PDMS) — a material that is highly transparent, possesses high light absorption properties and is hydrophobic — underwater.

"When the solar cell comes in contact with water, it will short circuit as water is conductive making the optimum encapsulation crucial," said Sanket Goel, principal investigator and professor, department of electrical and electronics engineering, BITS, Hyderabad. "Such solar cells, covered with PDMS, will convert solar energy into electrical energy, which in turn will help power submerged sensors and other marine equipment."

"Our study found that the power output of solar cells underwater was 70% of that on the surface, and extensive work is going on to enhance it further."

He said that other interesting aspects in submerged conditions, like self-cleaning and natural cooling, help in achieving more power density from underwater solar.

The researchers, including Prasanth Kumar, a PhD scholar, developed a test-bed within the BITS, Hyderabad campus where they designed and fabricated an underwater environment wherein they prepared artificial seawater and conducted the characterisation using a solar simulator. They tested the cells submerged in four water environments — de-ionized water, lake water, real seawater and artificial seawater prepared with commercially bought sea salt and other water impurities.

Based on the study, it was observed that solar cells have a huge potential to utilise the underwater solar energy into electrical energy, which could power many sensors and other systems used in an underwater environment for commercial and defence applications.

"Even though there are challenges and constraints, the obtained results manifest huge potential for solar PV technology underwater for commercial and defence applications with modern electronics. These results further encourage us to explore more by considering other influencing parameters like turbulence, temperature, and also other impurities," read a research paper, which was recently published in International Journal of Energy Research.

The group is now working towards employing other solar cells and performing on-field studies to deploy such capabilities in real applications.

https://timesofindia.indiatimes.com/city/hyderabad/solar-cells-by-city-scientists-to-make-waves/articleshowprint/85548890.cms

THE TIMES OF INDIA

Mon, 23 Aug 2021

MIT students may soon get to work in DRDO labs

By Deepthi Sanjiv

Manipal: With the contribution of private players in the defence sector steadily growing over the years, Manipal Institute of Technology (MIT), Manipal Academy of Higher Education (MAHE) is all set to introduce an MTech in defence technology course in association with the Defence Research and Development Organisation (DRDO) this year.

A specialised programme will help create a pool of talented workers for the defence sector, and for their final year thesis, the postgraduate students will be presented with opportunities to work at DRDO laboratories, defence public sector units (PSUs) and industries.

Confirming this development, Cdr Anil Rana, director, MIT, told TOI: "We are aiming at launching this course this year. We have taken up the responsibility after DRDO and All India Council for Technical Education (AICTE) rolled out this programme. In the second year, students can opt for subject specialisation."

"It is a one-of-its-kind opportunity because many of the labs that would be required by the students taking up these courses are with the DRDO. We are coordinating with DRDO, and are finalising on the labs and other aspects. There are a lot of opportunities, not only in DRDO labs, but also with several private players entering the defence equipment manufacturing and system integration sector," he said.

The present intake for the course is 30, and MIT is working closely with the DRDO and Institute of Defence Scientists and Technologists (IDST). "While the lab is one aspect, MIT is also looking at employing ex-DRDO scientists as faculty, because some technology may be sensitive, and the expertise may not be available in private organisations. There is a lot of paperwork and planning going on. The team is working hard to launch the course at the earliest, "said Cdr Anil Rana.

https://timesofindia.indiatimes.com/city/mangaluru/mit-students-may-soon-get-to-work-in-drdo-labs/articleshow/85543134.cms

THE TIMES OF INDIA

Mon, 23 Aug 2021

SPPU to launch postgrad diploma in defence tech

Pune: The Savitribai Phule Pune Unviersity's (SPPU) department of defence and strategic studies will sign an MoU with the Pune branch of the Institute of Defence Scientists and Technologists to launch a year-long postgraduate diploma course in defence technology from October.

A date for the signing will be announced shortly.

The course, is aimed at developing skilled workforce in defence technology and secure better interaction with Defence Research and Development Organisation's (DRDO) scienctists and industry persons.

Head of SPPU's department of defence and strategic studies Vijay Khare told TOI, "The course is likely to commence from the first week of October with an intake of 40 students, who will be admitted via an entrance exam. Engineering and science graduates will be eligible for the PG diploma course. The course will be spread over two semesters and will have theory and practical components."

"The IDST will take care of the scientific aspects of defence research and technology and lectures and practicals related to the same while the SPPU department will cover teaching of the strategic affairs," Khare said.

"The course syllabus has been approved by the competent university bodies," he added.

"Students will get the opportunity to visit DRDO laboratories to get a first-hand experience of their work and research," Khare further said.

https://timesofindia.indiatimes.com/city/pune/sppu-to-launch-postgrad-diploma-in-defence-tech/articleshow/85544683.cms

NEWS 18

Sat, 21 Aug 2021

Explained: What is Chaff Technology, Which India has now inducted to protect its fighter Jets

DRDO has created the indigenous technology for confusing radar-based weapons systems that are used to target aircraft

Defence Minister Rajnath Singh has said it represents “one more step of DRDO towards ‘AatmaNirbhar Bharat’ in strategic defence technologies" and it is designed to “safeguard fighter aircraft of the Indian Air Force (IAF) against hostile radar threats". Here’s all you need to know about chaff.

Defence Ministry said that the tech has been shared with industry to augment production

What is Chaff Technology?

A modern fighter jet is an expensive piece of equipment. The price of one ‘bare-bones’ Rafale jet, that is without any weapons and enhancements, that the IAF has acquired from French company Dassault, is close to Rs 700 crore. While these aircraft are intended to serve as the sharp end of the IAF’s fighting capability, they also need to be insulated against advanced threats designed to destroy them.

“In today’s electronic warfare, survivability of fighter aircraft is of prime concern because of advancement in modern radar threats," the Defence Ministry said in a release, adding that “chaff is a critical defence technology used to protect fighter aircraft from hostile radar threats".

How Does It Work?

Chaff is a part of an aircraft’s Counter Measure Dispensing System (CMDS), which employs passive jamming against infra-red and radar threats. While flares, which are designed to protect against incoming heat-seeking missiles by creating a diversion with a higher heat signature that lures away the missile, chaff is designed to thwart radar-enabled weapons.

The Defence Research and Development Organisation (DRDO) says that chaff and flares belong to the class of ‘passive’ expendable counter measures (ECMs) that seek to deceive hostile systems by “employing confusion reflectors" via either chemical or mechanical means. There are also ‘active’ ECMs, which work by “transmitting electromagnetic energy" like noise jamming or deceptive jamming.

DRDO says chaff is an “electronic equivalent to ‘smoke'", which electromagnetic energy “to confuse or deceive an enemy system". Chaff may be made of thin metallised glass or plastic rods, or thin metal foil or wire — achieving something of a resemblance with the chopped hay and straw used for fodder with which it shares its name — and are designed to mimic wavelength of the frequency used by the enemy radar. They are used in the form of cartridges that are “packed with large quantities of chaff of different sizes".

According to non-profit Federation of American Scientists (FAS), “when injected into the aircraft slipstream, the chaff packages burst open… to form a radar-reflective cloud called a chaff corridor". What happens as a result of the dropping of chaff is they “so confuse radars that they are unable to locate the real targets within the chaff cloud".

DRDO adds that chaff “appears on enemy radar screens either as a blot masking the real target, or as hundreds of false targets around the real one". It says that the utility of the tech lies in the fact that a small quantity of chaff acts as a decoy to deflect incoming missiles.

Who is Manufacturing Chaff in India?

DRDO's Defence Laboratory at Jodhpur developed the advanced chaff material and chaff cartridge — called 118/I — in collaboration with its Pune-based High Energy Materials Research Laboratory (HEMRL). IAF is said to have started the process of inducting the technology, which has now been shared with "the industry for production in large quantities to meet the annual rolling requirement".

In April this year, DRDO had said it had developed chaff technology for the Indian Navy to protect its vessels against enemy missile attack.

https://www.news18.com/news/explainers/explained-what-is-chaff-technology-which-india-has-now-inducted-to-protect-its-fighter-jets-4108490.html

The EurAsian Times

Sat, 21 Aug 2021

Indian Fighter Jets like HAL Tejas to be equipped with DRDO's new chaff technology that can 'deflect' enemy missiles

By Aritra Banerjee

India's DRDO recently announced that it has "developed an advanced technology to safeguard fighter jets of the Indian Air Force against hostile radar threats". The technology can be used on the indigenous HAL Tejas, according to experts.

File iMAGE: Tejas MK1 – Wikimedia Commons

The project was the result of collaboration between the DRDO's Defence Laboratory in Jodhpur, and its Pune-based High Energy Materials Research Laboratory. Development into the advanced chaff material and chaff cartridge-118/I was carried out in the Jodhpur lab.

The Defence Research and Development Organisation (DRDO) claimed that the project has met the qualitative requirements of the IAF and that "The Indian Air Force has started the process of induction of this technology after completion of successful user trials."

A DRDO statement highlighted, "In today's electronic warfare, survivability of fighter aircraft is of prime concern because of advancement in modern radar threats. To ensure the survivability of aircraft, CounterMeasure Dispensing System (CMDS) is used which provides passive jamming against infra-red and radar threats."

"The technology has been given to the industry for production in large quantities to meet the annual rolling requirement of the Indian Air Force," it said. India's Defense Minister Rajnath Singh lauded both the DRDO and IAF for developing this technology and described it as another step towards 'Make in India' in strategic defense technologies.

His view was echoed by DRDO chairman Dr. G Satheesh Reddy.

"The importance of this technology lies in the fact that very less quantity of chaff material deployed in the air acts as a decoy to deflect enemy's missiles for ensuring the safety of the fighter aircraft," Dr. Narendra Kumar Arya, Director Public Interface, DRDO, told The EurAsian Times.

What is Chaff Technology?

According to an aerospace analyst The EurAsian Times spoke with, "Chaff is the electronic equivalent of smoke and reflects electromagnetic energy to confuse or deceive an enemy system.

Chaff materials of various sizes are packed into a container which is released by the aircraft to form an electronic cloud, thereby confusing the enemy.

"The challenge is to develop materials which are not bulky and have the capability to pack more of the material in the aircraft or reduce the space required for housing it. DRDO has precisely done this."

Speaking on the condition of anonymity, a retired IAF fighter pilot told the EurAsian Times, "Chaff is like the name suggests, very thin filaments of a certain shape and length which reflects radar waves. It is filled in canisters and fired from the aircraft. When it is deployed it blooms behind the aircraft."

"If a missile radar was tracking the aircraft, then the radar lock will be broken, and it will lock on to this bloomed cloud. Every frequency has a different shape and length of the chaff that will reflect the energy. If that technology is available indigenously, it will help India become 'Atma Nirbhar' [self-reliant]," the IAF veteran added.

Militaries around the world have deployed these electronic countermeasures to safeguard vital assets including aircraft and warships. Chaff technology protects them from both radar and radio frequencies. Chaff rockets are known to be deployed in naval vessels which confuse incoming munitions by acting as multiple targets in the eyes of an enemy missile.

India's Defense Ministry had earlier indicated that the Jodhpur-based lab had developed three chaff rocket variants to meet the operational needs of the Indian Navy. The DRDO had developed short, mid, and long-range variants.

A salient feature of chaff technology is that only a marginal quantity of it needs to be deployed in the air to act as a decoy in order to ensure the relative safety of naval vessels.

The development of chaff systems for the Navy will provide a viable anti-radar homing missile passive defense, against such missiles which may leak through the active defensive systems.

Besides, local availability would provide for adequate stocks in rupee payments to hone formation tactics," said Rear Admiral Vineet Bakhshi, VSM (Retd), a former Commanding Officer of INS Shivaji.

What Distinguishes Chaff From Flares?

Both chaff and flares are used as effective countermeasures against enemy missiles or irritate hostile radars aiming to locate and seek the positions of maritime assets such as ships. However, the difference lies in one mission-critical aspect.

Flares are known to fire a potent infrared source, which is designed to attract enemy heat-seeking missiles.

Chaff, on the other hand, does not. Instead, chaff which is made up of minute zinc or aluminum fibers works to confuse the radar on hostile munitions. This indigenous development marks yet another step towards providing indigenous countermeasures for naval and air force assets.

https://eurasiantimes.com/drdo-tech-makes-indian-fighter-jets-invulnerable/

THE ECONOMIC TIMES

Sat, 21 Aug 2021

DRDO develops advanced chaff technology for IAF to distract enemy's radar-guided missiles

1. Fooling missiles

According to a PTI report, DRDO has developed an advanced chaff technology, which is used to distract enemy's radar-guided missiles, to safeguard IAF fighter jets from enemy missiles.

2. Inducting tech

The IAF has started the process of induction of this technology after the completion of successful trials. Two DRDO laboratories developed the "advanced chaff material and chaff cartridge - 118/I" and it has met the qualitative requirements of the IAF.

3. Advanced decoy

“The importance of this (advanced chaff) technology lies in the fact that very less quantity of chaff material deployed in the air acts as decoy to deflect enemy's missiles for ensuring safety of the fighter aircraft," DRDO stated.

4. Arming IAF

The technology has been given to the industry for production in large quantities to meet the annual rolling requirement of the IAF, it noted.

5. Aatmanirbhar Bharat

Defence Minister Rajnath Singh lauded the DRDO, the IAF and the industry for indigenous development of this critical technology, terming it one more DRDO step towards 'Aatmanirbhar Bharat' in the strategic defence technologies.

https://economictimes.indiatimes.com/news/defence/drdo-develops-advanced-chaff-technology-for-iaf-to-distract-enemys-radar-guided-missiles/fooling-missiles/slideshow/85484223.cms

oneindia hindi

Sat, 21 Aug 2021

जोधपुर: DRDO वैज्ञानिकों ने IAF के फाइटर विमानों को दुश्मन के रडार से बचाने की तकनीक विकसित की

By Vishwanath Saini

जोधपुर: डीआरडीओ की जोधपुर स्थित रक्षा प्रयोगशाला के वैज्ञानिकों ने एयरफोर्स के फाइटर विमानों को दुश्मन के रडार से बचाने के लिए ख़ास स्वदेशी तकनीक तैयार की है। जोधपुर में विशेष मेटल फाइबर विकसित किया है। चैफ फाइबर के माध्यम से विमान दुश्मन के रडार को चकमा देगा। इससे रडार बेस्ड मिसाइल विमान को ट्रैक नहीं कर सकेगी। आत्मनिर्भर भारत अभियान के तहत इस तकनीक को दो स्वदेशी कंपनियों को ट्रांसफर किया है।

चैफ खरीदने पर एयरफोर्स सालाना सौ करोड़ से ज्यादा का खर्च

एयरफोर्स इन कंपनियों को सीधे ऑर्डर देगा। चैफ खरीदने पर एयरफोर्स सालाना सौ करोड़ से भी ज्यादा खर्च करता है, अब आधे पैसे ही खर्च होंगे। अभी ये एयरफोर्स के जगुआर विमान में उपयोग में आएगा। विमानों में लगने वाले काउंटर मेजर डिस्पेंडिंग सिस्टम यानी दुश्मन की रडार आधारित मिसाइल से बचाने वाला उपकरण होता है। ये विमान के इंफ्रारेड व एंटी रडार से विमान को बचाएगी।

50 करोड़ रुपए व करोड़ों के विमान बचेंगे

कुमार ने बताया कि हमने इसे विकसित करने के लिए 4 वर्ष की समय सीमा तय की थी, लेकिन हमारी टीम ने अथक प्रयास से इसे सिर्फ ढाई वर्ष में ही तैयार कर दिया। इससे न केवल समय पर देश में विकसित चैफ मिल सकेगा बल्कि विदेशी मुद्रा की बचत भी होगी। इसके निर्यात की भी भरपूर संभावना है, लेकिन इस बारे में फैसला सरकार करेगी।

चैफ तकनीक - बाल से पतले करोड़ों फाइबर पार्टिकल की ओर मुड़ जाती है मिसाइल

जोधपुर रक्षा प्रयोगशाला निदेशक रवींद्र कुमार ने बताया कि सही मायने में यह फाइबर है। बाल से भी पतले इस फाइबर की मोटाई महज 25 माइक्रोन होती है। फाइटर से इसके छोटे-छोटे टुकड़ों को दागा जाता है। इससे करोड़ों-अरबों टुकड़े आसमान में एक निश्चित ऊंचाई पर जाकर आपस में मिलकर बादलों के समान एक समूह बना लेते हैं। इस समूह से दुश्मन के रडार में फाइटर का आभास होता है। ऐसे में विमान की ओर दागी जाने वाली मिसाइल अपना लक्ष्य भटककर इस समूह से टकरा जाती है।

विमान के पिछले हिस्से में लगता है चैफ

चैफ को दागने के लिए विमान के पिछले हिस्से में लगाया जाता है। निश्चित दूरी पर विस्फोट होते ही चैफ के पार्टिकल आसमान में बिखर जाते हैं। थोड़ी देर में ये करोड़ों पार्टिकल आपस में मिलकर एक समूह के रूप में छा जाते हैं। जहाज की तरफ बढ़ रही मिसाइल इन्हें अपना लक्ष्य मान दिशा बदल इन पर टूट पड़ती है। इसके अब तक किए गए सारे परीक्षणों के नतीजे संतोषजनक रहे हैं।

https://hindi.oneindia.com/news/jodhpur/drdo-scientists-developed-technology-to-protect-aif-fighter-planes-from-enemy-radar/articlecontent-pf366419-634851.html

THE WEEK

Sat, 21 Aug 2021

Radiance in Indian Skies-The Tejas Saga: The inspiring journey of India's homegrown fighter

B.R. Srikanth misses no details in his chronology of the Tejas's journey

By Abhinav Singh

It took almost three years for Air Marshal Philip Rajkumar (Retd), former director of ADA (Aeronautical Development Agency) and B.R. Srikanth, an accomplished award-winning journalist to complete a unique book *Radiance in Indian Skies- The Tejas Saga* published by the Defence Scientific Information and Documentation Centre of the Defence Research and Development Organisation (DRDO). The book traces the entire journey of India's indigenously built Light Combat Aircraft Tejas. The book is a collection of rare pictures and interesting facts about the development of Tejas and is a treasure of information about the development of the aircraft right from concept to its entry into the squadron service.

"The whole project had been severely criticised from time to time hence I wanted to present the fascinating journey about the LCA project to the masses. Now with the successful induction of Tejas, it is a wonderful success story in the history of the Indian aerospace industry. I feel that the entire nation should know about the journey of the development of Tejas," Rajkumar told THE WEEK.

The book that was released by the defence minister Rajnath Singh during Aero India in Bengaluru in Feb 2021 has a foreword by the present Air Chief Marshal R.K.S, Bhadauria and an introduction by Dr G. Satheesh Reddy, Chairman DRDO. "The greatest challenge was to source pictures for the story and interview multiple people who were involved in the development of the LCA. Multiple rounds of interviews with different scientists, experts, test pilots etc had to be done. Some of them face to face and many through calls and online meetings due to the pandemic. We had virtually lost almost a year in between due to the pandemic as we had limited access to organisations such as ADA (Aeronautical Development Agency) and HAL (Hindustan Aeronautics Limited)," remarked Srikanth.

Srikanth does not miss any significant event in the aircraft's journey, which he tells in narrative form, building on numerous interviews. It includes pictures sourced from different test pilots who had flown the aircraft and many other sources including ADA, DRDO and HAL. The book has profiled around 35 people who were closely associated with the project at different stages of development. Among them is Prof Roddam Narasimha, an eminent aerospace scientist who had guided the LCA programme, as well as Wing Commander Rajiv Kothiyal who undertook the prototype of the LCA aircraft on January 4, 2001

There is also an interesting profile of Cmde J.A. Maolankar who was the driving force behind the LCA's Naval version. One of the most unique pictures in the book is of Dr APJ Abdul Kalam the former president who sports a fighter pilot's attire. The book highlights at length Dr Kalam's contribution to the LCA programme. The book also gives details about the ADA that was established in 1984 to manage the LCA project and about HAL that was the principal partner to the project. It also talks about the contribution of the Aeronautical Development Establishment (ADE) and the National Aerospace Laboratory (NAL) and the role of the Defence Research and the DRDO to the project.

Air Marshal Rajkumar had served for around four decades in the Indian Air Force out of which he had been directly involved in the LCA programme for nine years from 1994 to 2003. He was given the task of setting up the infrastructure and preparing for flight testing the two technology demonstrator aircraft. The National Flight Test Center (NFTC) was set up by him in 1994 which has since performed 5000 prototype test flights safely.

"I have flown 55 different types of aircraft and have logged 5,200 hours of flying," he said. No wonder that, at the age of 78, he realised his cherished dream of flying the Tejas on February 28, 2020 in Bengaluru.

Rajkumar is now working to bring out a Kannada version of the book and also hopes the book can be brought out in Hindi too so that it can be read by the masses. He feels that the inspiring journey of the Tejas fighter should be passed on to all.

https://www.theweek.in/news/india/2021/08/20/radiance-in-indian-skies-the-tejas-saga-the-inspiring-journey-of-indias-homegrown-fighter.html

THE TIMES OF INDIA

Sat, 21 Aug 2021

U Raja Babu appointed RCI director

By Ch Sushil Rao

Hyderabad: Ummalaneni Raja Babu, Outstanding Scientist and Programme Director, AD has been appointed Director, Research Centre Imarat (RCI), a premier avionics laboratory of Dr APJ Abdul Kalam Missile Complex, DRDO, in Hyderabad.

Ummalaneni Raja Babu

U Raja Babu, is known for his significant contributions as Programme Director, AD at RCI. He provided necessary thrust to the design, development and successful demonstration of Ballistic Missile Defence system capabilities. Under his leadership, Programme AD successfully demonstrated "Mission Shakti," India's first Anti Satellite Missile Test (A-SAT), strengthening indigenous defence capabilities, the defence ministry said on Friday.

BHVS Narayana Murthy who was heading RCI until recently was appointed Director-General, missiles and strategic systems, DRDO.

https://timesofindia.indiatimes.com/home/education/news/u-raja-babu-appointed-rci-director/articleshow/85488929.cms

Business Standard

Sat, 21 Aug 2021

HAL will make India self-reliant in defence technology: Venkaiah Naidu

Vice President, M. Venkaiah Naidu said that indigenous products will play a key role in leapfrogging India as an aerospace and defence powerhouse in the coming years on Friday

While addressing the scientists and engineers of Hindustan Aeronautical Limited (HAL) Bengaluru, Vice President, M. Venkaiah Naidu said that indigenous products will play a key role in leapfrogging India as an aerospace and defence powerhouse in the coming years on Friday.

Vice President M Venkaiah Naidu. Photo: PTI

M. Naidu emphasized the need to develop cutting-edge technologies indigenously to make India self-reliant in defence technology and emerge as an export hub of modern military hardware.

While noting India's capability to manufacture state-of-the-art missiles, satellites and space vehicles, he said, "the paradox remains that we are still among the largest arms importers in the world". He called for changing this situation by quickening the pace of indigenous development of critical technologies.

Drawing attention to multiple security challenges faced by the country due to a highly complex geopolitical environment, the Vice President lauded the security forces for their exemplary courage and professionalism. "It is our duty to ensure that our armed forces are fully equipped to handle any challenge and repel any security threat firmly", he said.

The Vice President said that India wants friendly relations with all its neighbours but some countries are funding and supporting terrorism against India and some harbour expansionist tendencies. "Therefore, security and safety of our borders are very important for the peace and prosperity of the nation", he added. Stressing that India has never been expansionist in its outlook, Naidu said that our approach is of peaceful coexistence and to deter the forces of terror and disruption. "India wants to become strong for the progress and development of its people," he said.

Referring to several policy initiatives by the Government to promote indigenization and self-reliance in defence manufacturing, Naidu underlined the need to involve private partners in defence projects for fruitful results. "We will have to depend on strategic partnerships, technology sharing and teamwork to ensure that we build competitive products which are comparable with the best from across the globe", he said.

He said that measures such as an increase in the foreign direct investment (FDI) limit for the defence sector, the decision to set up two defence corridors in Uttar Pradesh and Tamil Nadu and notification of two positive indigenization lists by the Ministry of Defence offer a great opportunity to the Indian defence industry.

Praising the involvement of a large number of Indian companies with the HAL in the recently concluded deal for 83 Tejas fighter jets by the Indian Air Force (IAF), the Vice President said that such projects have the potential to transform the Indian aerospace manufacturing ecosystem into a vibrant Atmanirbhar-self-sustaining one.

Noting that the innovation process in the Aerospace industry involves high levels of risk and costly investments, he opined that this process can be accelerated through active collaboration between the industry and researchers. Emphasizing the need to attract the brightest minds in R & D in the aerospace and defence sectors, Shri Naidu called for creating a synergy between academia

and industry for developing an 'Aerospace Hub'. "This would promote innovation and address the issue of skills shortage in this key sector," he said.

Earlier in the day, the Vice President visited HAL's LCA Tejas manufacturing facility and expressed his appreciation to scientists and engineers of ADA and HAL for building this state-of-the-art modern fighter aircraft. He expressed confidence that the 4+ generation aircraft would be a potent platform to meet the operational requirements of the Indian Air Force.

The Vice President was equally impressed by the HAL's helicopter facility which showcased indigenously developed Advanced Light Helicopter, Dhruv, Light Combat Helicopter and a Light Utility Helicopter that will replace Cheetah/Chetak helicopters.

The Vice President lauded the stellar contribution of HAL and DRDO laboratories to national security and expressed confidence that with designing of more potent aircraft like the LCA Mk2, Advanced Medium Combat Aircraft (AMCA) and Twin-Engine Deck Based Fighter (TEDBF), the country would no longer have to be dependent on foreign nations to meet its fighter aircraft needs.

Stating that HAL's growth has been synonymous with the growth of the Aeronautical industry in India, he reiterated that self-reliance in defence and aerospace technology was important to create a 'Samarth Aur Saksham Bharat' (Able and capable India). He said that he felt proud and reassured of the capabilities of Indian researchers after visiting this visit HAL facilities.

Drawing attention to impending 'digitization of manufacturing', he said that it would bring profound changes in the aerospace sector and exhorted HAL to brace up and adapt to Industry 4.0. He also underlined the importance of ensuring customer satisfaction for HAL to emerge as a global player in the aviation space.

Recognizing the need to unleash the power of innovation to find solutions to our various challenges faced by mankind, Shri Naidu stressed that our economic development agenda needs to be socially and economically more inclusive, regionally balanced and environmentally sustainable.

Governor of Karnataka, ThaawarchandGehlot, HAL Chairman, R.Madhavan and senior officials and scientists from HAL and ADA were present on the occasion.

(Only the headline and picture of this report may have been reworked by the Business Standard staff; the rest of the content is auto-generated from a syndicated feed.)

https://www.business-standard.com/article/current-affairs/hal-will-make-india-self-reliant-in-defence-technology-venkaiah-naidu-121082100094_1.html

Hindustan Times

Sun, 22 Aug 2021

IIT-Bombay researchers develop first-ever indigenous semiconductor memory technology

A team of researchers at IIT-B led by Udayan Ganguly, professor in the department of electrical engineering, along with SCL have successfully demonstrated a CMOS-180nm-based 8-bit memory technology. This technology is adopted for production

By Priyanka Sahoo

Mumbai: Researchers at the Indian Institute of Technology-Bombay (IIT-B) have invented the first-ever indigenous semiconductor memory technology that can be adopted for manufacturing at commercial unit of 180nm node in India.

The team at IIT-Bombay partnered with IIT-Delhi, SETS Chennai, and Defence Research and Development Organisation for hardware encryption. (HT FILE)

Memory is a critical aspect of the internet-of-things (IoT), a network of objects embedded with sensors or chips for exchange of data over a wireless network without the intervention of humans. Memories are used to customise chips by giving them user-specific storage of digital data. IoT connects tiny chips, which are all identical but distinguished by an identity (a barcode) stored in the memory. This data is stored within metal-insulator-metal (MIM) memory cells on a silicon integrated circuit memory chip.

At a time when IoT is disrupting the semiconductor industry worldwide, the semiconductor manufacturing ecosystem led by Semi-Conductor Laboratory (SCL), Mohali, department of space, Government of India, had to import the main technology from abroad.

However, a team of researchers at IIT-B led by Udayan Ganguly, professor in the department of electrical engineering, along with SCL have successfully demonstrated a CMOS-180nm-based 8-bit memory technology. This technology is adopted for production.

Ideally, silicon chips (like thermometers) should be identical, but manufacturing variations produce tiny offsets (such as errors in temperatures) which are revealed upon testing. This renders a large fraction of chips useless. The technology designed by the IIT-B team enables storing this tiny offset correction in memory once and applying it to the output afterward to make each imperfect chip perfect.

Using this method, generic chips can now be designed and make application-specific offsets added to make expensive custom chip design redundant, saving time and money for the user.

“One out of 100 ideas makes the journey from lab to fab. The exacting process of exceeding 95% yield requires an unrelenting multi-disciplinary team supported by a world-class R&D infrastructure to form an enduring collaboration. Once such successful technology opens possibilities of touching countless lives, in this case, through chips with a tiny memory,” said Ganguly.

This one-time programmable (OTP) memory is based on ultra-thin deposited silicon dioxide instead of the existing gate oxide-based OTP technology. In contrast to the high voltage required by gate oxide breakdown (a popular OTP memory), IIT-B’s memory chip requires less power and chip-area as the need for boosted voltage supply is avoided.

“Memory technology is critical to data security. It is essential for present and future Indian Fabs. To infuse innovation, translating memory technology from research to manufacturing is the key to compete globally and serve locally to establish a vibrant semiconductor ecosystem. The OTP Memory Technology Adoption for Trimming Application by the joint IIT-B-SCL, Chandigarh

team is a pioneering step in this direction. It will be a game changer by enabling secure memory and encryption hardware for the country," said VK Saraswat, member of NITI Aayog.

The project was initiated by the department of science and technology's (DST) Intensification of Research in High Priority Area (IRHPA). Aspects of the work were funded by DST's Nanoelectronics Network for Research and Applications (NNetRA), DST-Advanced Manufacturing Technologies, and office of PSA for hardware security. The team at IIT-B partnered with IIT-Delhi, SETS Chennai, and Defence Research and Development Organisation for hardware encryption.

"The success of the Digital India initiative by the Government of India has underpinnings in our country's ability to manufacture electronics hardware. The focus on electronics hardware including integrated circuits or chips is key to strengthen R&D primarily in space and defence sectors. Development of standard, product design or IP development, and semiconductor manufacturing are increasingly important. Improving India's participation in this area is a major priority for R&D in India. The partnership between IIT-B and SCL to establish this memory technology for the first time demonstrates the augmented potential for semiconductor research in the country," said K Vijay Raghavan, principal scientific adviser (PSA) to the Government of India.

https://www.hindustantimes.com/cities/mumbai-news/iitbombay-researchers-develop-first-ever-indigenous-semiconductor-memory-technology-101629564669919.html

ManufacturingToday

Sun, 22 Aug 2021

Bharat Dynamics, MBDA missiles deal to help indigenous programs in India, says GlobalData

The new facility is expected to commence its operations by 2022-23.

Bharat Dynamics Limited (BDL) has signed a contract with European multinational arms manufacturer MBDA for setting up a final assembly, integration and test facility in India for 'Advanced Short Range Air-to-Air Missiles (ASRAAM). The new facility is expected to commence its operations by 2022-23 and will also have the capability to conduct periodic maintenance, repair and overhaul operations.

According to Tushar M, Defence Analyst at GlobalData, a leading data and analytics company, with BDL having no prior experience in the production of short-range air-to-air missiles, the partnership with MBDA will be crucial for developing indigenous R&D and manufacturing ecosystem in the missile domain.

Further according to him, the partnerships between Indian companies and global OEMs will play a pivotal role in achieving self-reliance and incremental enhancement of defence equipment manufacturing capability. The technological knowhow and manufacturing knowledge obtained from the ASRAAM project is anticipated to benefit the Defence Research and Development Organisation's (DRDO) Next-Generation Close Combat Missile (NGCCM) project.Under the NGCCM project, DRDO intends to develop an advanced short-range infrared homing missile for the fifth-generation aircraft.

The NGCCM is expected to replace the R-73 missile on the existing fourth and 4.5 generation aircraft in service with the IAF. The ASRAAMs will complement the aging Russian R-73 missiles in service with the IAF. Owing to its high countermeasures' resistance and 90-degree off-boresight

targeting & Lock-On After Launch (LOAL) capability, ASRAAM is expected to offer superior performance than the R-73 missile.

The induction of ASRAAM will enhance the IAF's air interdiction capability and provide a significant combat edge during future conflicts. The IAF plans to integrate ASRAAM on several key combat aircraft including Rafale, Mirage, Jaguar and Su-30MKI. In 2014, India signed a contract to procure 384 ASRAAMs. While the current inventory of missiles may be sufficient for Rafale, Mirage and Jaguar aircraft, additional missiles may be required if the air force decides to equip its entire fleet of around 270 Su-30MKI with ASRAAMs. The standardization of Close Combat Missile (CCM) across the fleet is expected to help the IAF reduce their weapon procurement and operations & maintenance (O&M) costs.

https://www.manufacturingtodayindia.com/sectors/11393-bharat-dynamics-setting-up-production-facility-in-india-for-asraam-missiles

INDIA TODAY

Sat, 21 Aug 2021

A.P.J. Abdul Kalam: The karma yogi

The celebrated aerospace engineer spearheaded the satellite launch vehicle and missile programmes and captured our imagination as a 'People's President'

By Dr. V.K. Saraswat

Dr Avul Pakir Jainulabdeen Abdul Kalam, my guru, revolutionised the technology roadmap of India. Growing up in modest circumstances in the village of Rameswaram in Tamil Nadu, he imbibed a composite value system from his teachers. This acted as his inner compass during the remarkable journey of his life: from a newspaper boy to the leader of India's space and missile programmes and, finally, the 'People's President' of India.

Dr Avul Pakir Jainulabdeen Abdul Kalam, 1931-2015; (Photo by Bhawan Singh)

"Dr Kalam had the ability to make even the most diversethinking people work for a common cause"

In the space programme, Dr Kalam was project director of SLV-3, India's first satellite launch vehicle. He succeeded by synergising the efforts of academicians, researchers and industry like never before. He then transformed the Defence Research and Development Organisation (DRDO) through his mission-mode approach and strategic vision. Dr Kalam had the exceptional ability to make even the most diverse-thinking individuals work for a common cause. I often joked that he could make the North and South Poles come together! His eyes were set on building an ICBM (intercontinental ballistic missile) for India. Failure never deterred him and, under his guidance, the Agni missile made its first successful flight in 1989 after two attempts. He owned all failures and credited success to his teammates. When he took over as the president in 2002, many analysts felt he would be a pushover. But, as in his other endeavours, he proved his critics wrong with his single-minded commitment to the Constitution of India.

Dr V.K. Saraswat is former scientific advisor to the defence minister and former director general, DRDO. He is now member, NITI Aayog

https://www.indiatoday.in/magazine/independence-day-special/story/20210830-a-p-j-abdul-kalam-the-karma-yogi-1843419-2021-08-21

COVID 19: DRDO's Contribution

नईदुनिया

Mon, 23 Aug 2021

जिला अस्पताल में जल्द लगेगा एक और ऑक्सीजन संयंत्र

बैतूल: कोरोना की दूसरी लहर में ऑक्सीजन की कमी से हुई परेशानी को दूर करने के लिए अब जिले में चार ऑक्सीजन संयंत्र स्थापित किए जा रहे हैं। जिला अस्पताल परिसर में एक संयंत्र की स्थापना की जा चुकी है और डीआरडीओ के माध्यम से एक और संयंत्र जल्द ही स्थापित हो किया जाएगा। इसके लिए मशीनें बैतूल पहुंच चुकी हैं और अस्पताल परिसर में स्ट्रक्चर भी तैयार किया जा चुका है।

एक और संयंत्र के स्थापित हो जाने से जिला अस्पताल में 1400 लीटर प्रति मिनट ऑक्सीजन संयंत्रों के माध्यम से बनने लगेगी। जिला अस्पताल में इस माह की शुरुआत में ही 400 लीटर प्रति मिनट ऑक्सीजन उत्पन्ना करने वाला संयंत्र प्रारंभ किया गया है। इसमें बनने वाली ऑक्सीजन को सीधे कोरोना वार्ड और आइसीयू में पहुंचाने के लिए पाइप लाइन भी बिछा दी गई है। हालांकि वर्तमान में जिला अस्पताल में भर्ती मरीजों को ऑक्सीजन की आवश्यकता बेहद कम पड़ रही है इस कारण से संयंत्र का पूरा उपयोग नहीं हो पा रहा है।

नए भवन के पास बनाया स्ट्रक्चरः

जिला अस्पताल में दूसरे नए भवन का निर्माण कार्य किया जा रहा है। पुराने अस्पताल भवन के स्थान पर बनाए जा रहे भवन और वर्तमान में स्थित तीन मंजिला भवन के बीच में ऑक्सीजन संयंत्र की स्थापना की जा रही है। इससे आवश्यकता पड़ने पर नए और तीन मंजिला भवन में ऑक्सीजन पहुंचाने में कोई परेशानी का सामना न करना पड़े। दोनों भवनों के बीच में खाली पड़ी भूमि पर स्ट्रक्चर के साथ ही कक्ष का निर्माण भी कर दिया गया है।

संयंत्र की मशीनें पहुंचीः

जिला अस्पताल परिसर में 1000 लीटर प्रति मिनट ऑक्सीजन उत्पन्ना करने की क्षमता वाले संयंत्र की मशीनें भी बैतूल पहुंच चुकी हैं। अस्पताल परिसर में डीआरडीओ के सहयोग से स्थापित किए जाने वाले संयंत्र की मशीनों से लदा ट्रक खड़ा हुआ है। इसे स्थापित करने के लिए दिल्ली से तकनीकी अधिकारियों की टीम के पहुंचने पर काम प्रारंभ कर दिया जाएगा। इसका परीक्षण करने के बाद अस्पताल के आइसीयू तक पाइप लाइन भी बिछाई जाएगी।

मुलताई जाएगा पुराना संयंत्रः

जिला अस्पताल परिसर में पूर्व में स्थापित किए गए 400 लीटर प्रति मिनट ऑक्सीजन उत्पन्ना करने की क्षमता वाले संयंत्र को मुलताई के सामुदायिक स्वास्थ्य केंद्र पहुंचाया जाएगा। जिला अस्पताल में जैसे ही 1000 लीटर प्रति मिनट क्षमता का संयंत्र पूरी तरह से कार्य करने लगेगा वैसे ही यहां के पुराने संयंत्र को मुलताई ले जाया जाएगा।

महामारियों के लिए बनाया गया टास्क फोर्सः

कोरोना ही नहीं बल्कि हर तरह की एपेडेमिक के लिए जिले में टॉस्क फोर्स बनाया गया है। इसके अलावा हर ब्लॉक में भी 10-10 कर्मठ व कर्तव्यनिष्ठ अधिकारी-कर्मचारियों की टीम बनाई गई है। कोरोना

के लिए रखे गए कर्मचारियों को भी नहीं हटाया गया बल्कि उन्हें इससे निपटने का खासा अनुभव हो चुका है। इसलिए उनके अनुभव का लाभ लिया जा रहा है। इससे यदि तीसरी लहर आती भी है तो नए सिरे से तैयारियां करने की बिल्कुल जरुरत नहीं पड़ेगी।

वर्जन...

जिला अस्पताल परिसर में डीआरडीओ द्वारा नया ऑक्सीजन संयंत्र स्थापित किया जा रहा है। स्ट्रक्चर पूरी तरह से तैयार हो गया है और मशीनें भी पहुंच गई हैं। तकनीकी अधिकारियों की टीम के आने पर ही इन्हें स्थापित किया जाएगा। डॉ. अशोक बारंगा, सिविल सर्जन, जिला अस्पताल बैतूल

https://www.naidunia.com/madhya-pradesh/betul-betul-news-7008728

अमर उजाला

Sat, 21 Aug 2021

एक और ऑक्सीजन प्लांट व 75 बेड का कोविड वार्ड स्वास्थ्य विभाग को समर्पित

- *डीआरडीओ की ओर से तैयार कराया गया है आक्सीजन प्लांट*
- *आज कंप्रेसर लगने के बाद ऑक्सीजन सप्लाई हो जाएगी शुरू*

सुल्तानपुर: विरसिंहपुर के 100 बेड के हॉस्पिटल में स्थापित ऑक्सीजन प्लांट व 75 बेड के कोविड वार्ड को शुक्रवार को पूर्व केंद्रीय मंत्री एवं सांसद मेनका गांधी ने स्वास्थ्य विभाग को समर्पित कर दिया। डीआरडीओ की ओर से बनाए गए ऑक्सीजन प्लांट को समर्पित करते हुए सांसद ने कोविड संक्रमण की संभावित तीसरी लहर के प्रकोप से लोगों के बचाने की उम्मीद जताई। कहा कि एक माह में अस्पताल में ओपीडी का भी शुभारंभ हो जाएगा।

कार्यक्रम में सांसद ने कहा कि पीएम मोदी ने देश के 500 ऑक्सीजन प्लांट में दो सुल्तानपुर में स्थापित करवाए। पीएम मोदी व सीएम योगी जिले के विकास के प्रति संकल्पित हैं। इसके तहत ही एक कृषि विज्ञान होते हुए भी दूसरे की स्थापना कराई। ऑक्सीजन प्लांट की खामियों पर कार्यदायी संस्था को फटकार लगाते हुए जल्द दुरुस्त करने का निर्देश दिया। लोकार्पण के मौके पर विधायक सीताराम वर्मा, जिलाधिकारी समेत अन्य मौजूद रहे। इसके पहले फतेहपुर संगत गांव में चौपाल को संबोधित करते हुए तीन एकड़ भूमि में मेहंदी रोपण का शुभारंभ किया। गोसाईगंज में विधायक सूर्यभान सिंह की मौजूदगी में पंचायत मिलन केंद्र का भी लोकार्पण किया।

सांसद ने कादीपुर, जयसिंहपुर व लंभुआ विधानसभा क्षेत्रों में आयोजित पार्टी की बैठकों में हिस्सा लिया। कार्यशाला में उन्होंने पार्टी की जीत के टिप्स दिए। कहा कि यदि बूथ अध्यक्ष ताकतवर होगा, तभी हम 2022 में जीत का एक बार फिर इतिहास रचेंगे। सेवतरी चौपाल व भदैंया में प्रधानों व बीडीसी से सीधा संवाद किया। उन्होंने प्रधानों से अपने गांव में दो सौ फलदार पौधे लगाने व समस्याओं के निस्तारण के लिए सरपंच की भूमिका में आने की सीख दी। स्वरोजगार के लिए मेहंदी, भीम बांस के पौधे लगाने व जलकुंभी से जैविक खाद बनाने का सुझाव दिया। कहा कि बड़ा कार्य करने के साथ जब गांव वालों की छोटी समस्याओं का निस्तारण करवाती हूं तो मुझे सुकून मिलता है।

https://www.amarujala.com/uttar-pradesh/sultanpur/launch-sultanpur-news-lko5921318104

Sat, 21 Aug 2021

जिला महिला अस्पताल में 500 एलपीएम ऑक्सीजन प्लांट तैयार, आज से सप्लाई शुरू

- *डीआरडीओ की ओर से तैयार कराया गया है आक्सीजन प्लांट*
- *आज कंप्रेसर लगने के बाद ऑक्सीजन सप्लाई हो जाएगी शुरू*

बरेली: कोरोना की संभावित तीसरी लहर से पहले जिला महिला अस्पताल भी अपने आक्सीजन प्लांट से लेस हो चुका है। डीआरडीओ की ओर से स्थापित कराया जा रहा यह प्लांट अब बन कर तैयार हो गया है। 500 लीटर आक्सीजन प्रति मिनट उत्पान क्षमता के इस प्लांट से अस्पताल में सीधे आक्सीजन सप्लाई आज से शुरू हो जाएगी। इसके बाद भविष्य में अस्पताल को आक्सीजन की कमी से नहीं जूझना पड़ेगा।

कंप्रेसर लगते ही प्लांट से सप्लाई शुरू

महिला जिला अस्पताल में डीआरडीओ के इस ऑक्सीजन प्लांट को नोएडा की कंपनी प्लांट कर रही है। कंपनी ने प्लांट के प्लांटेशन का काम पूरा भी कर लिया है। थर्सडे को प्लांट में काम रहे कंपनी के टेक्नीशियन ने बताया कि ऑक्सीजन प्लांट में अब सिर्फ कंप्रेसर लगना बांकी है। यह कंप्रेसर फ्राइडे को लग जाएगा। इसके लगते ही प्लांट से ऑक्सीजन की सप्लाई चालू कर दी जाएगी।

प्लांट के प्रोग्रेस पर थी डीएम की नजर

महिला जिला अस्पताल में लग रहे ऑक्सीजन प्लांट को जल्दी से जल्दी स्थापित कराने लिए प्रशासन भी इसकी मानीटरिंग कर रहा था। बीते दिनों डीएम नितीश कुमार इस प्लांट के निरीक्षण को महिला अस्पताल पहुंचे थे। उन्होंने निरीक्षण के दौरान प्लांट को समय पर तैयार करने के निर्देश दिए थे। उन्होंने ऑक्सीजन सप्लाई के लिए अस्पताल के वार्डो में कराई जा रही पाइप लाइन की फिटिंग के बारे में भी जानकारी ली। प्लांट से ऑक्सीजन की सप्लाई शुरू होने से भविष्य में यहां किसी पेशेंट को ऑक्सीजन की कमी का सामना नहीं करना पड़ेगा।

https://www.inextlive.com/uttar-pradesh/bareilly/oxygen-plant-ready-in-female-hospital-302666

नईदुनिया

Sun, 22 Aug 2021

अब सौ मरीजों को एक साथ मिल सकेंगी जिला अस्पताल में ऑक्सीजन

कटनी: जिला अस्पताल में भर्ती मरीजों को अब ऑक्सीजन की कमी से नहीं जूझना पड़ेगा। अस्पताल परिसर में ही एक हजार एलपीएम क्षमता का ऑक्सीजन प्लांट लगाया है, जिसने काम करना प्रारंभ कर दिया है। प्लांट में तैयार होने वाली ऑक्सीजन अस्पताल में भर्ती सौ मरीजों तक पाइप लाइन के जरिए पहुंचेगी। ऑक्सीजन प्लांट का शुभारंभ शनिवार को मुख्यमंत्री शिवराज सिंह चौहान, भाजपा प्रदेशाध्यक्ष व सांसद खजुराहो वीडी शर्मा, लोक निर्माण मंत्री गोपाल भार्गव, स्वास्थ मंत्री प्रभुराम चौधरी, चिकित्सा शिक्षा मंत्री विश्वास सारंग ने वर्चुअल माध्यम से किया। मेडिकल ऑक्सीजन प्लान्ट के शुरू होने से अब जिला अस्पताल में एक नई सुविधा जुड़ गई है।

विधायक संदीप जायसवाल ने कहा कि कोरोना काल मेंं मुख्यमंत्री श्री चौहान और सांसद श्री शर्मा ने बेहतर इलाज के लिए लगातार प्रयास किये हैं। उसी के चलते आज ऑक्सीजन प्लांट जिला अस्पताल को मिला है। उन्होंने कहा कि लगभग डेढ़ करोड़ की लागत के प्लांट का फायदा कोरोना के मरीज ही नहीं, अन्य बीमारियों से पीड़ितों को भी मिलेगा। जायसवाल ने कोविड वैक्सीनेशन के प्रति भी आमजन को जागरूक किया। उन्होंने अपील की कि सभी लोग कोविड वैक्सीनेशन करायें और पहले डोज के साथ ही निर्धारित अवधि पूरी होने के बाद अपना दूसरा डोज का भी वैक्सीनेशन जरूर करायें। पीएम केयर फंड से डीआरडीओ द्वारा एलपीएम पीएसए आधारित ऑक्सीजन संयंत्र की स्थापना की गई है। तैयार प्लांट से वार्ड तक पाइप लाइन डाली गई है, जिसके जरिए मरीजों को सीधे ऑक्सीजन उपलब्ध हो सकेगी।

आइसीयू सहित जोड़े गए सामान्य बेड : ऑक्सीजन प्लांट से पाइप लाइन के माध्यम से आइसीयू के 10 बेड को जोड़ा गया है। इसके अलावा 90 सामान्य बेड भी पाइप लाइन से जुड़े हैं। सुरक्षा को लेकर भी आवश्यक गैजेट लगाए गए हैं ताकि जरूरतमंद मरीजों को किसी भी प्रकार की परेशानी का सामना न करना पड़े। ऑक्सीजन प्लांट को संचालित करने के लिए 125 केवीए का ट्रांसफार्मर मप्र पूर्व क्षेत्र वितरण कंपनी की मदद से लगाया गया है। बिजली आपूर्ति प्रभावित होने पर भी प्लांट काम करना बंद न करे, इसके लिए जनरेटर की सुविधा रखी गई है।

इन विभागों के सहयोग से पूरा हुआ काम: ऑक्सीजन प्लांट में भारतीय राष्ट्रीय राजमार्ग प्राधिकरण परियोजना इकाई जबलपुर के द्वारा 19.20 लाख रुपये की लागत से प्लेटफार्म व शेड का निर्माण कराया गया है। वर्चुअल रूप से शुभारंभ के साथ जिला अस्पताल परिसर में भी कार्यक्रम का आयोजन किया गया। जिसमें कलेक्टर प्रियंक मिश्रा, भाजपा जिला अध्यक्ष रामरतन पायल, पूर्व महापौर शशांक श्रीवास्तव, पूर्व भाजपा जिलाध्यक्ष पीताम्बर टोपनानी मौजूद थे। अतिथियों ने फीता काटकर कर प्लांट का शुभारंभ किया। इस दौरान सीएमएचओ डॉ. प्रदीप मुड़िया, सिविल सर्जन डॉ. यशवंत वर्मा मौजूद थे।

यह है खास

- **मप्र पूर्व क्षेत्र विद्युत वितरण कंपनी ने 12.46 लाख रुपये की लागत से 125 केवीए का ट्रांसफार्मर स्थापित किया है।**

- 250 केवीए का डीजी सेट के स्थापना का कार्य लोक निर्माण विभाग ने 24.13 लाख रुपये की लागत से किया है।
- स्वास्थ्य विभाग ने मैनीफोल्ड कक्ष से प्लांट तक मेडिकल गैस पाइप लाइन का कार्य 2.97 लाख रुपये की लागत से कराया है।

https://www.naidunia.com/madhya-pradesh/katni-katni-news-7007972

दैनिक भास्कर

Mon, 23 Aug 2021

दाे ऑक्सीजन प्लांट की साैगात:कोरोना की दूसरी लहर के बाद पहली बार 130 पलंग पर ऑक्सीजन सप्लाई पहुंची

- *सुविधा जिला अस्पताल में ऑक्सीजन की सुविधा मिली, बच्चाें के पलंग तक भी पहुंची सप्लाई*

होशंगाबाद: जिला अस्पताल में दाे ऑक्सीजन प्लांट की साैगात मिल गई है। अब पलंग तक ऑक्सीजन पहुंचाई जा रही है। हालांकि अभी इनका विधिवत शुभारंभ नहीं हुआ है। काेराेना की दूसरी लहर में ऑक्सीजन सिलेंडर के भराेसे रहे जिला अस्पताल अब अपने दाे ऑक्सीजन प्लांट काे संचालित करने लगा है। अब दाेनाें प्लांट से जिला अस्पताल में 130 बेड्स पर ऑक्सीजन पहुंचने लगी है। 300 बेड्स वाले जिला अस्पताल में 130 बेड्स पर सेंट्रल अाॅक्सीजन लाइन की मदद से ऑक्सीजन मिल रही है।

होशंगाबाद। जिला अस्पताल में बनकर तैयार ऑक्सीजन प्लांट।

वहीं अस्पताल के एसएनसीयू में भी बच्चाें काे ऑक्सीजन दी जा रही है। काेराेनाकाल की दूसरी लहर में अप्रैल मई महीने में भयाभय स्थिति निर्मित हुई थी। जिसके बाद भारत सरकार ने जिला अस्पताल काे दाे ऑक्सीजन प्लांट दिए है। सरकार ने बीपीसीएल ने 750 एलपीएम प्लांट क्षमता का प्लांट दिया है। इसकी कुल लागत 1 कराेड़ 40 लाख है। वहीं डीआरडीओ ने 1000 एलपीएम क्षमता का प्लांट दिया है। जिसकी लगात करीब 80 से 90 लाख रुपए है।

तीसरी लहर का अंदेशा, बच्चाें की फ्रिक

स्वास्थ्य विशेषज्ञाें द्वारा काेराेना की तीसरी लहर में सबसे ज्यादा खतरा बच्चाें काे हाेने की आशंका जताई जा रही है। इस बात काे ध्यान में रखते हुए जिला स्वास्थ्य विभाग ने जिला अस्पताल में प्राथिमकता के आधार पर बच्चाें की यूनिटाें में पहले ऑक्सीजन सप्लाई दी है। जिससे अगर तीसरी लहर में ऐसे मामले सामने आते हैं ताे बच्चाें के लिए पर्याप्त सुविधा दी जा सके। जिला अस्पताल में ऑक्सीजन प्लांट से पीआईसीयू ,एसएनसी, सीसीयू,काेविड आईसीयू में ऑक्सीजन की सप्लाई दी गई है।

नए प्लांट से इन वार्डाें में दी सप्लाई

जिला अस्पताल में 1000 एलपीएम क्षमता वाले नए प्लांट से एसएनसीयू के 20 बेड्स, पीआईसीयू के 10 बेड्स, सीसीयू में 10 बेड्स, काेविड आईसीयू में 10 बेड्स पर ऑक्सीजन सप्लाई दी जा चुकी है।

पुणे से ऑपरेट हाेगा ऑक्सीजन प्लांट

हाेशंगाबाद में बना ऑक्सीजन प्लांट फुल ऑटाेमेटिक है। यह ऑनलाइन ऑपरेट किया जाएगा। मशीन ऑनलाइन पूणे कंपनी ऑफिस से जुड़ी हाेगी। जिसकी माॅनिटरिंग कंपनी करेगी। हाेशंगाबाद में प्लांट की देख-रेख के लिए केवल एक मेन पाॅवर की जरूरत हाेगी।

आवश्यकता के अनुसार होगा प्लांट का उपयोग

जिला अस्पताल में प्लांट से ऑक्सीजन की सप्लाई मिलना शुरू हाे गया है। बच्चाेंं के लिए काेविड के खतरे काे देखते हुए बच्चाेंं की यूनिट में सप्लाई काे प्राथमिकता दी गई है। हम आवश्यकता के अनुसार प्लांट का उपयाेग करेंगे। -डाॅक्टर दिनेश दहलवार, सिविल सर्जन

https://www.bhaskar.com/local/mp/hoshangabad/news/oxygen-supply-reached-130-beds-for-the-first-time-after-the-second-wave-of-corona-128844213.html

दैनिक भास्कर

Mon, 23 Aug 2021

तीसरी लहर से बचाव की तैयारी:1.2 करोड़ रु. से 1200 ली. प्रति मिनट ऑक्सीजन उत्सर्जन प्लांट का काम शुरू, रीफिलिंग भी होगी

- *जिला अस्पताल में बी ब्लॉक के पीछे खोदे गड्ढे, सितंबर में पूरा होगा काम*
- *पहले के प्लांट में 400 एलपीएम गैस का हो रहा उत्सर्जन यहीं 1 हजार की क्षमता वाले 1 अन्य प्लांट का काम चालू*

खंडवा: कोरोना संक्रमण की संभावित तीसरी लहर से बचाव के लिए जिला अस्पताल में तैयारी चल रही है। आने वाले समय में ऑक्सीजन गैस की कमी नहीं हो। इसलिए परिसर में एनएचडीसी द्वारा 1.2 करोड़ रुपए लागत से 1200 लीटर प्रति मिनट ऑक्सीजन गैस उत्सर्जन वाला प्लांट बनवाया जा रहा है। शनिवार को इस प्लांट के लिए गड्ढे खोदकर काम शुरू किया।

इसके अलावा 1000 प्रति मिनट ऑक्सीजन उत्पादन की एएसयू का काम भी चल रहा है। इन दोनों प्लांट का काम होने पर सितंबर से जिला अस्पताल में 2200 लीटर प्रति मिनट मेडिकल ऑक्सीजन का उत्पादन होना शुरू हो जाएगा। ऑक्सीजन सेपरेशन यूनिट (एएसयू) से परिसर में ही सिलेंडर की रीफिलिंग का सिस्टम भी लगाया जाएगा। अस्पताल में सेंट्रल सिस्टम से ऑक्सीजन सप्लाई के अतिरिक्त इससे वार्ड में सिलेंडर से भी आपात स्थिति में ऑक्सीजन गैस की आपूर्ति की जा सकेंगी। फिलहाल 400 लीटर प्रति मिनट ऑक्सीजन गैस का उत्सर्जन हो रहा है।

मेडिकल कॉलेज से संबद्ध अस्पताल में बी-ब्लॉक के पीछे 1200 लीटर प्रति मिनिट ऑक्सीजन उत्सर्जन प्लांट का निर्माण शुरू हो गया है। यह काम एनएचडीसी द्वारा सीएसआर (कॉरपोरेट सोशल रिस्पांसिबिलिटी) मद से 1.2 करोड़ रुपए की लागत से कराया जा रहा है। इस प्लांट से मेडिकल ऑक्सीजन का उत्पादन सितंबर में शुरू होगा। इसके साथ ही नर्सिंग हॉस्टल के पास भी डीआरडीओ 1 हजार लीटर प्रति मिनट का ऑक्सीजन एयर सेपरेशन यूनिट बना रहा है। इस प्लांट के बेस का काम चल रहा है।

अगस्त महीने के अंतिम सप्ताह तक प्लांट में मशीन का इंस्टालेशन हो जाएगा। ट्रायल के साथ 15 सितंबर से पहले प्लांट से ऑक्सीजन गैस का उत्पादन शुरू होगा।

ऑक्सीजन गैस की आपूर्ति के लिए लगेगा ऑटोमेटिक सिलेक्शन सिस्टम

प्लांट निर्माण का निरीक्षण करने पहुंचे डीन डॉ. अनंत पवार ने बताया एक महीने के भीतर दोनों ही प्लांट शुरू होने की संभावना है। पहले से 400 एलपीएम का एएसयू चल रहा है। 2600 एलपीएम के एएसयू से 100 बेड पर सेंट्रल सिस्टम से ऑक्सीजन की सप्लाई कर सकेंगे। वार्ड में ऑक्सीजन गैस की आपूर्ति के लिए ऑटोमेटिक सिलेक्शन सिस्टम भी लगाया जाएगा। ताकि वार्ड में एक हजार की आवश्यकता है तो एक ही यूनिट चले और इससे ज्यादा की जरुरत है तो अन्य यूनिट को ऑटोमेटिक चालू किया जा सके।

आइसोलेशन वार्ड में नहीं है एक भी कोरोना पॉजिटव व संदिग्ध मरीज

जिले में कोरोना संक्रमण के बाद 16 महीने में पहली बार ऐसा हुआ जब आइसोलेशन वार्ड में एक भी पॉजिटव व संदिग्ध मरीज भर्ती नहीं है। वार्ड से अंतिम संदिग्ध को 8 अप्रैल को स्वस्थ होने पर डिस्चार्ज किया था। इधर, कोरोना की संभावित तीसरी लहर में इलाज की सुविधाओं को लेकर प्रशासन की तैयारियां लगभग पूरी हैं। आइसोलेशन वार्ड में ऑक्सीजन के 270 और आईसीयू के 90 बेड तैयार हैं। जिले में 11 जून से एक भी कोरोना पॉजिटिव मरीज जांच में नहीं मिला।

मेडिकल कॉलेज डीन डॉ.अनंत पवार ने कॉलेज ईएनटी विशेषज्ञ एवं सहायक संचालक डॉ.सुनील बाजोलिया के साथ इलाज की सुविधाओं का जायजा लिया। ए-ब्लॉक में 60 से बढ़ाकर गंभीर मरीजों के इलाज के लिए 90 बेड का आईसीयू बनाया है। वहीं ऑक्सीजन युक्त 270 बेड तैयार है। जबकि 0 से 14 साल के बच्चों के लिए 20 बेड का पीडियाट्रिक आईसीयू बी-ब्लॉक में बनाया गया है। आइसोलेशन वार्ड में अबतक 3400 से अधिक पॉजिटव व संदिग्ध मरीजों का इलाज करने के बाद डिस्चार्ज किया जा चुका है।

ऑक्सीजन में आत्मनिर्भर होगा अस्पताल

कोरोना संक्रमण की दूसरी लहर में जिस प्रकार से मरीज बढ़े थे, उसे देखते हुए तीसरी लहर में इलाज के लिए सुविधाएं जुटाई जा रही हैं। ऑक्सीजन को लेकर अस्पताल आत्मनिर्भर हो जाएगा। हमारे पर ऑक्सीजन की कमी नहीं रहेगी।

-डॉ.योगेश शर्मा, जिला महामारी विशेषज्ञ

https://www.bhaskar.com/local/mp/khandwa/news/12-crore-rs-from-1200-lit-work-of-oxygen-emission-plant-started-per-minute-refilling-will-also-happen-128843782.html

DRDO on Twitter

IANS Tweets
@ians_india

The Defence Research and Development Organisation (@DRDO_India) has come out with eco-friendly biodegradable bags for laddus at Tirumala temple in Tirupati.

2:12 PM · Aug 22, 2021

ANI @ANI · Aug 23, 2021

Russia | India has pitched its indigenously built fighter aircraft LCA Tejas, Anti Tank Guided Missiles, Arjun Main Battle Tank (MK1A) at the International Military-Technical Forum "Army-2021" in Moscow

ANI @ANI · 8h

We're participating to showcase our export products some of them are Light Combat Aircraft (LCA) Tejas, Airborne Early Warning and Control System (AEW&C): Dr NK Arya, Director, Directorate of Public Interface (DPI) at Defence Research and Development Organisation (DRDO)

Defence News

Defence Strategic: National/International

Press Information Bureau
Government of India

Ministry of Defence

Fri, 20 Aug 2021 4:34PM

Raksha Mantri Shri Rajnath Singh approves proposal to publish relevant details of planned procurements on MoD/Services website

Key Highlights:

- ***Decision to promote 'Ease of Doing Business' & increase transparency in capital acquisition process***
- ***Industry can plan technology tie-ups with OEMs, initiate process to set up production lines & augment capacity***
- ***Details to be published on MoD/Services website within one week of receipt of approvals***
- ***Security aspect to be kept in mind***

The Defence Industry has regularly pitched for providing greater access to the details of procurements planned by Ministry of Defence (MoD) especially with regard to cost, quantity, offsets, trials, transfer of technology etc which are being envisaged at the Acceptance of Necessity (AoN) stage.

To promote 'Ease of Doing Business' and provide more transparency in capital acquisition process, aligning with the aspirations of industry, Raksha Mantri Shri Rajnath Singh has approved a proposal mandating the Service Headquarters to publish the relevant details on the Service Headquarters/MoD website within one week of receipt of approvals. The details shared will be subject to sensitivities keeping the security aspect in mind.

This is an important step towards greater transparency & information symmetry and will provide an opportunity to the additional vendors, who did not respond to the Request for Information (RFI) but wish to express interest for receipt of RFP and submission of bid. This timely visibility will enable the industry to plan technology tie-ups with Original Equipment Manufacturers (OEMs), initiate the process to set up production lines and augment production capacity in anticipation of the orders likely to be placed.

https://pib.gov.in/PressReleasePage.aspx?PRID=1747608

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Fri, 20 Aug 2021 4:34PM

रक्षा मंत्री श्री राजनाथ सिंह ने रक्षा मंत्रालय/सैन्य सेवा वेबसाइट पर नियोजित खरीद के प्रासंगिक विवरण प्रकाशित करने के प्रस्ताव को अनुमति दी

प्रमुख बातें:

- ***'ईज ऑफ डूइंग बिजनेस' को बढ़ावा देने और पूंजी अधिग्रहण प्रक्रिया में पारदर्शिता बढ़ाने का निर्णय***
- ***उद्योग ओईएम के साथ प्रौद्योगिकी गठजोड़ की योजना बना सकता है, उत्पादन लाइनें स्थापित करने और क्षमता बढ़ाने की प्रक्रिया शुरू कर सकता है***
- ***अनुमोदन प्राप्त होने के एक सप्ताह के भीतर रक्षा मंत्रालय/ सेवा वेबसाइट पर विवरण प्रकाशित किया जाएगा***
- ***सुरक्षा पहलू को ध्यान में रखा जाएगा***

रक्षा उद्योग ने विशेष रूप से लागत, मात्रा, ऑफसेट, परीक्षण, प्रौद्योगिकी के हस्तांतरण आदि के संबंध में रक्षा मंत्रालय द्वारा आवश्यकता की स्वीकृति (एओएन) स्टेज पर नियोजित खरीद के विवरण तक अधिक पहुंच प्रदान करने के लिए नियमित रूप से आवाज़ उठाई है।

उद्योग की आकांक्षाओं के अनुरूप, 'ईज ऑफ डूइंग बिजनेस' को बढ़ावा देने और पूंजी अधिग्रहण प्रक्रिया में अधिक पारदर्शिता प्रदान करने के लिए, रक्षा मंत्री श्री राजनाथ सिंह ने अनुमोदन प्राप्त होने के एक सप्ताह के भीतर सेवा मुख्यालय/ एमओडी वेबसाइट पर प्रासंगिक विवरण प्रकाशित करने के लिए सेवा मुख्यालय को अनिवार्य करने के प्रस्ताव को मंजूरी दे दी है। साझा किए गए विवरण सुरक्षा पहलू को ध्यान में रखते हुए संवेदनशीलता के दृष्टिकोण को ध्यान में रखते हुए होंगे।

यह अधिक पारदर्शिता और सूचना समरूपता की दिशा में एक महत्वपूर्ण कदम है और अतिरिक्त विक्रेताओं को एक अवसर प्रदान करेगा, जिन्होंने सूचना के लिए अनुरोध (आरएफआई) का जवाब नहीं दिया लेकिन जो आरएफपी की प्राप्ति और बोली जमा करने के लिए रुचि व्यक्त करना चाहते हैं। वेबसाइट पर समय पर प्रकाशित यह प्रासंगिक विवरण उद्योग को ओरिजिनल इक्विपमेंट मैन्युफैक्चरर्स (ओईएम) के साथ तकनीकी गठजोड़ की योजना बनाने, उत्पादन लाइन स्थापित करने की प्रक्रिया शुरू करने और ऑर्डर दिए जाने के लिहाज से उत्पादन क्षमता बढ़ाने में सक्षम बनाएगी।

https://pib.gov.in/PressReleasePage.aspx?PRID=1747710

Press Information Bureau
Government of India

Ministry of Defence

Sat, 21 Aug 2021 10:02AM

Exercise Konkan 2021

Exercise Konkan 2021 was held between INS Tabar and HMS Westminster on 16 Aug 21 in the English Channel. The exercise included the participation of integral helicopters of the two ships and the Falcon Electronic Warfare aircraft. A wide range of exercises including co-ordinated anti-submarine procedures, firing drills, combined maritime picture compilation, combat formation maneuvering and replenishment at sea were conducted.

These along with the diverse professional engagements held earlier in harbour, have enabled Exercise Konkan 2021 consolidate interoperability and helped cement the strong bonds of friendship the between the two navies.


https://pib.gov.in/PressReleasePage.aspx?PRID=1747741

पत्र सूचना कार्यालय
भारत सरकार

रक्षा मंत्रालय

Sat, 21 Aug 2021 10:02AM

कोंकण अभ्यास 2021

आईएनएस ताबर और एचएमएस वेस्टमिन्स्टर के बीच कोंकण अभ्यास 2021 इंग्लिश चैनल में 16 अगस्त 2021 को आयोजित किया गया। इस नौसैन्य अभ्यास में दोनों पोतों के सभी हेलीकाप्टरों और फाल्कन इलेक्ट्रॉनिक वारफेयर विमानों ने हिस्सा लिया। इस दौरान समन्वित पनडुब्बी रोधी कार्यप्रणालियों, गोलीबारी अभ्यास, संयुक्त समुद्री मानचित्र संकलन, युद्ध विन्यास कौशल और समुद्र में पुनःपूर्ति सहित कई प्रकार के युद्धाभ्यास आयोजित किए गए।

इससे पहले बंदरगाह में आयोजित कई पेशेवर गतिविधियों के साथ-साथ कोंकण अभ्यास 2021 ने आपसी पारस्परिकता को सशक्त किया तथा दोनों देशों की नौसेनाओं के बीच मित्रता के घनिष्ठ संबंधों को और मजबूत करने में सहायता की है।

https://pib.gov.in/PressReleasePage.aspx?PRID=1747809

Press Information Bureau
Government of India

Ministry of Defence

Sun, 22 Aug 2021 12:20AM

Indian Navy Ships Shivalik and Kadmatt arrive at Guam to participate in multilateral Maritime Ex Malabar

Indian Naval Ships Shivalik and Kadmatt arrived at Guam, an Island Territory of the USA on 21 Aug 21 as part of their on-going deployment to nations in South East Asia and the Pacific Ocean. The two ships are scheduled to participate in the annual Exercise MALABAR-21, between navies of Australia, India, Japan and the USA. MALABAR series of maritime exercises commenced in 1992 as a bilateral IN-USN exercise and has grown in stature over the years to include four prominent navies in the Pacific and Indian Ocean Region. As part of the Exercise, Vice Admiral AB Singh, Flag Officer Commanding-in-Chief, Eastern Naval Command will have operational discussions with Rear Admiral Leonard C. "Butch" Dollaga, Commander CTF-74 focussing on developing an action plan and coordinated operations in the maritime domain. Flag Officer Commanding Eastern Fleet, Rear Admiral Tarun Sobti would be embarked onboard INS Shivalik during the conduct of Sea Phase commencing 26 Aug 21.

Exercise MALABAR-21 will be conducted with USN, JMSDF and RAN at sea from 26-29 Aug 21. The exercise will provide an opportunity for common minded navies to enhance inter-operability, gain from best practices and develop a common understanding of procedures for Maritime Security Operations. MALABAR-21 would witness high-tempo exercises conducted between Destroyers', Frigates, Corvettes, Submarines, Helicopters and Long Range Maritime Patrol Aircraft of the participating navies. Complex surface, sub-surface and air operations including Live Weapon Firing Drills, Anti-Surface, Anti-Air and Anti-Submarine Warfare Drills, Joint Manoeuvres and Tactical exercises will be conducted during the exercise. The conduct of these exercises despite COVID restrictions is a testimony of synergy between the participating navies and commitment to safer seas.

The participating Indian Ships Shivalik and Kadmatt are the latest indigenously designed and built, multi-role Guided Missile Stealth Frigate and Anti-Submarine Corvette respectively and form part of the Indian Navy's Eastern Fleet based at Visakhapatnam, Eastern Naval Command. INS Shivalik is commanded by Captain Kapil Mehta whilst INS Kadmatt is commanded by Commander RK Maharana. The two ships are equipped with a versatile array of weapons and sensors, can carry multi-role helicopters and represent the growth of India's warship building capabilities.

https://pib.gov.in/PressReleasePage.aspx?PRID=1747992

Business Standard

Sun, 22 Aug 2021

Three service Chiefs visit alma mater National Defence Academy

Earlier, it was only in 1991 that all three service chiefs were course-mates from the first NDA (erstwhile Joint Services Wing) course

The three chiefs of the Indian Army, Navy, and Air Force visited their alma mater the National Defence Academy (NDA) at Khadakwasla here in Maharashtra and reviewed the available training and administrative infrastructure, a defence release said on Saturday.

The two-day visit (August 20 and 21) of Admiral Karambir Singh, Chief of the Naval Staff, Air Chief Marshal Rakesh Kumar Singh Bhadauria, Chief of the Air Staff, and General MM Naravane, Chief of the Army Staff, marks a "historical moment" for this prestigious tri-Service training academy as all three service chiefs are course-mates from the 56th course of the NDA, which is rare and unique, it said.

Earlier, it was only in 1991 that all three service chiefs were course-mates from the first NDA (erstwhile Joint Services Wing) course.

"The very idea and thought of them visiting their alma-mater together not only reaffirms the eternity of the bonds of camaraderie imbibed in the academy but also signifies the spirit of 'jointmanship' which this tri-service training institution stands for," the release read.

Speaking on behalf of the three chiefs on this occasion, Admiral Singh dwelled upon the emerging trends of modern warfare, it said.

He also exhorted the cadets to imbibe the basic tenets of modern military leadership.

The three chiefs reviewed the ongoing training of cadets and the available training and administrative infrastructure of the NDA.

During their visit, the chiefs paid homage at the 'Hut of Remembrance', which commemorates the sacrifice of ex-NDA officers of Armed Forces who laid down their lives in the line of duty. The service chiefs also visited their parent squadrons 'Hunter' (Naval Chief) & 'Lima' (Army & Air Chiefs), and interacted with the cadets of the respective squadrons, according to the release.

Notably, the Supreme Court on Wednesday allowed eligible women to take the examination for admission to the NDA scheduled to be held on September 5.

The top court, however, said that the women candidates can take the examination subject to further orders of the court.

(Only the headline and picture of this report may have been reworked by the Business Standard staff; the rest of the content is auto-generated from a syndicated feed.)

https://www.business-standard.com/article/current-affairs/three-service-chiefs-visit-alma-mater-national-defence-academy-121082100656_1.html

FINANCIAL EXPRESS
Read to Lead

Mon, 23 Aug 2021

Russia offers latest small arms and light weapons for the Indian Army

In total, representatives of around 150 countries invited through the Ministry of Defense of Russia, the Federal Service for Military-Technical Cooperation of Russia and the Rostec State Corporation are also taking part in the expo

By Huma Siddiqui

Ahead of the inauguration of the Army 2021 Expo in Moscow on Sunday, Rosoboronexport JSC expressed its readiness to offer to India the whole range of small arms and light weapons, including assault rifles, machine guns, sniper rifles, submachine guns, pistols, grenade launchers etc.

We are ready to demonstrate the above-mentioned weapons to our Indian partners, launch deliveries, and conduct joint works to establish licensed manufacturing," a Rosoboronexport official dealing with the media confirmed to Financial Express Online on Sunday. (Photos Credit: Rosoboronexport)

What new technologies is Russia ready to offer to the Indian Army which will help to modernize its infantry arm?

"All what is being offered to India have been tested and are known for their reliability, and lots of these weapons have proven their effectiveness in real combat use. Russia has also developed technical means to train small arms use, which can be integrated into a joint virtual environment to conduct full-scale training sessions.

We are ready to demonstrate the above-mentioned weapons to our Indian partners, launch deliveries, and conduct joint works to establish licensed manufacturing," a Rosoboronexport official dealing with the media confirmed to Financial Express Online on Sunday.

The official who wished to remain anonymous said, "Russia and India previously signed an intergovernmental agreement (IGA) to set up the Indo-Russian Rifles Private Ltd. Company to manufacture Kalashnikov AK203 assault rifles. The capacity of the Korwa-based enterprise is sufficient to arm the personnel of all the uniformed services of India."

How much will be the local content?

"Should it become necessary, both sides are ready to increase the output of production and upgrade to manufacture future models which are based on the Kalashnikov rifle's unique design. And, under India's Atmanirbhar initiative, the 100 per cent localization of the manufacturing processes is envisaged," he added.

Army 2021 in Moscow

Rosoboronexport JSC (part of the Rostec State Corporation) is likely to conclude several contracts with foreign customers at this expo. This expo is starting today August 22 and will go on up to August 28, 2021 on the premises of Patriot Congress and Exhibition Center of the Armed Forces of the Russian Federation.

According to Alexander Mikheev, Director General of Rosoboronexport, "The Army Forum is the main platform. And it enables Rosoboronexport to demonstrate the widest range of Russian products for the Special Forces and police units to foreign customers. And also for different branches of the armed forces and all services."

According to the company's media statement, there will be more than 800 members of 35 foreign delegations. Out of the 35 foreign delegations around 17 will be headed by their defence

ministers, and their deputies. There will be senior officials from Russia's partner countries who have been invited by the company.

In total, representatives of around 150 countries invited through the Ministry of Defense of Russia, the Federal Service for Military-Technical Cooperation of Russia and the Rostec State Corporation are also taking part in the expo.

On display will be equipment and weapons for the first time will be naval equipment. A special cluster has been created for the demonstration of naval equipment. Also on display will be dual use platforms and equipment, and aircraft, air defence and electronic warfare assets, as well precision guided weapons for the land forces.

For the first time the newest T-14 Armata tank, combat vehicles based on the Boomerang combat platform will be displayed. And, the Orion-E reconnaissance/strike UAV, which is the star of this year, the Antey-4000 battlefield anti-aircraft missile system designed to equip the land forces, and the Pantsir-S1M air defense gun/missile system are being displayed. "There are going to be the fifth-generation Su-57 fighter, helicopters, the BK-16 high-speed landing boat, and the latest small arms," added Alexander Mikheev.

What will be of interest for the Indian Army during the expo will be small arms. This includes Kalashnikov AK-100 series, AK-200 series, AK-12, AK-15 and AK-19 assault rifles. On display will also be KORD assault rifles, sniper rifles and machine guns which are being manufactured by the Kalashnikov Concern and the Degtyarev Plant, which are part of the Rostec State Corporation.

On display are equipment and gear for Special Forces and security agencies. The Dominator, Sumrak (Twilight) sniper rifles, Lobaev Arms Volkodav (Wolfhound) will be on display.

https://www.financialexpress.com/defence/russia-offers-latest-small-arms-and-light-weapons-for-the-indian-army/2315393/

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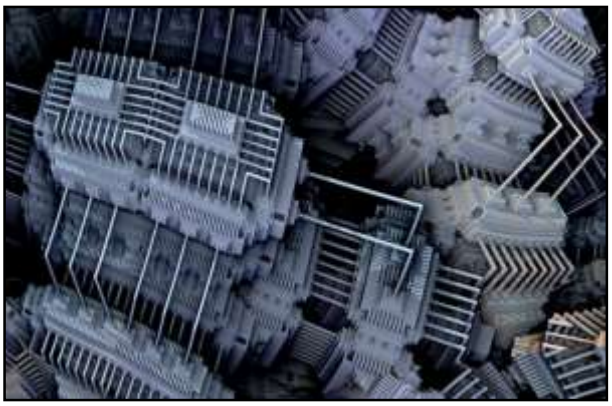
Sat, 21 Aug 2021

Researchers open a path toward quantum computing in real-world conditions

By Karen Walker

The quantum computing market is projected to reach $65 billion by 2030, a hot topic for investors and scientists alike because of its potential to solve incomprehensibly complex problems.

Drug discovery is one example. To understand drug interactions, a pharmaceutical company might want to simulate the interaction of two molecules. The challenge is that each molecule is composed of a few hundred atoms, and scientists must model all the ways in which these atoms might array themselves when their respective molecules are introduced. The number of possible configurations is infinite—more than the number of atoms in the entire universe. Only a quantum computer can represent, much less solve, such an expansive, dynamic data problem.



Credit: CC0 Public Domain

Mainstream use of quantum computing remains decades away, while research teams in universities and private industry across the globe work on different dimensions of the technology.

A research team led by Xu Yi, assistant professor of electrical and computer engineering at the University of Virginia School of Engineering and Applied Science, has carved a niche in the physics and applications of photonic devices, which detect and shape light for a wide range of uses including communications and computing. His research group has created a scalable quantum computing platform, which drastically reduces the number of devices needed to achieve quantum speed, on a photonic chip the size of a penny.

Olivier Pfister, professor of quantum optics and quantum information at UVA, and Hansuek Lee, assistant professor at the Korean Advanced Institute of Science and Technology, contributed to this success.

Nature Communications recently published the team's experimental results, A Squeezed Quantum Microcomb on a Chip. Two of Yi's group members, Zijiao Yang, a Ph.D. student in physics, and Mandana Jahanbozorgi, a Ph.D. student of electrical and computer engineering, are the paper's co-first authors. A grant from the National Science Foundation's Engineering Quantum Integrated Platforms for Quantum Communication program supports this research.

Quantum computing promises an entirely new way of processing information. Your desktop or laptop computer processes information in long strings of bits. A bit can hold only one of two values: zero or one. Quantum computers process information in parallel, which means they don't have to wait for one sequence of information to be processed before they can compute more. Their unit of information is called a qubit, a hybrid that can be one and zero at the same time. A quantum mode, or qumode, spans the full spectrum of variables between one and zero—the values to the right of the decimal point.

Researchers are working on different approaches to efficiently produce the enormous number of qumodes needed to achieve quantum speeds.

Yi's photonics-based approach is attractive because a field of light is also full spectrum; each light wave in the spectrum has the potential to become a quantum unit. Yi hypothesized that by entangling fields of light, the light would achieve a quantum state.

You are likely familiar with the optical fibers that deliver information through the internet. Within each optical fiber, lasers of many different colors are used in parallel, a phenomenon called multiplexing. Yi carried the multiplexing concept into the quantum realm.

Micro is key to his team's success. UVA is a pioneer and a leader in the use of optical multiplexing to create a scalable quantum computing platform. In 2014, Pfister's group succeeded in generating more than 3,000 quantum modes in a bulk optical system. However, using this many quantum modes requires a large footprint to contain the thousands of mirrors, lenses and other components that would be needed to run an algorithm and perform other operations.

"The future of the field is integrated quantum optics," Pfister said. "Only by transferring quantum optics experiments from protected optics labs to field-compatible photonic chips will *bona fide* quantum technology be able to see the light of day. We are extremely fortunate to have been able to attract to UVA a world expert in quantum photonics such as Xu Yi, and I'm very excited by the perspectives these new results open to us."

Yi's group created a quantum source in an optical microresonator a ring-shaped, millimeter-sized structure that envelopes the photons and generates a microcobe, a device that efficiently converts photons from single to multiple wavelengths. Light circulates around the ring to build up optical power. This power buildup enhances chances for photons to interact, which produces quantum entanglement between fields of light in the microcomb.

Through multiplexing, Yi's team verified the generation of 40 qumodes from a single microresonator on a chip, proving that multiplexing of quantum modes can work in integrated photonic platforms. This is just the number they are able to measure.

"We estimate that when we optimize the system, we can generate thousands of qumodes from a single device," Yi said.

Yi's multiplexing technique opens a path toward quantum computing for real-world conditions, where errors are inevitable. This is true even in classical computers. But quantum states are much more fragile than classical states.

The number of qubits needed to compensate for errors could exceed one million, with a proportionate increase in the number of devices. Multiplexing reduces the number of devices needed by two or three orders of magnitude.

Yi's photonics-based system offers two additional advantages in the quantum computing quest. Quantum computing platforms that use superconducting electronic circuits require cooling to cryogenic temperatures. Because the photon has no mass, quantum computers with photonic integrated chips can run or sleep at room temperature. Additionally, Lee fabricated the microresonator on a silicon chip using standard lithography techniques. This is important because it implies the resonator or quantum source can be mass-produced.

"We are proud to push the frontiers of engineering in quantum computing and accelerate the transition from bulk optics to integrated photonics," Yi said. "We will continue to explore ways to integrate devices and circuits in a photonics-based quantum computing platform and optimize its performance."

More information: Zijiao Yang et al, A squeezed quantum microcomb on a chip, *Nature Communications* (2021). DOI: 10.1038/s41467-021-25054-z

Journal information: *Nature Communications*

https://phys.org/news/2021-08-path-quantum-real-world-conditions.html

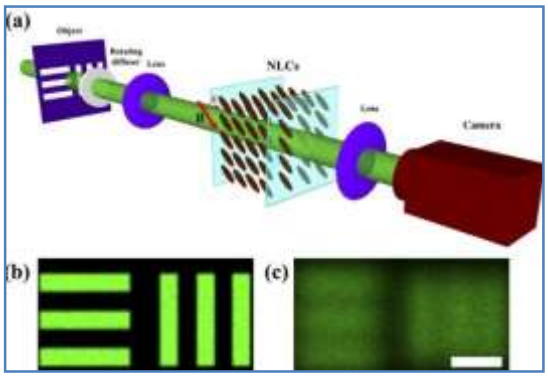
Sat, 21 Aug 2021

Although counter-intuitive, noise can help image reconstruction

By Zhang Nannan

People are always eager to obtain clear imaging results through some turbid media, so a variety of methods have been developed to filter out noise and strive to improve the quality of imaging, as if noise is born as the evilest enemy.

However, there is always a gap between intuition and truth. In some cases, noise does not degrade the image quality, rather can be used to improve it. For example, the stochastic resonance (SR) method is proved effective to recover the noise-hidden images.



(a). The coherent image of a resolution chart is scattered by a rotating diffuser, and then the diffusive image is sent onto bulk NLCs. Nonlinear output from the NLCs is imaged onto a camera; (b). Coherent image; (c). diffusive image. Credit: XIOPM

A team led by Prof. Liu Hongjun from the Xi'an Institute of Optics and Precision Mechanics (XIOPM) of the Chinese Academy of Sciences (CAS) demonstrated a SR-based image reconstruction via magneto-optical molecular reorientation in bulk Nematic Liquid Crystals (NLCs) theoretically, which was made of affordable functional materials without dimensional restriction. Result was published in *Optics Express*.

In their research, the diffusive images were effectively recovered by reasonably optimizing the input light intensity, the magnetic field direction, and the correlation length.

According to the researchers, the secret of using noise to enhance the quality of image reconstruction is that the underlying signals are reinforced by coupling with scattering noise under reorientation-induced self-focusing nonlinearity, where noise plays a positive role. However, incoherent modulation instability occurs and the enhancement process of signals is destroyed under strong self-focusing nonlinearity.

They also studied the quality of image reconstruction with different magnetic field angles. The gain curve versus the magnetic field angle first increases, and then decreases. The NLCs have the maximum reorientation response to the light field at the angle of about 50 degrees.

These results suggest a potential method to recover the noisy images and promote the application of NLCs in the area of image processing.

More information: Yongbin Zhang et al, Magneto-optically reorientation-induced image reconstruction in bulk nematic liquid crystals, *Optics Express* (2021). DOI: 10.1364/OE.425642

Journal information: *Optics Express*

https://phys.org/news/2021-08-counter-intuitive-noise-image-reconstruction.html

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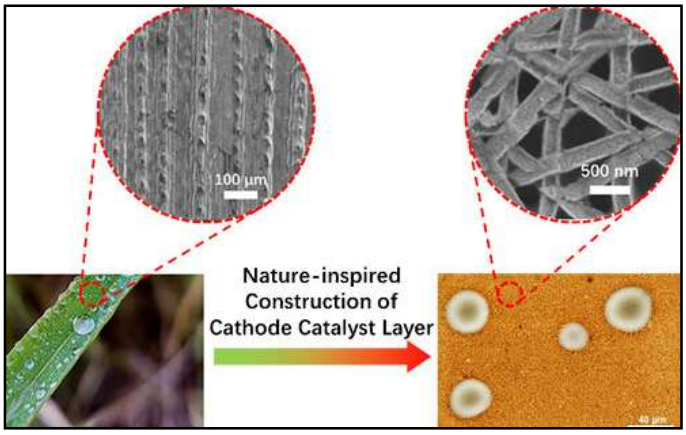
Sat, 21 Aug 2021

Highly durable biomimetic nanotrough electrodes for proton exchange membrane fuel cells

By Li Yuan

Membrane electrode assembly is the core part of proton exchange membrane fuel cells (PEMFCs). However, the high consumption of platinum and poor durability of carbon supported platinum nanoparticles (Pt/C) in the conventional cathode prohibit the large-scale commercialization of fuel cell vehicles.



Nature-inspired design and construction of Pt nanotrough electrode. Credit: QI Manman and ZENG Yachao

Recently, a group led by Prof. Shao Zhigang and Hou Ming from the Dalian Institute of Chemical Physics (DICP) of the Chinese Academy of Sciences (CAS), in collaboration with Prof. Wu Gang from the State University of New York at Buffalo, designed a highly-durable biomimetic nanotrough electrode for PEMFCs. The electrode is a nanotrough-like catalyst layer (NTCL) with low Pt loading and enhanced durability.

This study was published in *Applied Catalysis B: Environmental* on July 1.

The researchers adopted a facile template-assisted method to construct the nanotrough catalyst layer by electrospinning and magnetron sputtering.

They observed the water in-situ formed on the Pt nanotrough electrode and conventional Pt/C electrode by the environmental scanning electron microscopy (ESEM), which verified a similar water repelling mechanism of the Pt nanotrough electrode with gramineous plants.

The Pt nanotrough catalyst layer realized effective water management due to the biomimetic architecture and anisotropic surface.

"We achieved a peak power density of 22.26 W $mgPt^{-1}$ with a platinum loading of 42 μg cm^{-2} in the cathode, which was 1.27-fold higher than the conventional Pt/C electrode," said Prof. HOU.

Furthermore, they achieved ultrahigh durability in the accelerated stress tests. "This may be attributed to a self-healing mechanism that involves Pt dissolution and re-deposition," said Prof. SHAO.

More information: Manman Qi et al, Free-standing and ionomer-free 3D platinum nanotrough fiber network electrode for proton exchange membrane fuel cells, *Applied Catalysis B: Environmental* (2021). DOI: 10.1016/j.apcatb.2021.120504

https://phys.org/news/2021-08-highly-durable-biomimetic-nanotrough-electrodes.html

ScienceDaily

Sat, 21 Aug 2021

Anticoagulants help moderately ill COVID-19 patients, study finds

Summary:
Moderately ill patients hospitalized with COVID-19 have better chances of survival if treated with therapeutic-dose anticoagulation, according to a new study.

Moderately ill patients hospitalized with COVID-19 have better chances of survival if treated with therapeutic-dose anticoagulation, according to an international study involving 121 sites, including UT Southwestern Medical Center.

Moderately ill COVID-19 patients treated with therapeutic-dose anticoagulation with unfractionated or low molecular-weight heparin were 27% less likely to need cardiovascular respiratory organ support such as intubation, said Ambarish Pandey, M.D., Assistant Professor of Internal Medicine at UT Southwestern, who served as site investigator and co-author of the study reported in *The New England Journal of Medicine*. Moderately ill patients had a 4% increased chance of survival until discharge without requiring organ support with anticoagulants, according to the study involving 2,200 patients.

"The 4% increase in survival to discharge without needing organ support represents a very meaningful clinical improvement in these patients," said Dr. Pandey, a Texas Health Resources Clinical Scholar who specializes in preventive cardiology and heart failure with preserved ejection fraction. "If we treat 1,000 patients who are hospitalized with COVID-19 with moderate illness, an additional 40 patients would have meaningful improvement in clinical status."

Participating platforms for the study, which defined moderately ill patients as those who did not need intensive care unit-level support, included Antithrombotic Therapy to Ameliorate Complications of COVID-19 (ATTACC); A Multicenter, Adaptive, Randomized Controlled Platform Trial of the Safety and Efficacy of Antithrombotic Strategies in Hospitalized Adults with COVID-19 (ACTIV-4a); and Randomized, Embedded, Multifactorial Adaptive Platform Trial for Community-Acquired Pneumonia (REMAP-CAP). Comparisons between the three platforms are provided in the supplementary appendix, available with the full text of the article at NEJM.org.

A parallel study in *The New England Journal of Medicine* found that therapeutic-dose anticoagulation did not help severely ill patients.

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2. The REMAP-CAP, ACTIV-4a, and ATTACC Investigators. **Therapeutic Anticoagulation with Heparin in Critically Ill Patients with Covid-19**. *The New England Journal of Medicine*, Aug. 4, 2021; DOI: 10.1056/NEJMoa2103417

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